Happy Parents, Happy Kids?

A longitudinal study on the interparental relationship, child development, and parental functioning

Willemijn van Eldik

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Colophon:

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Gelukkige ouders, gelukkige kinderen?
Een longitudinaal onderzoek naar de ouderlijke partnerrelatie, probleemgedrag van kinderen, en het ouderlijk functioneren

Proefschrift

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If the family were a fruit, it would be an orange, a circle of sections,
held together but separable - each segment distinct.

Letty Cottin Pogrebin

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Chapter 1

General Introduction

Within the family system, the romantic relationship is the first to form when two adults get intimately involved with each other. When a child enters their lives, this adult romantic relationship can be referred to as the interparental relationship. Family systems theorists (Cox & Paley, 1997, 2003; Minuchin, 1985), as well as other family researchers (Belsky & Jaffee, 2006; Davies & Cummings, 1994; Grych & Fincham, 1990) have emphasized the central role of the interparental relationship in family life and the interparental relationship as one of the most important proximal contexts in which children grow up. Problems in the interparental relationship have been theorized to be directly related to children's developmental outcomes, by forming a source of stress for children and challenging their capacity to regulate their emotional state (Katz & Gottmann, 1991), by modeling them with faulty working models of dealing with social problems (Fincham et al., 1994), by disrupting children's emotional security in the interparental subsystem (Davies & Cummings, 1994), and by shaping children's cognitive appraisals (Grych & Fincham, 1990). A large body of empirical findings have backed-up these theoretical expectations, showing that the interparental relationship is associated with a wide variety of children's developmental outcomes (e.g., Buehler, 1997; Davies & Cummings, 2016; Harold & Sellers, 2018; Jouriles et al., 2016; Kerig, 2019), and to an even stronger extent than parental divorce (Amato, 2010).

Moving beyond the general importance of the interparental relationship for children's development, however, still relatively less is known about *which* dimensions of the interparental relationship can be distinguished and considered most important for children's (mal)adjustment and *how* the interparental relationship and children's (mal)adjustment are reciprocally related, *why* the interparental relationship and children's maladjustment are related, and for *which children* the interparental relationship matters most. Moreover, regarding the interparental relationship and parental functioning, relatively less is known about the mediational role of the interparental relationship in associations between parental characteristics and parenting behavior. Addressing these important theoretical and empirical gaps, the overall aim of the current dissertation was to enhance knowledge about how (specific dimensions of) the interparental relationship is related to children's (mal)adjustment and parenting behavior over time, and how the interparental relationship is affected by parental characteristics. Hereto, we conducted a conceptual review and meta-analysis and conducted four longitudinal studies that included both mothers and fathers and applied innovative analytical models to capture reciprocal associations, between-family differences in intra-familial changes, and within-family change processes over time. Together, the chapters in this dissertation provide a systematic and developmental perspective on the interparental

relationship, family functioning and children's (mal)adjustment (see Figure 1 and Table 1 for an overview of this dissertation). To address the overarching aim, the following five interrelated research questions were formulated:

RQ 1: Which dimensions can be distinguished in the concept *the interparental relationship?*

RQ 2: a) Are some dimensions of the interparental relationship more strongly associated with children's (mal)adjustment, and, b) is the interparental relationship (reciprocally) related to children's (mal)adjustment over time?

RQ 3: Do parental self-efficacy (parent-factor) and adolescents' emotional insecurity (child-factor) explain associations between the interparental relationship and children's (mal)adjustment over time (i.e., *mediation*)?

RQ 4: Do children's age, gender, and Big Five personality traits affect the strength of associations between the interparental relationship and children's (mal)adjustment (i.e., *moderation*)?

RQ 5: Does the interparental relationship explain (*mediate*) associations between parental characteristics (Big Five personality traits and depressive symptoms) and parenting behavior (warmth, autonomy-support, overreactive discipline)?

An overall conceptual model with the five research questions is presented in Figure 1. The present chapter introduces these five research questions into more detail, with emphasis on the theoretical frameworks guiding the research questions that tackle previously unaddressed issues.

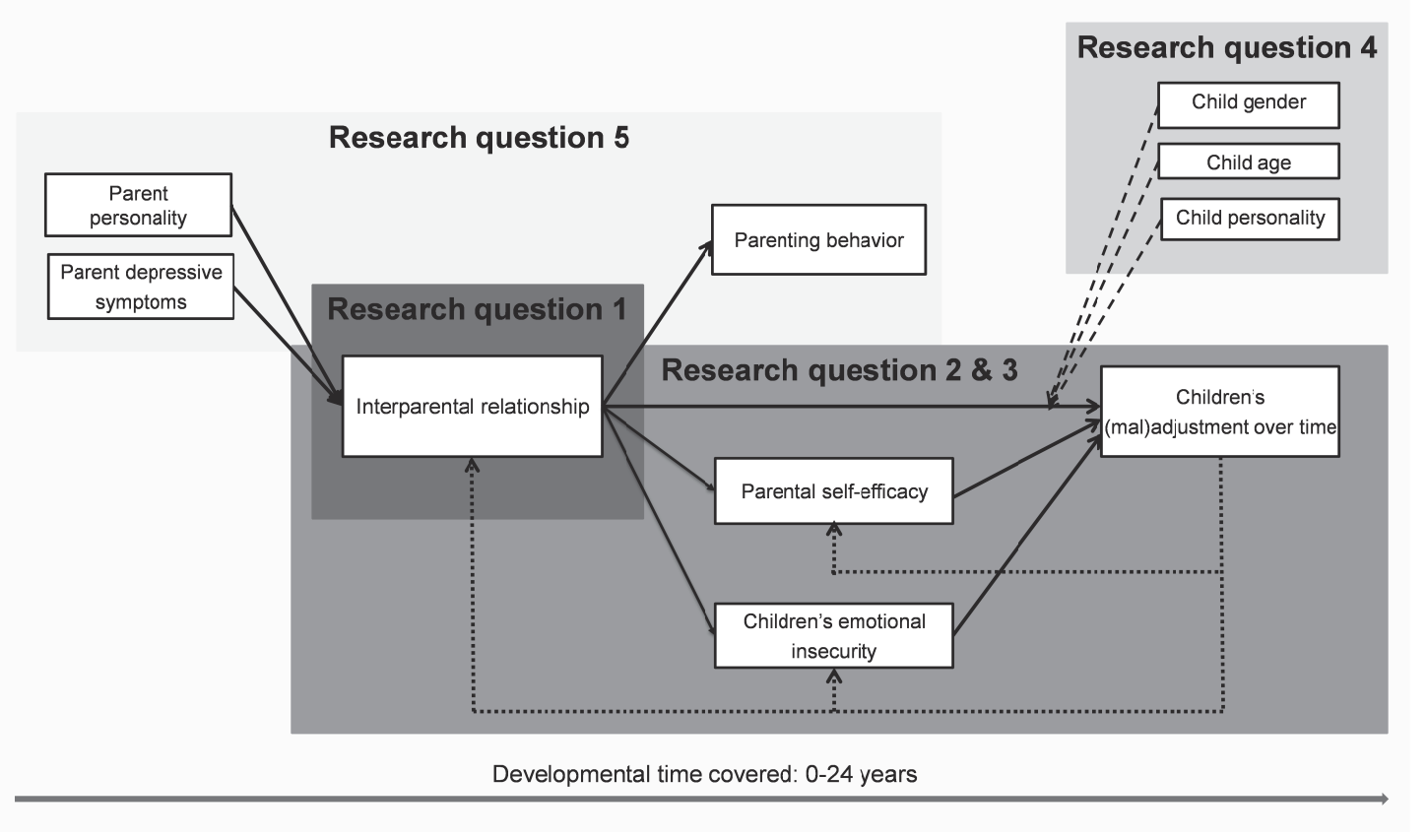

Figure 1. Conceptual overview of the dissertation and research questions.

1. The conceptualization of the interparental relationship

For a long time, empirical research studied the interparental relationship under the one umbrella-term of *marital discord* (Straus, 1976). Since a few decades, the field of research moved forwards by addressing the multi-dimensionality of the interparental relationship and distinguishing between a) overall relationship adjustment on the one hand and interparental conflict one the other hand and b) the conceptual confusion and multidimensionality of both relationship adjustment and conflicts themselves (Davies & Cummings, 1994; Fincham & Rogge, 2010; Grych & Fincham, 1990; Kerig, 1991; Knapp, 2010). However, even now the empirical field accounts for a wide variety of terminology signaling that, yet, there is no common consensus on *how many* or *which* dimensions should be distinguished with regard to the interparental relationship.

An additional problem underlying this wide variety of terminology is the fact that prevailing operationalizations and measurements of the interparental relationship often fail to match the proposed concept. Such misalignment is referred to as the jingle-jangle fallacy (Marsh, 1994) and means that scales with the same concept name measure different concepts (jingle; Thorndike, 1904) and scales referred to with different names assess similar constructs (jangle; Kelley, 1927). Because conceptual confusion is considered one of the largest enemies of scientific progress, the field has to move forward in reaching more consensus about the dimensions of the interparental relationship and reaching alignment between conceptual definitions and assessment procedures.

One unified and clear conceptualization and aligned assessments would foster the understanding and quantification of associations between the interparental relationship and children's (mal)adjustment. To contribute to the resolution of the conceptual confusion and jingle-jangle fallacy, the first sub-aim of this dissertation was *to propose such a unified conceptualization of the interparental relationship*. To this end, we examine how the wide variety of terms for the interparental relationship that are used in the literature can be categorized and investigate important inconsistencies in the alignment between concept terms, definitions, and measurements (see Figure 1.1).

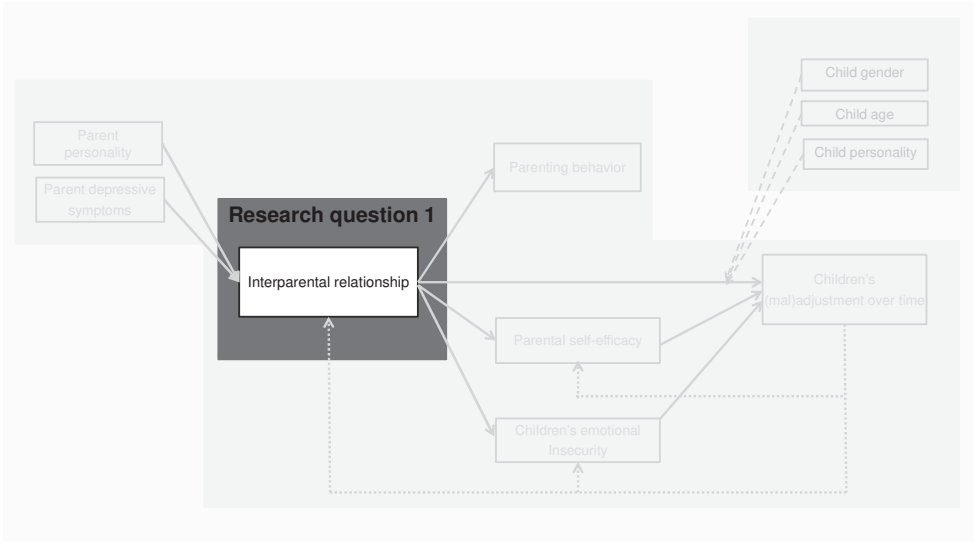

Figure 1.1. The conceptualization of the interparental relationship and (mis)alignment between concepts and measurements (Chapter 2).

2. Concurrent and longitudinal associations between the interparental relationship and children's (mal)adjustment

The second research question of this dissertation concerns the direct link between the interparental relationship and children's (mal)adjustment. We aim to elucidate 1) whether some key dimensions of the interparental relationship are more strongly associated with children's problem behavior than others differentially associated with, and (2) *how* the interparental relationship and children (mal)adjustment are reciprocally related over time (i.e., direction of effects and co-development). In addition, we investigated (3) to what extent the interparental relationship continues to be important for (mal)adjustment into emerging adulthood (see Figure 1.2).

2.1 Are some dimensions of the interparental relationship more strongly associated with children's (mal)adjustment?

Almost three decades ago, two theoretical models have been developed to describe more precisely the association between interparental conflict and children's (mal)adjustment, proposing underlying processes that may explain this association (Davies & Cummings, 1994; Grych & Fincham, 1990). These models addressed the multidimensionality of interparental conflict and proposed specific hypotheses regarding which dimensions of

interparental conflict may account for associations with children's (mal)adjustment (e.g., frequency, form of conflict, content of conflict). Importantly, these models made an explicit distinction between global relationship adjustment (i.e., overall relationship quality, distress, happiness and interaction patterns; see e.g., Fincham & Rogge, 2010) and interparental conflicts. This was guided by the idea that interparental conflict is a better predictor of children's (mal)adjustment than the more global assessment of quality of interparental relationships (Davies & Cummings, 1994). Guided by these theoretical models, empirical research had to opportunity to, examine more specific dimensions of the interparental relationship and conflicts in relation to children's development in a more structured framework (e.g., Davies, Martin, & Cicchetti, 2012; Kerig, 1996; Pendry, Carr, Papp, & Antles, 2013; for a review see Harold & Sellers, 2018).

To date, however, no empirical review and integration of the large body of research on associations between specific key dimensions of the interparental relationship and different forms of children's (mal)adjustment has been done, leaving an fundamental question unanswered: *which dimensions of the interparental relationship matter most for children's (mal)adjustment?* In other words, multiple hypotheses about what aspects of the interparental relationship may account for associations with children's (mal)adjustment remain to be tested. For example, is interparental conflict more strongly associated with children's (mal)adjustment than general relationship adjustment? And, do the frequency, form, and content of conflict matter to similar extents? A prior effort to address these questions was conducted by Buehler and colleagues (1997). At that time, the researchers pointed out that although they were able to discriminate conflict frequency and some conflict styles, literature on other aspects than hostile conflict behavior was rather limited and even too limited for some types of conflict behavior (e.g., constructive) to be included. Now, more than two decades later, the abundance of empirical studies provides an excellent opportunity to build on this previous effort and answer these fundamental questions empirically. Therefore, to address the current gaps in the understanding of which aspects matter most for children's (mal)adjustment and help further direct empirical research, the second sub-aim of this dissertation is to empirically integrate research on associations between the interparental relationship and children's (mal)adjustment using meta-analytic techniques. Hereby, we will precisely distinguishes between the different key dimensions of the interparental relationship and include two types of problem behavior exhibited by children (i.e., externalizing and internalizing behavior) (Chapter 2, see Figure 1.2). Additionally, we examine to what extent these associations depend on sample characteristics (e.g., socioeconomic status, ethnicity,

family composition) and methodological study characteristics (e.g., informant, instrument, time interval).

2.2 Association between interparental relationship and children's (mal) adjustment: parent-driven or child-driven effects?

Multiple theoretical perspectives describe children as active agents in their own development (Cicchetti & Toth, 2009; Cox & Paley, 1997; Bell, 1968; Thomas, Chess, Birch, Hertzig, & Korn, 1963; Sameroff & MacKenzie, 2003). This means that children are no passive recipients of their environmental experiences and influences, they also shape the environment they are exposed to. Hence, in addition to parent-driven effects in which the interparental relationship is related to the *later* (mal)adjustment of children, child-driven effects can be expected in which children's (mal)adjustment is related to subsequent levels of interparental relationship adjustment and conflicts. It is, however, unknown *to what extent associations between the interparental relationship and children's mal(adjustment) can be better characterized by parent-driven or child-driven effects* (Cui, Donnelan, & Conger, 2007; Jenkins, Simpson, Dunn, Rasbash, & O'Connor, 2005).

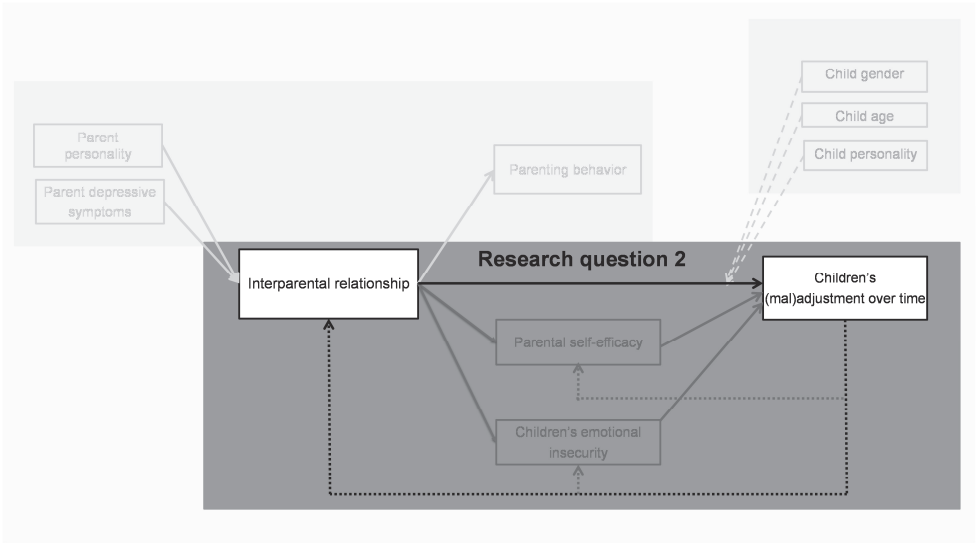

Figure 1.2. Meta-analytic associations between multiple dimensions of the interparental relationship and children's (mal)adjustment (Chapter 2); Parent-driven and child-driven effects (Chapter 3 and 4); Codevelopment between interparental relationship adjustment and children's externalizing behavior (Chapter 3); and prospective associations between interparental relationship adjustment and (mal)adjustment into emerging adulthood (Chapter 5).

Therefore, the third sub-aim of this dissertation is to test the theoretical idea of reciprocity between the interparental relationship and children's problem behavior (see Figure 1.2). In Chapter 3, we examine whether, on average, children showed more problem behavior when parents had a lower relationship adjustment (i.e., low spousal support, cohesion and intimacy and high disagreement; i.e., parent-driven), and, whether parents had a lower relationship adjustment when children exhibited more externalizing problem behavior (i.e., child-driven) (i.e., by conducting a cross-lagged panel model; Preacher et al., 2015; Usami, 2019). In Chapter 4, we investigate direction of effects between two forms of interparental destructive conflict behavior (hostility and disengaged behavior) and adolescents' externalizing and internalizing problem behavior across three years (i.e., cross-lagged panel model; Preacher et al., 2015; Usami, 2019). In addition, in Chapter 4 we investigate whether, taking into account that families have a somewhat stable level of functioning, changes in interparental conflict behavior and children's problem behavior were reciprocally related *within families* (i.e., random-intercept cross-lagged panel model; Hamaker et al., 2015).

2.3 Do interparental relationship adjustment and children's (mal) adjustment co-develop?

Another way to conceptualize the reciprocal nature of associations between the interparental relationship and children's (mal)adjustment, is as co-developing over time. That is, in addition to both having the potential to affect each other over time, both the interparental relationship and children's (mal)adjustment are known to be no static entities and to change over time. This adds up in the theoretical assertion family systems theorists have described as "*individual family members are […] exerting a continuous and reciprocal influence on one another*" (Cox & Paley, 1997, p. 246) or, the transactional model proposed by developmental psychopathologists in which "*the development of a child is viewed a product of the continuous dynamic interactions of the child and the experience provided by his or her family*" (Sameroff & MacKenzie, 2003, p. 614).

A question remains, however: do *interparental relationship adjustment and children's (mal)adjustment co-develop over time?* Longitudinal data and innovative statistical techniques are necessary to test such a hypothesis. In the current dissertation, the fourth sub-aim was to contribute to the knowledge about co-development between the interparental relationship and children's (mal)adjustment. We reach this aim by examining whether changes in interparental relationship adjustment and changes in children's externalizing

problem behavior across eight years are interrelated, using a bivariate latent change model (Curran & Bauer, 2011) (Chapter 3, see Figure 1.2).

2.4 Does the adjustment of interparental relationship continue to be important for children's (mal)adjustment into emerging adulthood?

In comparison to the amount of empirical work focusing on childhood and adolescence, relatively less is known about the extent to which the interparental relationship continues to be an important source for (mal)adjustment that extends into emerging adulthood. During this transitional period, family relationships remain critical and predictive of psychological adjustment (Lucas-Thompson 2013; Hayatbakhsh, 2013), and negotiating family relationship is key. Emerging adults may feel they are "in-between" adolescence and adulthood, focused on a gradual process of becoming independent, yet in close contact and relying on their parents and family context (Arnett et al., 2014).

In line with the aim of the current dissertation to study associations between the interparental relationship and children's (mal)adjustment over time, the fifth sub-aim of this dissertation is to address the gap with regard to this less studied developmental period, by examining prospective associations between interparental relationship adjustment (at 16 years old) and (mal)adaptive functioning six years later in emerging adulthood (i.e., externalizing problem behavior, internalizing problem behavior, general self-efficacy, and romantic satisfaction) (Chapter 5). In addition to externalizing and internalizing problem behavior, general self-efficacy and romantic experiences are both importantly predictors of psychosocial well-being in young adulthood (Davila, Capaldi, & La Greca, 2016; Li, Eschenauer, & Persaud, 2017).

3. Explaining associations between the interparental relationship and children's (mal)adjustment: Parental self-efficacy and adolescent's emotional insecurity

An important next step in understanding the association between the interparental relationship and children's (mal)adjustment is the investigation of factors that may account for this association. In the current dissertation, the sixth sub-aim is to contribute to knowledge about underlying explanatory factors by investigating the mediational role of a parent-factor (i.e., parental self-efficacy) and a child-factor (i.e., emotional insecurity) that have shown to play an important role in family functioning.

Parental self-efficacy is a specific case of the more general construct of self-efficacy, and can be defined as the expectation caregivers hold about their ability to parent successfully (Bandura, 1977; Bornstein, 2019). These beliefs parents hold about themselves are proposed to play an important and transactional role in family life (Bandura, 1977; Coleman & Karraker, 1998; Jones & Prinz, 2005), and are shown to be associated with the interparental relationship, parenting behavior, and child functioning (Bornstein, 2019; Kwan, Kwok, & Ling, 2015; Rochlen, McKelley, Suizzo, & Scaringi, 2008; Schuengel & Oosterman, 2019; Slagt, Deković, De Haan, Van den Akker, & Prinzie, 2012). Although some empirical support for the link between parental self-efficacy and the interparental relationship on the one hand, and the link between parental self-efficacy and children's (mal)adjustment on the other hand is present in current literature, an important question remains: *does parental self-efficacy mediate bidirectional associations between the interparental relationship and children's (mal)adjustment?* To address this gap, the current dissertation (Chapter 3) investigates bidirectional, indirect effects between interparental relationship adjustment and children's externalizing behavior via parental self-efficacy beliefs across a period of eight years (see Figure 1.3).

According to the emotional security theory (Davies & Cummings, 1994), exposure to frequent and destructive interparental conflict could compromise children's goal of preserving a sense of security in the interparental subsystem and, subsequently, prolonged

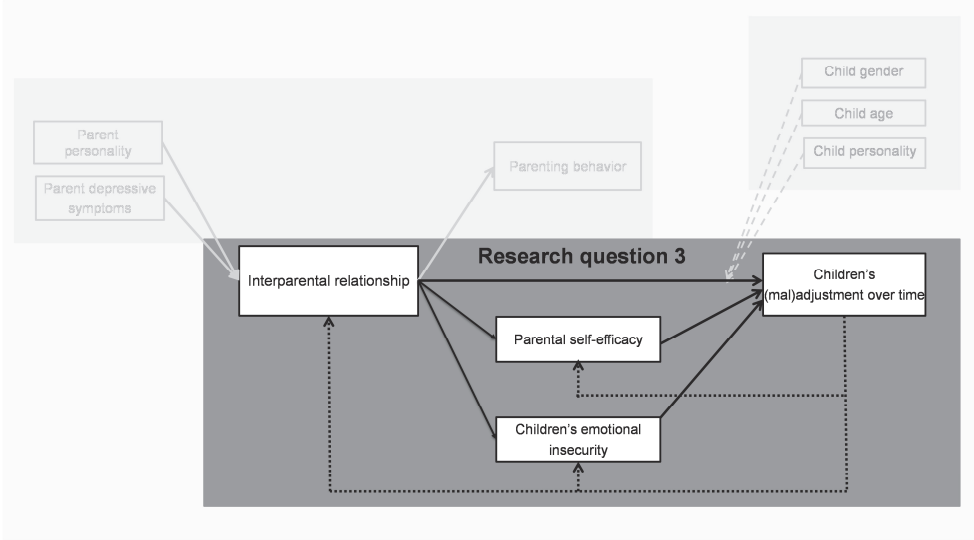

Figure 1.3. Mediation by parental self-efficacy (Chapter 3); and mediation by adolescents' emotional insecurity (Chapter 5).

difficulties preserving emotional security increases their vulnerability to develop broader and more stable patterns of psychopathology. Preserving emotional security in the interparental relationship is conceptualized as a latent goal for children that can be defined by the total of emotional, behavioral and cognitive processes: (a) *emotional reactivity*, characterized by intense and prolonged distress reactions to interparental conflict, (b) *regulation of exposure* to interparental conflict by involvement or avoidance, and (c) *negative internal representations* of interparental relations, represented by children's evaluation of the adverse consequences of interparental conflict for their own and their family's well-being (Davies & Cummings, 1994).

Previous empirical work demonstrated that, on average, children in high-conflict homes, compared to children in low-conflict homes, exhibit higher levels of or stronger increases in emotional insecurity and problem behavior over time (e.g., Davies et al., 2016; Davies, Martin, & Cummings, 2018). However, the emotional security theory *also* holds that dynamic family processes operate on the *within*-family level. That means that taking into account that families have stable differences regarding their level of interparental conflict and adolescent's functioning, *within* those families, fluctuations in the amount of interparental conflict will be associated with fluctuations in adolescent's sense of emotional insecurity. Subsequently, fluctuations in the adolescents' emotional insecurity will be associated with fluctuations in their problem behavior. However, no empirical studies have actually tested these dynamics *within* families. Therefore, building on the empirical support the emotional security theory has received so far, this dissertation takes an important next step by examining whether adolescents' level of emotional insecurity mediates the relation between interparental destructive conflict behavior (hostile and disengaged) and adolescents' problem behavior (externalizing and internalizing) at the *within*-family level, by conducting a random-intercept cross-lagged panel model across three years (Hamaker et al., 2015) (Chapter 4, see Figure 1.3).

4. The moderating role of child characteristics in associations between the interparental relationship and children's (mal)adjustment

In addition to understanding why the interparental relationship and children's (mal)adjustment are linked, it is essential to elucidate whether children are equally affected by the interparental relationship. Eventually, this information is crucial for developing more individually tailored intervention programs. Therefore, the seventh sub-aim of this

dissertation was to examine for *which children* the interparental relationship matters most, by investigating the role of children's age, gender and personality in a meta-analysis and in multiple longitudinal studies.

4.1 Children's age

There are multiple reasons why researchers have hypothesized either (younger) children or adolescents to be more vulnerable for the effects of the interparental relationship. For example, due to normative developmental differences, younger children have limited strategies to prevent themselves from exposure to or cope with interparental problems. Adolescents may have the opportunity to behaviorally intervene of avoid interparental problems. They, however, have developed more complex social-cognitive and social-affective skills that make them more sensitive for understanding the consequences of interparental conflicts (Crone & Dahl, 2012). From a different perspective, simultaneous change models (and family systems theory) would predict interparental problems to have a profound effect on children during normative transitional periods such as adolescence (Graber-Brooks-Gunn, 1996). Additionally, sensitization or habituation hypotheses address "the period of potential exposure" to interparental problems as the reason why older children would show respectively stronger or weaker reactions to interparental problems (Davies et al, 1999; Harold & Sellers, 2018).

Previous meta-analysis and reviews have failed to demonstrate the increased vulnerability of either age group (Buehler et al., 1997; Grych & Fincham, 1990). However, these efforts have been rather unspecific with respect to the dimensions of the interparental relationship investigated, the type of children's (mal)adjustment studied, or both. Increasing this specificity in testing the moderating role of children's age, we aimed to examine to what extent children's age moderates associations between specific key dimensions of the interparental relationship and children's externalizing and internalizing behavior in a meta-analytic integration (Chapter 2, see Figure 1.4).

4.2 Children's gender

A second child characteristic that has received attention as moderator of associations between the interparental relationship and (mal)adjustment in both theoretical models and empirical studies, is the gender of children. In the literature, two alternative hypotheses are postulated. Either males are hypothesized to be more vulnerable (i.e., male vulnerability hypothesis), or,

females and males are expected to be differently affected by the interparental relationship, but to comparable levels, (i.e., gender differential reactivity hypothesis). However, neither hypotheses have received consistent empirical support (Buehler et al, 1997; Davies & Lindsay, 2001, 2004; Jouriles et al., 2016). A similar problem as to the examination of children's age, neither of these efforts have been specific with respect to the dimensions of the interparental relationship or children's outcomes investigated. Therefore, in Chapter 2, we examine the moderating role of child gender in meta-analytic associations between specific dimensions of the interparental relationship and both children's externalizing and internalizing behavior (see Figure 1.4).

Additionally, the current dissertation also examines the moderating role of gender in longitudinal and reciprocal associations between the interparental relationship and children's (mal)adjustment. Thereby, we will not alone indicate gender differences in concurrent associations, but also investigate whether boys and girls are over time differentially affected by interparental problems, and, whether problem behavior exhibited by boys and girls differentially affects subsequent interparental interactions. To that end, we examine the moderating role of children's gender in bidirectional longitudinal associations between

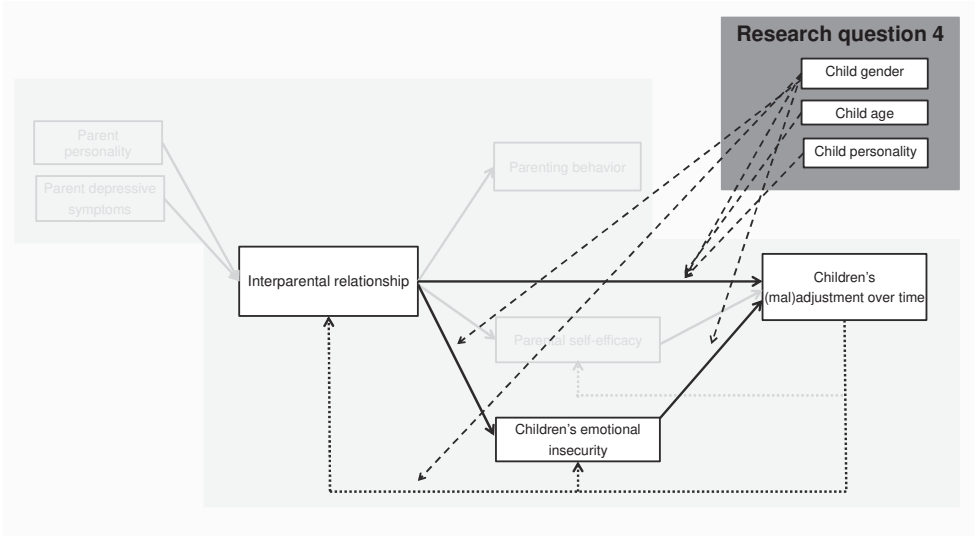

Figure 1.4. Moderation of meta-analytical associations by children's age and gender (Chapter 2); moderation of bidirectional associations by child gender (Chapter 4); moderation of the role of emotional insecurity by child gender (Chapter 4); moderation of prospective associations into emerging adulthood by child gender and personality (Chapter 5).

interparental destructive conflict behavior (hostile and disengaged) and adolescents' problem behavior (externalizing and internalizing) (Chapter 4, see Figure 1.4). Furthermore, we examine the moderating role of child gender for longitudinal associations between interparental destructive conflict behavior (hostile and disengaged), adolescents' emotional insecurity and externalizing and internalizing problem behavior (Chapter 4) and prospective associations between interparental relationship adjustment and (mal)adaptive functioning in emerging adulthood (Chapter 5, see Figure 1.4).

4.3 Children's personality

A third and promising child characteristic to study as a moderator or associations between the interparental relationship and children's (mal)adjustment is personality. Personality traits are designed to capture individual differences in how people generally interpret and respond to their environment (Caspi, 1998; Caspi, Roberts, & Shiner, 2005). Overall, there is consensus that children's personality can be best represented by the Five-Factor model (De Pauw et al., 2016), as individual differences in these five personality emerge early in life and are relatively stable over time (Roberts & DelVecchio, 2000). These five factors in the literature on child personality have traditionally been labelled and defined as follows: (1) Extraversion, children who are generally energetic, expressive, optimistic and not shy, (2) Benevolence, children who are altruistic, compliant, and not dominant or egocentric, (3) Conscientiousness, children who are concentrated, ordered, perseverant, and achievement-strivers, (4) Emotional stability, children who generally are self-confident and not anxious, and (5) Imagination, children who are curious, creative and intelligent (Caspi & Shiner, 2006; Mervielde & De Fruyt, 1999, 2002).

A framework that explains how children's personality traits could affect the associations between the interparental relationship and children's adjustment is the *Differential Susceptibility model* (Belsky, Bakermans-Kranenburg, & Van Ijzendoorn, 2007; Belsky & Pluess, 2009, 2016). This hypothesis asserts that children vary in their susceptibility to environmental influences, for *better* and for *worse*. The crucial part of the theory is the idea that children who are disproportionately vulnerable for negative environmental experiences, may *also* benefit disproportionately from positive environmental exposure. This "for better and for worse" part of the model is what discriminates the differential susceptibility model from the earlier diathesis-stress model (Monroe & Simons, 1991; Zuckerman, 1999; or dual-risk model, Sameroff, 1983). According to this model, some

individuals possess characteristics that *only* make them relatively more vulnerable to environmental stressors.

Personality traits have found to moderate the effects of multiple familial stressors on children's (mal)adjustment, and, when specifically contrasted, support for both the differential susceptibility hypothesis and diathesis-stress model have been found (for a review see Belsky & Pluess, 2016; De Haan, Prinzie, & Deković, 2010; Lianos, 2015; Mabbe, Soenens, Vansteenkiste, & Van Leeuwen, 2016). Yet unknown is, however, *whether children's personality traits moderate associations between the interparental relationship and children's (mal)adjustment)*? And, *whether support for the differential susceptibility or diathesis-stress model can be found in the interparental context*? Therefore, in Chapter 5, adolescents' Big Five personality traits are examined as moderators of prospective six-year associations between interparental relationship adjustment and (mal)adaptive functioning (externalizing problem behavior, internalizing problem behavior, general self-efficacy, and romantic satisfaction), across the transition to emerging adulthood (see Figure 1.4). Thereby, the differential susceptibility and diathesis-stress model are contrasted.

5. The interparental relationship as a mediating mechanism in associations between parental characteristics and parenting behavior

For the fifth research question of this dissertation, we extend our focus from the association between the interparental relationship and children's (mal)adjustment, towards a focus on the role of the interparental relationship for parental functioning. Within the family system, the interparental relationship is not only hypothesized to affect children but also the parent-child subsystem, including parenting (Cox & Paley, 1997; 2003). Known the robust association between parenting and child development, a crucial question is *how* the interparental relationship affects parenting behavior. In Belsky's process model of the determinants of parenting (Belsky, 1984; Belsky & Jaffee, 2006; Bornstein, 2016; Taraban & Shaw, 2018), the interparental relationship is proposed to mediate associations between parental individual characteristics (i.e., personality and depressive symptoms) and parenting behavior (Dix & Moed, 2019; Prinzie, De Haan, & Belsky, 2019; Suchman, DeCoste, & Dias, 2019). Adding the interdependency between parents based on a family systems perspective (Cox & Paley, 2003; Minuchin, 1985), this hypothesized mediational process can take place at a 1) *intra*-personal level and 2) *inter*-personal level. Firstly, from an intra-personal perspective, parents' own characteristics are expected to be associated with their own judgment of the interparental

relationship and their own parenting behavior. Secondly, from an inter-personal perspective, parents' characteristics are expected to be associated with their *partner's* judgment of the interparental relationship, and, parents' judgement of the relationship are expected to be associated with the *partner's* parenting behavior.

With regard to the association between parental characteristics and the interparental relationship, both parental depressive symptoms and personality traits are theorized to shape interactions between the partners, and, through these processes, eventually, affect the overall relationship adjustment (i.e., the Vulnerability-Stress-Adaptation model of marital satisfaction; Caspi, Roberts, & Shiner, 2005; Coyne, 1976; Davila, Bradbury, Cohan, & Tochluk, 1997; Karney & Bradbury, 1995). From an *intra*-personal perspective, this proposition means that parents' characteristics eventually affect how *they* themselves judge the relationship quality (see e.g., Davila, Karney, Hall, & Bradbury, 2003; Dyrenforth, Kashy, Donnellan, & Lucas, 2010; Heller, Watson, & Ilies, 2004; Proulx, Helms, & Buehler, 2007; Solomon & Jackson, 2014). For example, an *intra*-personal process would be that a parents' level of depressive symptoms affects that parents' own judgment of the relationship. From an *inter*-personal perspective, this proposition means that parents' characteristics shape interactions and overall relationship adjustment in such a way, that these characteristics affects the *partner's* judgment of the relationship (see e.g., Bhullar, & Rooke, 2010; Holland & Roisman, 2008; Malouff, Thorsteinsson, Schutte, & Orth, 2013; Schaffuser, Allemand, & Martin, 2014; Whisman et al., 2004). An example of an inter-personal process would be that a parents' level of depressive symptoms affects the partner's judgment of the relationship.

With regard to associations between the interparental relationship and parenting behavior, several hypotheses describe how the interparental relationship affects subsequent parenting behavior. From an *intra*-personal perspective, two contrasting hypotheses are the spill-over and compensatory hypothesis are proposed in the literature. According to the spill-over hypothesis (Engfer, 1988), negative affect in one subsystem (e.g., the interparental relationship) in the family transfers in the same valence to other subsystems (e.g., the parent-child relationship), and therefore a lower interparental relationship adjustment is expected to relate to less positive and more negative parenting behavior (e.g., less parental warmth, less autonomy-support, and more overreactive discipline). According to the contrasting compensatory hypothesis (Engfer, 1988), parents try to compensate their unhappiness in their spousal relationship in their relationship with their child, and therefore a lower interparental relationship adjustment is expected to relate to more positive and less negative parenting behavior (i.e., more warmth and autonomy-support, less overreactive discipline). From an

inter-personal perspective, similarly, two contrasting hypothesis are formulated in the literature. When their partner experiences a low relationship adjustment, parents are either expected to show less optimal (i.e., *stress cross-over hypothesis*) or, more optimal parenting behavior (i.e., *dyadic compensatory hypothesis*) (Cox et al., 2001; Nelson, O'Brien, Blankson, Calkins, & Keane, 2009).

Although there are clear theoretical grounds to expect mediational processes at both an intra- and inter-personal level, no empirical studies have provided a unified test of this complete mediational model (Leinonen et al., 2003; Shelton & Harold, 2008). Therefore, a remaining important unanswered question is *whether the interparental relationship mediates between parental characteristics and parenting behavior, from an intra- and inter-personal perspective*? In the current dissertation, the eighth sub-aim is to examine prospective associations between parental characteristics (personality traits and depressive symptoms), interparental relationship adjustment, and parenting behavior (warmth, autonomy-support, and overreactive discipline) across a period of eight years, within an actor-partner-interdependency model (Kenny & Ledermann, 2010) (Chapter 6, see Figure 1.5). By conducting an APIM, we can specifically test dyadic patterns in associations between parental characteristics, the interparental relationship, and parenting.

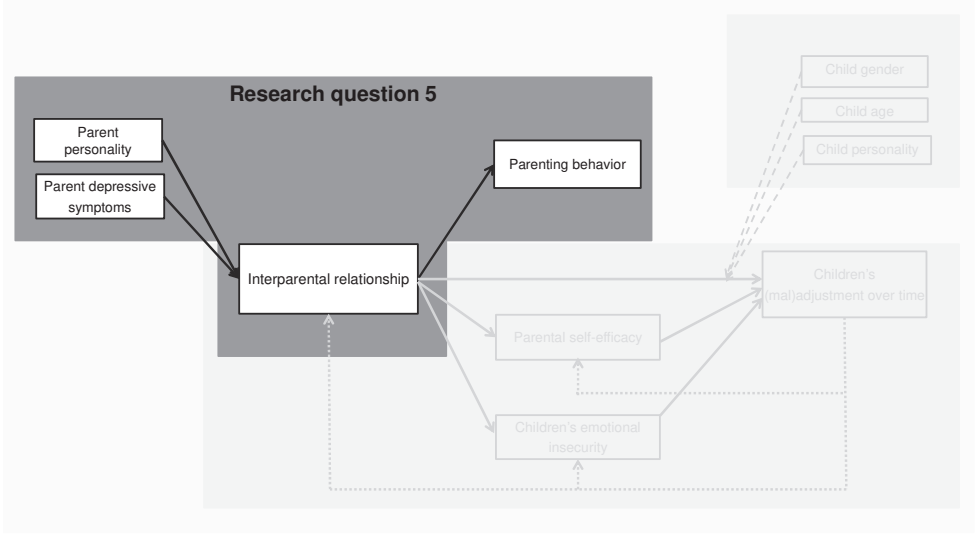

Figure 1.5. Mediation of the interparental relationship between parental characteristics and parenting behavior (Chapter 6).

Study Design and Data

In this dissertation, we made use of data from two longitudinal studies: *the Flemish Study on Parenting, Personality and Development* (FSPPD; Chapters 3, 5, and 6) and *the Me and My Family project* (Chapter 4). Table 1 provides an overview of the chapters, research questions, study designs and constructs in this dissertation.

1. The Flemish Study on Parenting, Personality, and Development

1.1 Procedures and Sample

The FSPPD is an ongoing prospective, longitudinal study for which data are collected at nine measurement waves (1999, 2000, 2001, 2004, 2007, 2009, 2012, 2015, and 2018). In 1999, a proportional stratified sample of elementary-school-aged children attending regular schools in Flanders, Belgium, was randomly selected. Therefore, the names of the children who have their birthday before 31 March were sorted alphabetically and the second and last child but one were selected. Strata were conducted according to age, sex, and geographical location (province). Parents received an invitation letter to participate in "a study about child development". When parents agreed to be contact by the principle investigator, the researcher called the parents, explained to study, and obtained written permission. Out of 800 invited families, 682 families (85.3%) responded to the invitation. All parents had the Belgian nationality.

In 1999, the sample consisted of 674 families (669 mothers, 632 fathers, 92.5% two-parent families, 50% boys). Target children's ages ranged between 4 and 7 years old at Time 1 (M = 6 years 10 months, SD = 1.16). On average, mothers were 33 years and 11 months old (range 24 years 1 month–49 years; SD = 3.64 months) and fathers were 36 years old (range 24 years 11 months–58 years 10 months, SD = 4.26 years). The number of children living at home ranged from one to seven (M = 2.4). Percentages of mothers (M) and fathers (F) with various educational levels were as follows: elementary school, M = 0.9%, F = 3.0%; secondary education, M = 41.1%, F = 43.3%; non-university higher education M = 45.2%, F = 34.4%; university M = 12.8%, F = 19.2%. In the current dissertation, we used data from four waves (2001, 2007, 2009 and 2015). In 2001, 2007, and 2009 families received paper questionnaires by mail. In 2015, adolescents received a personal link to an online questionnaire. All procedures were approved by the Katholieke Universiteit Leuven. From 2007 on, families received a gift vouchers to compensate for their participation.

Table 1. Overview of research questions, study designs, and studied constructs in this dissertation.

Chapter	Research questions	RQ	Theoretical framework	Study design	Concepts	Measures	Assess. waves	Dev. period	N
2	Which dimensions can be distinguished in the concept the IPR?	1		Systematic review					
	Are some dimensions of the IPR more strongly associated with children's (mal)adjustment?	2a	Family Systems Theory	Meta-analysis	- IPR adjustment and conflict - Externalizing, internalizing behavior			0-18 years	
	Do children's age and gender moderate associations between the IPR dimensions and problem behavior?	4	Male-vulnerability & differential reactivity hypothesis						
3	Association between IPR adjustment and child externalizing behavior: parent-driven or child-driven effects?	2b	Family Systems Theory, Transactional model	Longitudinal: FSPPD	- IPR adjustment - Externalizing behavior	PSI CBCL	Three waves, six- and two-year interval	C, A	369 families
	Do IPR adjustment and child externalizing behavior co-develop over time?	2b	Family Systems Theory		- Parental self-efficacy	PSI			
	Does parental self-efficacy mediate longitudinal associations between IPR adjustment and child externalizing behavior?	3							

Chapter	Research questions	RQ	Theoretical framework	Study design	Concepts	Measures	Assess. waves	Dev. period	N
4	Associations between IPR destructive conflict behavior and child problem behavior: parent-driven or child-driven effects?	2b	Family Systems Theory, Transactional model (parent-driven & child-driven effects)	Longitudinal: Me and My Family	- IPR hostility, stonewalling behavior -Externalizing, internalizing behavior-	CPS CBCL	Three waves, annually	A	279 families
	Does emotional insecurity mediate associations between IPR conflict behavior and child problem behavior*?*	3	Emotional Security Theory		Emotional insecurity	SISS			
	Does child gender moderate bidirectional associations between IPR conflict behavior and child problem behavior & the mediational role of emotional insecurity?	4	Male-vulnerability & differential reactivity hypothesis						
5	Is IPR adjustment prospectively related to the (mal)adaptive functioning of emerging adults?	2b	Family Systems Theory	Longitudinal: FSPPD	- IPR adjustment - Adolescent personality -Externalizing, internalizing behavior - General self-efficacy - Romantic satisfaction	PSI H*i*PIC ASR GSE 1-item	Two waves, six-year interval	A, EA	475 families
	Does adolescents' gender and Big Five personality traits moderate prospective associations between IPR adjustment and children's (mal)adaptive functioning?	4	Diathesis-Stress Model & Differential Susceptibility Model						

Chapter Research questions	RQ	Theoretical framework	Study design	Concepts	Measures	Assess. waves	Dev. period	N
6 Does IPR quality mediate prospective, dyadic associations between parental characteristics and adolescent-perceived parenting behavior?	5	Family Systems Theory Vulnerability-Stress-Adaptation model Belsky's process model of the determinants of parenting	Longitudinal: FSPPD	- Parental personality - Depressive symptoms - IPR adjustment - Parental warmth, autonomy-support, and overreactive discipline	FFPI PSI PSI PPQ MFPI PS	Three waves, six- and two-year interval	C, A	455 families

Note. RQ = research question; Assess. Waves = Assessment waves; Dev. Period = Developmental Period; IPR = interparental relationship; FSPPD = Flemish Study on Personality, Parenting, and Development; C = Childhood; A = Adolescence; EA = Emerging Adulthood; PSI = Parental Stress Index; CBCL = the Child Behavior Checklist; CPS = the Conflict and Problem-Solving Scales; SISS = the Security in the Interparental Subsystem Scales; H*i*PIC = the Hierarchical Personality Inventory for Children; ASR = Adult Self-Report; GSE = the General Self-Efficacy Scale; FFPI = the Five-Factor Personality Inventory; PPQ = the Parenting Practices Questionnaire; MFPI = the Mother–Father–Peer Inventory; PS = the Parenting Scale.

1.2 Measures

Interparental Relationship Quality. Parents completed the seven-item Spouse scale of the Parenting Stress Index (PSI; Abidin, 1995; De Brock, Vermulst, Gerris, & Abidin, 1992). This scale captures the (a) absence of support by the partner ('*Since the birth of this child my partner gives less support than I had expected*'), (b) child management strategies ('*Lately, my partner and I have some disagreement about the approach of our child*'), and (c) a lack of cohesion ('*Since the birth of this child my partner and I don't spend much time together anymore*'). Items were rated on a six-point Likert scale ranging from 1 (*totally disagree*) to 6 (*totally agree*).

Externalizing Behavior. In 2001, 2007, and 2009, mothers and fathers completed the externalizing scale of the Child Behavior Checklist (CBCL; Achenbach, 1991; Verhulst, van der Ende, & Koot, 1996). This broad-band scale consists of 35 items that assess aggressive (e.g., '*Fights a lot*', '*Attacks other people*') and rule-breaking behavior (e.g., '*Lacks guilt*', '*Does not follow rules*'). Each item was rated on a three-point Likert scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often*).

In 2015, the children who were than emerging adults, reported on their own externalizing behavior using the Adult Self-Report (ASR; Achenbach, 1991, 2007; Achenbach & Rescorla, 2003). The externalizing syndrome scale consists of 35 items that assess aggressive (e.g., 'I argue a lot'), rule-breaking (e.g., 'I lie or cheat'), and intrusive behaviors (e.g., 'I show off or clown'). All items were answered on a three-point Likert scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often*).

Internalizing Behavior. In 2015, the emerging adults reported on their own internalizing behavior using the ASR (Achenbach, 1991, 2007; Achenbach & Rescorla, 2003). The internalizing syndrome scale consists of 39 items that assess anxious (e.g., '*I am nervous or tense*'), withdrawn (e.g., '*I would rather be alone than with others*'), and somatic symptoms (e.g., '*I feel dizzy or lightheaded*'). All items were answered on a three-point Likert scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often*).

General Self-efficacy. Emerging adults filled-in the ten-item General Self-Efficacy scale (GSE; Schwarzer & Jerusalem, 1995; Teeuw, Schwarzer, & Jerusalem, 1994). An example item is '*Thanks to my resourcefulness, I can handle unforeseen situations'* and items were answered on a four-point Likert scale ranging from 1 (*not at all true*) to 4 (*exactly true*).

Romantic satisfaction. To assess emerging adult's general satisfaction with their romantic life, they were asked the following question: '*Generally speaking, how satisfied are you with your love life, on a scale from 1 to 10 (ranging from not satisfied to completely*

satisfied)'? This question could be answered by all emerging adults, independently of whether they were in a current relationship.

Adolescent Personality. Mothers reported on their adolescents' Big Five personality characteristics, using the Hierarchical Personality Inventory for Children (H*i*PIC; Mervielde & De Fruyt, 1999). The H*i*PIC is a comprehensive personality inventory that assesses individual differences among children, consisting of eighteen lower-order facets that are hierarchically subsumed by five broad-band dimensions. The H*i*PIC consists of 144 items that are answered on a five-point Likert scale ranging from 1 (*almost not characteristic*) to 5 (*very characteristic*). Number of items and an example item for the five dimensions of the H*i*PIC were: Extraversion (32 items; e.g., '*Enjoys life*'), Benevolence (40 items; e.g., '*Takes care of other children*'), Conscientiousness (32 items; e.g., '*Works with sustained attention'*), and Emotional stability (16 items; e.g., '*Easily panics'*) and Imagination (24 items; e.g., '*Is interested in many things*').

Parental Self-Efficacy. Parents rated their parental self-efficacy using the thirteen-item Sense of Competence subscale of the PSI (Abidin, 1995; De Brock et al., 1992). This scale captures the extent to which parents feel they are competent in positively influencing their child's behavior and development. An example items is '*I feel that I am not very good at being a parent*' and answers were given on a six-point Likert scale ranging from 1 (*totally disagree*) to 6 (*totally agree*).

Parent Depressive Symptoms. Parent rated their depressive symptoms using the Dutch translation of the twelve-item Depression subscale of the PSI (Abidin, 1995; De Brock et al., 1992). An example item is '*I often feel like giving up*' and answers were given on a six-point Likert scale ranging from 1 (*totally disagree*) to 6 (*totally agree*).

Parent Personality. Parents rated their personality characteristics using the Five-Factor Personality Inventory (FFPI; Hendriks, Hofstee, & De Raad, 2002). The FFPI consists of 100 brief items assessing individual differences in behavior, which are rated on a five-point Likert scale ranging from 1 (*not at all applicable)* to 5 (*entirely applicable)*. Each factor scale consists of 20 items and example items for each of the personality dimensions were: Extraversion: '*Love to chat*', Agreeableness: '*Respect others' feelings*', Conscientiousness: '*Do things according to a plan*', Emotional Stability: '*Can take my mind off my problems*', and Autonomy: '*Want to form my own opinions*'.

Parental Warmth. Adolescents rated their parents' warmth using the subscale of the Parenting Practices Questionnaire (PPQ; Robinson, Mandleco, Olsen, & Hart, 1995), which consists of eleven items that measure the extent to which parents are involved in their child's

life and expressed warm parenting. An example items is '*Gives comfort and understanding when I am upset'* and answers were given on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*).

Parental Autonomy-Support. Adolescents reported on the autonomy-supportive behavior provided by their parents, using the Mother–Father–Peer Inventory (MFPI; Epstein, Baldwin, & Bishop, 1983). This scale consists of seven items and assesses the extent to which parents exhibit responsive parenting. An example item is '*Encourages me to make my own decisions*' and answers were given on a five-point Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*).

Parental Overreactive Discipline. Adolescents reported on overreactive discipline using the Parenting Scale (PS; Arnold, O'Leary, Wolff, & Acker, 1993; Prinzie et al., 2003). The nine items tapping overreactive discipline measure parents' tendency to respond impatiently, aversively, with anger to their child's problematic behavior. Items present discipline encounters (e.g., '*When I misbehave…*') followed by two options that act as opposite anchor points for a seven-point scale (e.g., '*My mother speaks to me calmly'* versus '*My mother raises her voice or yells'*).

2. The Me and My Family Project

2.1 Procedures and Sample

Participants in the *Me and My Family* project were part of a prospective, multi-informant, multi-method study. Participants were part of a larger project that originally included 235 parents and children recruited through local school districts and community centers in a moderately sized metropolitan area in the Northeastern US and a small city in the Midwestern US. The current dissertation uses data collected during the second stage of the longitudinal design, which took place during adolescence and consisted of three annual measurement occasions beginning when children were in seventh grade. During these three waves, adolescents, mothers, and fathers visited the laboratory for completing confidential survey measures at each of the three measurement occasions. The study was approved by the Institutional Review Board at each research site. Families were compensated monetarily for their participation.

Adolescents were in seventh grade at Wave 1, on average 12.6 years old (SD = .57, range 11 to 14 years) and 52% were girls. Most parents were married at Wave 1 (i.e., 85%). Adolescents lived with their biological mothers (94%) and fathers (79%) in most cases, with

the remainder living with adoptive or stepmothers (3%) or –fathers (16%) or guardians (female: 3%, male: 5%). For racial background, most adolescents identified as White (73%), and smaller groups identified as African American (17%), multi-racial (8%) and other races (2%). Median household income of the families was between $55,000 and $74,999 per year. Median education level of mothers and fathers was some college education.

2.2 Measures

Interparental destructive conflict behavior. Mothers and fathers reported on their own and their partner's use of (a) verbal aggression (sixteen items; e.g., '*Raise voice, yell, shout*'), (b) physical aggression (fourteen items; e.g., '*How often do you/your spouse throw objects, slam doors, break things*'), and (c) stonewalling behavior (six items; e.g., '*How often do you/does your spouse sulk, refuse to talk*'), using the designated subscales of the Conflict and Problem-Solving Scales (CPS; Kerig, 1996). Items on these subscales were rated on 4-point scales (0 = *never* to 3 = *often*).

Emotional insecurity. Adolescents completed the Security in the Interparental Subsystem scales to assess emotional insecurity (SIS; Davies, Forman, Rasi, & Stevens, 2002). All items were answered on a four-point Likert-scale (1 = *not at all* to 4 = *very true to me*). The following four scales were averaged to create a parsimonious composite of adolescent emotional insecurity: (a) Emotional Reactivity (nine items; e.g., '*When my parents argue, I feel scared*'), (b) Insecure Representations, about the impact of interparental conflict for the family (four items; e.g., '*When my parents have an argument, I wonder if they will divorce or separate*') and children's welfare and relations with parents (four items; e.g., '*When my parents have an argument, I feel like they are upset at me*'), (c) Involvement, (nine items; e.g., '*I try to solve the problem for them*'), and (d) Avoidance, (seven items; e.g., '*I try to get away from them*').

Externalizing and internalizing behavior. At each wave, mothers and fathers completed the Child Behavior Checklist (CBCL; Achenbach, 1991). They reported on their adolescent's (a) externalizing problem behavior (i.e., 33 items), consisting of aggressive (e.g., "Gets in many fights") and delinquent behavior (e.g., "Lying or cheating"), and (b) internalizing problem behavior (i.e., 31 items), consisting of anxious/depressed (e.g., "Nervous, high-strung, or tense"), withdrawal (e.g., "Unhappy, sad, or depressed"), and somatic problems ("e.g., "Feels dizzy"). All items were answered on a three-point Likert scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often*).

Chapter 2

The Interparental Relationship and Children's Behavior: Conceptual Issues and a Meta-Analytic Integration

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Van Eldik, W. M., De Haan, A. D., Davies, P. T., Luijk, M. P. C. M., Arends, L. R., & Prinzie, P. (2018).
The interparental relationship and children's behavior: Conceptual issues and a meta-analytic integration.

Abstract

The primary aim of this meta-analysis was to provide a renewed and expanded empirical integration of existing research on linkages between the interparental relationship and children's externalizing and internalizing problem behavior. First, a foundational question was tackled: how can the interparental relationship be conceptualized? A conceptualization recognizing nine distinctive dimensions was formulated, based on measures in the current empirical field (i.e., omnibus adjustment, satisfaction, negative quality, conflict frequency, hostility, disengaged behavior, constructive behavior, child-related conflict, and composite conflict). Subsequently, state-of-the-art multi-level meta-analytic techniques were used to provide in-depth and comprehensive knowledge about how these nine different dimensions of the interparental relationship are related to externalizing and internalizing problem behavior for children from 0 to 18 years old. Empirical studies (k = 233 samples from 228 studies) that reported on associations between the interparental relationship and externalizing or internalizing behavior were included. Information from 1731 effect sizes was analyzed. Results from this meta-analysis showed that all forms of negativity in the interparental relationship, except dissatisfaction, were relevant for both externalizing and internalizing behavior. Overall, associations were somewhat stronger for externalizing than for internalizing behavior. Specifically, for externalizing behavior, child-related conflict was most important, whereas for internalizing behavior, all negative conflict dimensions were equally important. Associations were mostly robust regarding child age and gender, family composition and other study characteristics. This meta-analysis underlines the relevance of targeting the interparental relationship in family interventions to foster child development.

Introduction

The importance of the interparental relationship for child development is long recognized (Belsky, 1984; Emery & O'Leary, 1984; Goldberg & Easterbrooks, 1984; Kelly, 2000; Minuchin, 1974). In the last decades, new theories have developed and empirical research has increasingly focused on multiple specific dimensions of the interparental relationship in relation to children's problem behavior (Buehler et al., 1997; Davies & Cummings, 1994; Grych & Fincham, 1990). However, a systematic integration of this growing corpus of findings is lacking and complicated due to two challenges. First, there is no consensus about the multidimensionality of the interparental relationship, resulting in a wide variability in how dimensions of interparental relationships are defined and assessed. Second, consistent with this wide variability in definition and assessments, a *jingle-jangle fallacy* is evident in the vast differences in the use of conceptual labels for similar or identical measures, or vice versa. In fact, over two decades ago, Buehler and colleagues (1997) already highlighted the importance of developing a consistent, well-defined framework for parsing the interparental relationship into multiple dimensions. However, beyond this call for greater precision, little progress has been made in synthesizing the growing literature on interparental and child functioning in a way that more precisely distinguishes between key dimensions of the interparental relationship.

Therefore, the overall aim of the current study is to provide a renewed and expanded empirical integration of existing research on linkages between the interparental relationship and externalizing and internalizing problem behavior from infancy to adolescence. To address this aim, we first need to tackle a foundational question: how can the interparental relationship be conceptualized? We will provide a conceptualization, based on the literature and measures that are used in the field. This conceptualization will guide our empirical integration and we will use state-of-the-art multi-level meta-analytic techniques to provide in-depth and comprehensive knowledge about how different dimensions of the interparental relationship are related to externalizing and internalizing problem behavior for children from 0 to 18 years old. We focus on these two most studied behavioral problems to: (a) insure that we have a sufficient sample of studies for the analyses, (b) maintain consistency with the previous meta-analysis of interparental conflict conducted by Buehler et al. (1997), and (c) because they are known to have long-lasting consequences or children (Clark, Rodgers, Caldwell, Power, & Stansfeld, 2007; Fergusson, Horwood, & Ridder, 2005; Najman et al., 2008). With the interparental relationship, we refer to married, living together, or divorced parents, reflecting

the increasing variation in types of (romantic) relationships (Perrelli-Harris et al., 2012; Waggoner, 2016).

Foundational Question: How Can the Interparental Relationship be Conceptualized?

In contrast to the abundance of empirical evidence for associations between the interparental relationship and elevated problem behavior in children and adolescents (Buehler et al., 1997; Reid & Crisafulli, 1990), little attention has given to the conceptualization of the interparental relationship. Although there is consensus that the interparental relationship is a multidimensional construct, no agreement is reached about definitions of specific dimensions and their conceptual distinctions. In the first meta-analysis on this subject, Reid and Crisafulli (1990) did not discriminate between different dimensions of interparental relationship problems in relation to children's externalizing behavior (i.e., collapsing literature on, e.g., interparental adjustment and conflict). The meta-analysis by Buehler and colleagues (1997) was the first to begin to distinguish between different dimensions of interparental conflict. However, at this early stage of empirical inquiry, the paucity of studies for some dimensions of interparental conflict in that are key in contemporary conceptual models (e.g., avoidant or cooperative conflict behavior) precluded authoritative conclusions about their links with child adjustment. Moreover, other aspects of the interparental relationship, such as relationship quality, adjustment and satisfaction, that are distinguished by theoretical reviews (Fincham & Rogge, 2010; Knapp, 2010; Zimet & Jacob, 2001), were excluded from the empirical integration of Buehler et al. (1997). By thoroughly examining the item-content of the interparental relationship measures from empirical studies in the existing literature, we aim to provide a meaningful conceptualization distinguishing nine distinct dimensions (i.e., three correlates of relationship quality and six dimensions addressing characteristics of interparental conflict). We believe this conceptualization is effective in overcoming the earlier challenges in the literature, including the jingle-jangle fallacy. See Table 1 for the definitions of the dimensions and examples of instruments.

Conceptualization and review of empirical evidence. The first dimension is relationship *satisfaction*. Stemming from the *intra*personal approach, the concept satisfaction defines relationship quality as individual evaluations of spouses regarding their satisfaction with the relationship (Fincham & Rogge, 2010; Heyman, Sayers, & Bellack, 1994; Knapp, 2010). Instruments assessing satisfaction concern self-report questionnaires, which result in a score on a continuum from feeling *completely unsatisfied* to *completely satisfied*. There is relatively little empirical research focusing on associations between satisfaction in the

Table 1. Definitions of the dimensions of the interparental relationship and measures used in empirical research.

Dimension	Definition	Example measures
Satisfaction	Intra-individual evaluation of the relationship, such as happiness or satisfaction.	Kansas Marital Satisfaction Scale. 1-item questionnaires, e.g., 'how satisfied are you with your relationship/ partner?'
Negative Quality	Evaluations of negative feelings regarding the relationship/partner, while ignoring the positive feelings.	Negative Marital Quality subscale of the Positive and Negative Quality in Marriage scale.
Omnibus Adjustment	A multi-dimensional construct representing 'quality of the interparental relationship' on a continuum from low to high adjustment. Consists of (a combination of) happiness, cohesion, communication, (dis)agreement, conflict, and/or affection.	Dyadic Adjustment Scale (DAS), (Short) Marital Adjustment Test.
Conflict Frequency	How often parents have minor or major disagreements.	Frequency scale of the Conflicts and Problem-Solving Scale (CPS). DAS Consensus scale (reversed).
Hostility (hostile conflict behavior)	Negative affect and active hostile behavior between spouses, such as being angry, shouting, hitting, and criticizing.	Verbal and physical aggression subscales of the Conflict Tactics Scale (CTS) and CPS. O'Leary and Porter Scale.
Disengaged (conflict behavior)	Conflict behavior that makes the spouse withdraw from the conflictual situation. Behavior that will not help resolve the conflict and is passive, such as walking avoid, not talking, and avoiding.	Withdrawal subscale of the CTS. Avoidance subscale of the Conflict-Resolution Behavior Questionnaire. Stonewalling and avoidance-capitulation subscales of the CPS. Withdrawal subscale of the System for Coding Interactions in Dyads.
Constructive conflict behavior	Positive affect or behavior that moves the conflict in the direction of a resolution, such as using humor, cooperation, listening to each other, positive engagement, feeling closer, understanding each other, and coming up with a solution.	Effective Problem-Solving Strategies from the Couple Communication Questionnaire. Cooperation subscale of the CPS. Reasoning subscale of the CTS. Negotiation scale subscale of the CTS2. Supportive behavior subscale of the Iowa Family Interaction Rating Scales.

Child-related conflict	Conflicts between parents about child-related topics, such as the child's behavior, child-rearing, etc.	Child-Rearing Disagreements Scale. Marital Discord over Childrearing Scale.
Composite conflict	All instruments that assess a combination of conflict dimensions (with less than 70% of the items belonging to one of the dimensions).	

interparental relationship and children's behavioral problems. The empirical work that is done, quite consistently showed small negative associations between levels of interparental satisfaction and externalizing (Cui, Donnellan, & Conger, 2007; Davies, Dumenci, & Windle, 1999) and internalizing problems in childhood and adolescence (Brock & Kochanska, 2015; Cui et al., 2007). However, there are some exceptions of studies reporting non-significant associations (e.g., Kloep, 1995).

Second, studies assessing *positive and negative quality*, are based on the assumption that individuals can experience both positive and negative feelings towards their relationship and spouse independently (Fincham & Rogge, 2010). As such, these instruments assess intra-individual evaluations of the negative feelings regarding the spouse or relationship, while ignoring positive feelings, or vice versa. Thus, this dimension can be distinguished from *satisfaction* by the focus on negative or positive evaluations only. As far as we know, positive quality has not been studied in relation to child behavior. Instruments assessing negative quality concern self-report questionnaires and result in scores ranging from experiencing no negative feelings to high levels of negative evaluations of the spouse and relationship. The limited evidence of negative relationship quality as a predictor of child functioning is decidedly mixed. The two studies conducted reported that higher levels of negative quality were non-significantly or modestly associated with greater externalizing and internalizing problem behavior in young adolescents (Papp et al., 2004; Schoppe-Sullivan et al., 2007).

Third, *omnibus adjustment* is a multi-dimensional concept in itself, argued to provide a more complete view on the quality of interpersonal relationships. This concept is defined by a total of evaluations of relationship satisfaction, patterns of communication, companionship, negative affect and conflict frequency (Fincham & Rogge, 2010). Instruments assessing this dimension result in scores on a continuum from low adjustment to high adjustment. Adjustment, satisfaction and negative quality can be considered distinctive, but highly

interrelated operationalizations of relationship quality (see Fincham & Rogge, 2010; Knapp, 2010). Omnibus adjustment is distinctive from the other dimensions regarding its broad definition, including multiple aspects of the relationship. Reports regarding the association between interparental adjustment and children's problem behavior in childhood and adolescence are somewhat inconsistent. Most of the studies showed that higher levels of adjustment in the interparental relationship are slightly to strongly associated with lower levels of externalizing and internalizing problem behaviors, for infants (Chen & Johnston, 2012), children (Oltmanns, Broderick, & O'Leary, 1977), and adolescents (Vrijmoeth, Monbaliu, Lagast, & Prinzie, 2012). However, some studies show null (Van der Valk, De Goede, Spruijt, & Meeus, 2007) or even positive associations (Brand & Clingempeel, 1987; Emery & O'Leary, 1984; Goldberg & Carlson, 2014) between interparental adjustment and child problem behavior.

As the first three dimensions are correlates of general relationship quality, the next six dimensions address characteristics of interparental conflict. We distinguish *conflict frequency* as the fourth dimension, which is defined as *how often* parents have minor or major disagreements, in general or about specific topics (i.e., the household, leisure, etc.). Thus, this dimensions does not concern *how* parents handle their conflicts. Rather, it only captures the frequency by which parents disagree and instruments measuring this dimension result in scores on a continuum from never to always. For conflict frequency, a somewhat inconsistent picture is apparent, with most studies showing positive and small to moderate correlations with externalizing behavior (Alblow, Measelle, Cowan, & Cowan, 2009; Lee, Wesbecher, Lee, & Lee, 2015), and some studies showing non-significant associations with for example delinquency (Cummings, George, McCoy, & Davies, 2012). A similar inconsistent picture is shown for conflict frequency and internalizing behavior, with most studies reporting small positive correlations, whereas some others show insignificant associations with depression in particular or for younger children (Cummings et al., 2012; Kerig, 1996), or medium correlations for depression in girls specifically or young adolescents (Gonzales, Deardorff, Formoso, Barr, & Barrera, 2006; Kloep, 1995).

The fifth dimension, *hostility,* can be defined as the presence of negative affect and active hostile behavior between spouses, such as being angry, shouting, hitting, and criticizing. This dimension can be distinguished from *frequency,* as it does not concern the question if and to what extent conflicts take place, but it concerns whether parents behave hostile when having a conflict. Evidently, most studies have examined hostility in relation to child behavior in comparison to the other dimensions, and showed that hostility was

positively associated with externalizing problem behavior, with effect sizes ranging widely from small to large (e.g., Grych, Harold, & Miles, 2003; Jenkins, 2000; Kempton, McCombs Thomas, & Forehand, 1989). However, some studies have failed to replicate these associations (Barton et al., 2015; Emery & O'Leary, 1984). Inconsistent results have also been reported for internalizing symptoms. Thus, although most studies report that interparental hostility is a modest to moderate predictor of internalizing symptoms (O'Brien, Bahadur, Gee, Balto, & Erber, 1997; Schoppe Sullivan et al., 2007), other research has reported nonsignificant or even negative correlations (Jouriles, Barling, & O'Leary, 1987; Siffert & Schwarz, 2011).

As a sixth dimension we define *disengaged conflict behavior* as consisting of ways of withdrawing from the conflictual situation. The passive nature of these types of conflict behavior, which are reflected in avoidance, silent treatment, stonewalling, submissive disengagement, and sulking, precludes resolution of disagreements. Research findings on the sequelae of disengaged conflict behavior are mixed. Thus, associations between interparental disengagement and children's internalizing and externalizing symptoms range from negligible to strong in children (Crockenberg & Langrock, 2001; Kerig, 1996; Sturge-Apple, Cummings, & Davies, 2006) and adolescents (Burman et al., 1987; Underwood, Beron, Gentsch, Galperin, & Risser, 2008).

Seventh, *constructive conflict behavior*, can be defined as positive affect in the context of a conflict and behavior that moves the conflict in the direction of a resolution, such as using humor, cooperation, listening to each other, positive engagement, validation, support, and problem-solving. Studies examining constructive conflict behavior in relation to child behavior have shown a highly inconsistent pattern. Whereas some studies reported that more constructive conflict behavior was related to more externalizing or internalizing problems (Harvey, Metcalfe, Herbert, & Fanton, 2011), other studies found that more constructive conflict behavior was related to less problem behavior in children and adolescents (Dadds, Atkinson, Turner, Blums, & Lendich, 1999; Pendy, Carr, Papp, & Antles, 2013). Moreover, findings from studies appear to vary as a function of the specific combination of informants (e.g., Frosch & Mangelsdorf, 2001) or instruments used to assess constructive behavior (Kempton et al., 1989).

The eighth dimensions concerns *child-related conflict* and is distinctive in its focus on the topic of conflict. Child-related conflict refers to conflicts between parents about child-related topics, such as the child's behavior and child-rearing issues (e.g., quality of caregiving, division of responsibilities in parenting). Although this dimension was not

examined by Buehler et al (1997), other conceptualizations have highlighted its potential developmental significance for children (e.g., Kerig, 1996; Zimet & Jacob, 2001). A qualitative analysis of the literature supports the notion that child-related conflict is consistently associated with children's internalizing and externalizing symptoms from early childhood through adolescence (Cui et al., 2007; Dadds & Powell, 1991; Ingoldsby, Shaw, Owens, & Winslow, 1999; O'Leary & Vidair, 2005). However the magnitude of the effect size varies widely from small to strong.

As the ninth and final parameter, a *conflict composite* dimension should be distinguished, for measures that assess a combination of two or more of the conflict dimensions (i.e., conflict frequency, hostility, disengaged and constructive behavior, and child-related conflict). Most studies have identified positive associations between conflict and child externalizing and internalizing behavior that range from small to large in magnitude (Coln, Jordan, & Mercer, 2013; Davies & Lindsay, 2004; Harrist & Ainslie, 1998). However, some studies also showed null or negative associations (Brand & Clingempeel, 1987; El-Sheikh, Kouros, Erath, Cummings, Keller, & Station, 2009; Hanson, 1999).

Theoretical Paradigms Explaining Associations between Dimensions of the Interparental Relationship and Children's Problem Behavior

Four theoretical frameworks explain the direct link between the interparental relationship and problem behavior of children: family systems theory, social learning theory, cognitive-contextual model, and the emotional-security hypothesis. First, *family systems theory* (FST) stipulates that the family as a system is an integrated whole, wherein individuals and subsystems (e.g., the interparental relationship) are necessarily interdependent (Cox & Paley, 1997; 2003). The interparental relationship can function as a source of support or stress in that family system, depending on the quality of the relationship (i.e., level of satisfaction, support, and communication patterns) (Belsky & Jaffee, 2006). Given the interdependency, the quality of the interparental relationship and the accompanying stress, is hypothesized to influence other parts in the family system, such as the developing child. Children may react on these disturbances in the interparental subsystem by acting out (i.e., aggression or delinquent behavior) or by internalizing the stress (i.e., depressive or anxious behavior). Second, *the modeling hypothesis* stems from the social learning theory, and asserts that the interparental relationship affects child adjustment because children imitate the interactional styles they observe in their parents, and eventually internalize these behaviors as acceptable strategies for social interactions or handling conflicts (Bandura, 1977; Fauber et al., 1990; Wilson &

Gottman, 2002). Third, *the cognitive-contextual model* asserts that children's cognitive understanding and appraisals of interparental conflict are central to understanding why children are affected by interparental conflict (Grych & Fincham, 1990). In contrast to the (behavioral) modeling hypothesis, this model emphasizes that children cognitively process interparental conflict as they try to understand what is happening and why. Particularly, cognitive appraisals of perceived threat and self-blame are proposed as important in explaining direct associations between interparental conflict and children's adjustment problems (e.g., Fosco & Feinberg, 2015; Grych et al., 2000). Fourth and final, *the emotional security hypothesis*, which builds on attachment theory, states that emotions are central in explaining linkages between the interparental relationship and child adjustment and that children's responses to interparental conflict are governed by the perceived concerns about emotional security (i.e., their personal and family functioning; Davies & Cummings, 1994; Davies & Martin, 2013). These concerns play a role in the regulation of emotional arousal and behavioral reactions when faced with conflicts between parents.

Looking at the focuses of these frameworks in terms of the different dimensions of the interparental relationship, the spill-over hypothesis of the family systems theory does not emphasize any specific dimension of the interparental relationship, but could be applied to all dimensions as these can all result in a source of stress that could affect the child. However, the other three frameworks, to different degrees, place emphasis on ways of handling disagreements (e.g., hostility, disengaged, constructive behavior) and content (i.e., child-related) as the most robust predictors of child adjustment relative to the other dimensions. The level of hostile, disengaged and constructive interactions between parents can be internalized by the process of vicarious learning (i.e., modeling hypothesis; Wilson & Gottman, 2002), guide children's cognitive appraisals of threat (i.e., cognitive-contextual model; Grych & Fincham, 1990), or determine children's concerns about emotional security (i.e., emotional security hypothesis; Davies & Cummings, 1994). Child-related conflict may specifically guide children's cognitive appraisals of for example self-blame and form a greater concern for children's sense of emotional security.

The Current Meta-Analysis

Two decades after the influential meta-analysis of Buehler and colleagues (1997), this study aims to empirically integrate existing research on linkages between the interparental relationship and externalizing and internalizing problem behavior from infancy to adolescence. Given the ambiguity about the dimensions of the interparental relationship and

inconsistencies in current empirical work, the field is in dire need of a renewed and expanded conceptual and empirical integration. We provide a conceptualization of nine distinctive dimensions of the interparental relationship and use state-of-the-art multi-level meta-analytic techniques to empirically integrate existing research. A meta-analysis that synthesizes effect sizes across a representative collection of studies has the advantage of offering a more objective evaluation that can help resolve uncertainties. In addition, it allows for a direct comparison of effect sizes for the associations for different dimensions of the interparental relationship and children's problem behavior. Combining results from multiple studies allows for more authoritative conclusions regarding these patterns. Thereby, we will provide in-depth and comprehensive knowledge about how different dimensions of the interparental relationship are related to externalizing and internalizing problem behavior for children from 0 to 18 years old. Understanding the nature of associations between dimensions of the interparental relationship and specific problem behavior in children may play a valuable role in theory-building and the development of empirical-based family focused interventions (e.g., Cowan & Cowan, 2014; Zemp, Milek, Cummings, Cina, & Bodenmann, 2015).

Moderator Analyses

Another advantage of a meta-analysis is that heterogeneity between studies and effect sizes findings can be studied and sometimes explained (Egger & Smith, 1997). Therefore, the additional goal of this study is to enhance specificity in our knowledge by determining whether variation across studies and effect sizes were systematic and could be explained by potential moderators. The potential moderating role of age and gender of the child, family composition, and common method variance in associations between the interparental relationship and problem behavior will be examined.

This study was designed to examine whether the risk posed by interparental relationship dimensions varied as a function of children's age. The concept of sensitive periods for interparental problems has rarely been implemented in research (Davies & Cummings, 2006), and no theories or underlying explanatory processes have been specified. The results of the two previous meta-analyses about interparental relationship and children's adjustment problems found age of the child was not related to variability in study results (Buehler & Erel, 1997; Reid & Crisafulli, 1990). However, this lack of moderation effect by age may be due to the small number of effect sizes per age group. Also, more recent studies have generated mixed results, showing either stronger adjustment effects for preschoolers (e.g., Mahoney, Jouriles, & Scavone, 1997), or heightened vulnerability during adolescence

(e.g., Cummings, Schermerhorn, Davies, Goeke-Morey, & Cummings, 2006). Given the inconsistent results in previous research, we offer no specific hypotheses regarding age effects.

Studies investigating child gender as a moderating factor in the link between the interparental relationship and child adjustment, chronicle an inconsistent and complex picture. Some studies provided evidence for the male vulnerability hypothesis, indicating that boys are more vulnerable for interparental difficulties (for a review see of Davies & Lindsay, 2001). However, most of these studies examined groups mixed in age and developmental period and mostly focused on externalizing problem behavior. This might have led to a bias in results, supported by studies focusing solely on adolescence showing evidence for the differential reactivity hypothesis (e.g., Su, Simons, & Simons, 2011; Davies & Lindsay, 2004). The differential reactivity model stipulates that the distress due to interparental problems manifests differently in boys and girls, with boys generally showing more externalizing problems and girls more internalizing problems (Davies & Lindsay, 2001).

Moreover, family composition will be examined as moderator. First-generation research concluded that interparental negativity and conflict may be more important for child development than family intactness (for reviews, see Amato & Keith, 1991; Emery, 1982), which is confirmed by more process oriented later research (Amato, Spencer Loomis, & Booth, 1995; Kelly, 2000). Instead of looking merely at main effects, it could be more informative to explore whether associations between interparental negativity and children's problem behavior depend on family composition (i.e., the percentage of intact families in the sample). Stronger associations for samples with less intact families would indicate that experiencing a family disruption has an additive effect on child adjustment. Finally, we will explore potential effects of one common type of method biases, namely whether information on the interparental relationship and children's problem behavior is obtained from the same source (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Method

Literature Search

Primary search method involved inspection of the computerized databases Web of Science, Psychinfo, and Scopus. Default limitations were set on the year of publication (end date was July 30, 2018). Key words were based on three initial inclusion criteria. Using the key words studies were selected that 1) focused on an aspect of the interparental relationship (key words

were *marital or interparental, and relationship or support or discord or quality or satisfaction or conflict or stress or communication or positive affect or negative affect or instability)*, and 2) included a measure of child problem behavior (key words were *problem behavior* or adjustment or internalizing or externalizing or anxiety or depress* or aggress* or delinq* or hyperactive or substance *use*), and 3) studied children younger than 18 years old (key words were *adolescen* or infan* or child* or kid or kids or toddler* or teen* or boy* or girl* or youth*)*. In addition to peer-reviewed journals, our search also included other relevant and assessable journals, book chapters, and dissertations.

The initial database search resulted in 12,854 hits (see Figure 1 for a PRISMA flow diagram). The screening of titles and abstracts resulted in 479 articles that appeared to report on the association between the interparental relationship and children's problem behavior. For these studies the full text was retrieved and carefully checked against the inclusion criteria outlined below. Additional statistical information was requested for 95 studies. Of these 95 studies, statistics were provided for 15 studies (80 effect sizes) and one author delivered additional information on the sample. This resulted in the final inclusion of 228 studies and 1731 effect sizes.

Inclusion Criteria

The following criteria determined the inclusion of studies for the current meta-analysis: first, studies were included when the measure of the interparental relationship fitted the definition of one of the dimensions (Table 1). Studies assessing *family* conflict, child involvement, or triangulation were excluded, because these concepts do not refer to (dyadic) interparental relationship aspects, but rather measure triadic family interactions (Fosco & Grych, 2008, 2010). Also, studies measuring child appraisals of interparental problems (e.g., blame or perceived threat) are excluded, for the similar reason that these aspects do not fit our definition of the interparental relationship (Grych & Fincham, 1990). Second, studies were included when they used a measure of internalizing or externalizing child problem behavior (i.e., internalizing broad, externalizing broad, anxiety, depression, aggression, delinquency). Studies in which no distinction was made (i.e., a total problem behavior score was used) were excluded. Third, studies were included when they provided (in text or after requesting authors) a correlation or standardized regression coefficient representing the association between the interparental relationship and children's problem behavior. Fourth, studies had to concern infants, children or adolescents (0-18 years). Fifth, both cross-sectional and longitudinal studies were included. In the case of longitudinal studies, the decision was to

include concurrent correlations from the first measurement moment reported to stay in line with cross-sectional studies. If concurrent correlations were not provided, the correlation with smallest possible time range was chosen. Sixth, studies included in the meta-analysis had to concern statically independent samples.

Moreover, when multiple studies reported on the same sample (e.g., O'Brien & Bahadur; O'Brien, Bahadur, Gee, Balto, & Erber, 1997; Davies, Martin, & Cicchetti, 2012; Hentges, Davies, & Cicchetti, 2015; Manning, Davies, & Cicchetti, 2014), we selected the study which provided the most extensive information or which study resembled the aims of the meta-analysis the most. When multiple studies reported on the same sample but on different markers of the interparental relationship or problem behavior or used different informants or instruments, these additional effect sizes were selected for inclusion (i.e.,

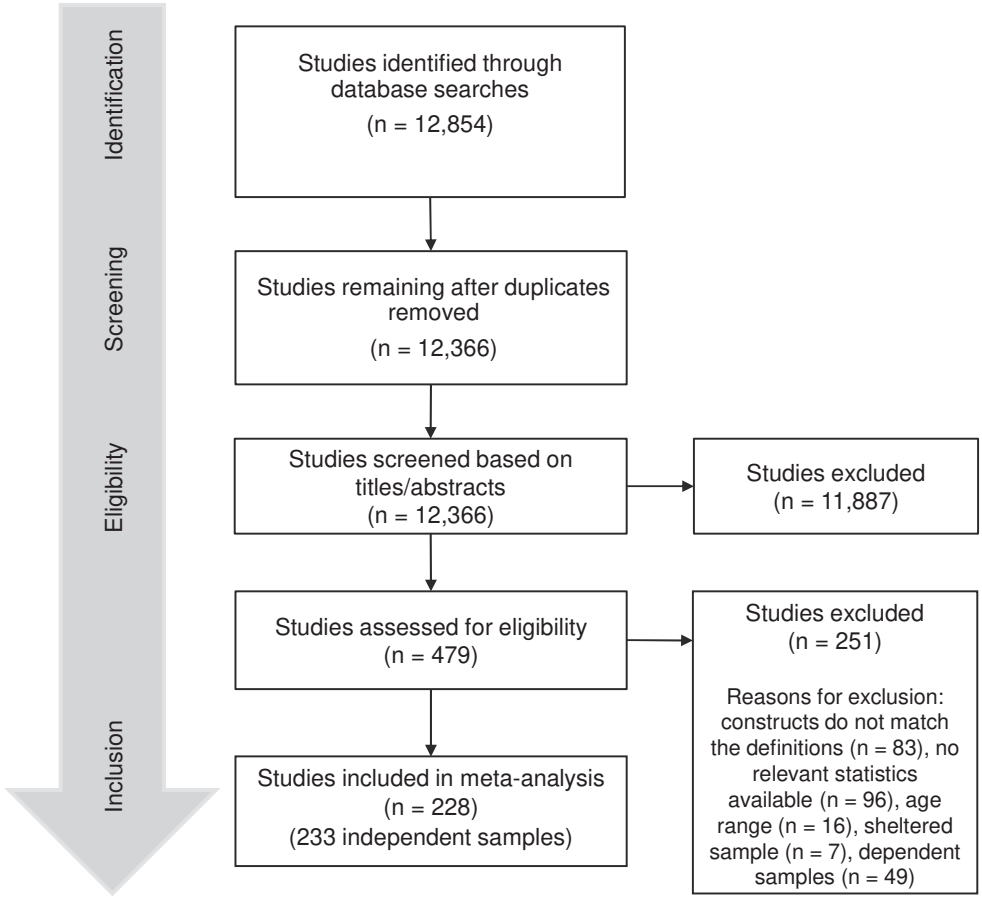

Figure 1. PRISMA flow diagram.

taking into account the multilevel structure of the data). Seventh, studies were included when their samples involved families consisting of children who either lived with both parents, or (in the case of divorce) were living or being raised by both their mother and their father. In addition to biological parents, studies examining relationship between a biological parent and a step-parent were also included. Studies of women and children living in shelters or living elsewhere because of an abusive partner were excluded, because these children are not raised by both parents. Eighth, studies with both non-clinical and clinical samples were included. Finally, experimental or intervention studies, in which families were subject to a manipulation or treatment, were included in case they provided concurrent correlations between the interparental relationship and child problem behavior before the manipulation or treatment took place.

Data Coding Procedure

Each study was coded using a detailed coding system abstracting sample, design, measurement, and publication characteristics. A subset of 12.8% of the sample (N_{ES} = 221) was coded for all codes by two of the study authors. Intercoder reliabilities were high, with a mean Cohen's Kappa of .88 (range between .47-1.00) and a mean ICC for continuous variables of .97 (range between .64-1.00). The Cohen's Kappa of .47 appeared for our SES income code, which was revised in consultation and all inconsistencies were discussed with all authors until consensus was reached. Definitions for the codes for the dimensions of the interparental relationship were developed by two of the study authors. Ten percent of the instruments were coded by these two authors and they initially agreed on 78%. Disagreements were discussed until consensus was reached on each code.

Interparental relationship. Table 1 shows the dimensions of the interparental relationship we defined and we coded studies based on the item-content of instruments used. Because some interparental relationship instruments consisted of items that fell under more than one dimensions, they were coded as representing a specific interparental relationship dimension if 70% or more of the items assessed the target dimension. The composite conflict code was applied when multiple conflict dimensions were combined and this 70% criteria was not reached. As omnibus adjustment was a multi-dimensional concept in itself, this 70% criteria did not count for this dimension.

Child problem behavior. We categorized child problem behavior as belonging to either externalizing or internalizing problem behavior, and, if suitable, to one of the more specific categories: anxiety, depression, aggression, and delinquency (including substance

use). Concepts that did not fit a specific category, were only assigned to the internalizing or externalizing main dimension, where externalizing behavior omitted aggression, delinquency and substance use, and the internalizing dimensions included anxious and depressive symptoms. These dimensions were often measured by the broadband dimensions of the Child Behavior Checklist (Achenbach, 1991), the dimensions of the Personality Inventory for Children (PIC) (Wirt, Lachar, Klinedinst, & Seat, 1990), or the Antisocial subscale of the Buss and Durkee Hostility-Guilt Inventory (Buss & Durkee, 1957). *Anxiety* included measures of fearfulness and specific forms such as social anxiety, and was often measured by the anxiety-depressed scale of the CBCL (Achenbach, 1991) or the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). *Depression* was assigned to measures of feeling depressed, unhappy, lonely and low in energy, and was often measured by the withdrawn-depressed scale of the CBCL (Achenbach, 1991) or the Children Depression Inventory (CDI; Kovacs, 1985). *Aggression* was coded for measures of social, verbal of physical aggression, such as the Children's social behavior scale-teacher form (CSBS-T; Crick, 1996) and the aggression subscale of the CBCL (Achenbach, 1991). *Delinquency* was assigned to measures of behaviors such as stealing, alcohol or drug use, often measured by the delinquency subscale of the CBCL (Achenbach, 1991) and the Socialized Delinquency subscale of the Behavior Problem Checklist (BPC; Quay, 1972).

Other characteristics. Coded sample characteristics included sample size, child gender (girls, boys or mixed), mean age of the children and parents, SES (low, middle/mixed, high), parents educational background (*low*; i.e., mostly high school only or less than 12 years of education on average, *medium*; i.e., mostly some post-secondary education, 13-16 years on average, *high*: i.e., mostly college graduated, 17 years or more on average, or *mixed*), family ethnicity (% Caucasian white in the sample), family composition (*intact* vs *not-intact*; i.e., no disruptions in family composition versus disruptions such as separation or divorce), and average length of the interparental relationship in years. Design and measurement characteristics coded were time interval and shared method variance (similar informant, partially similar informant, different informant). Publication characteristics coded were year of publication and the journal impact factor.

Data analysis

Effect size calculations. The Pearson correlation coefficient, *r*, was the metric used in the current study. Most studies reported Pearson's correlations (*r*) or standardized regression coefficients (β). In the latter case, we used the formula $r = \beta + .05\lambda$ to convert the β to r (λ

equals 1 when β is positive and 0 when β is negative) (Peterson & Brown, 2005). This procedure is becoming increasingly common in meta-analyses (Becker & Wu, 2007; Borenstein, Hedges, Higgins, & Rothstein, 2009; Rosenthal & DiMatteo, 2001). Before pooling effect sizes, correlations for positive dimensions of the interparental relationship (i.e., satisfaction, adjustment, and constructive conflict behavior) were reversed to ensure that all effect sizes could be interpreted as associations between higher levels of negativity in the interparental relationship and children's problem behavior (i.e., low satisfaction, low adjustment and low levels of constructive conflict behavior). Next, correlations were transformed using Fisher's Z_r transformation (Rosenthal, 1991), and pooled Z_r were reconverted to *r* for reporting.

Meta-analytic integration. Several studies provided multiple effect sizes and therefore the assumption of independence underlying meta-analytic strategies was violated. Traditional meta-analytic approaches have either averaged these multiple effect sizes, selected one ES for each study, ignored the dependency, or used a "shifting unit of analysis" approach (Cheung, 2014; Van den Noortgate, López-López, Marín-Martínez, & Sánchez-Meca, 2013). However, all these methods have considerable short-comings that bias meta-analytic results (Becker, 2000; Cheung & Chan, 2008; Gleser & Olkin, 2009). In contrast, multilevel models can be used to accurately handle the dependency in meta-analytic data (Goldstein, 1987; Raudenbush, 1988). Three-level meta-analyses are an extension of the traditional two-level random-effects model in which the dependency among multiple effect sizes from the same study is modeled by adding an intermediate level (Cheung, 2014; Van den Noortgate et al., 2013). In this study, a three-level meta-analysis was conducted in R statistical software version 3.4.1. using the *metafor* package (Viechtbauer, 2010). This analysis modelled the sample variance for each individual ES at level 1 according to Cheung's formula (2013), the variance between effect sizes within studies at level 2, and between studies at level 3 (see Assink & Wibbelink, 2016; Wibbelink & Assink 2015). We used the sample as the unit of analyses defining the second level, meaning that samples had to be independently recruited and described in the method section. Following that requirement, the dependency in the data occurred because studies reported effect sizes a) for several dimensions of the interparental relationship or children's problem behavior, b) derived from different measures or multiple informants, and c) for boys and girls separately, or a combination of these types of dependencies.

This three-level model was used to estimate an overall model, examining the overall effect size for the association between (negativity in) the interparental relationship and

children's problem behavior. Next, similarly to traditional mixed-effects models, when significant variance was found at the second and third level three-level mixed effects models were subsequently fitted by including characteristics that may explain this variance. We followed the instructions of Van den Noortgate and colleagues for examining categorical and continuous moderators (2013). Continuous moderators were added to the overall model and an omnibus chi-square test showed if the regressions coefficient was statistically different from zero. Categorical moderators were examined by adding dummy variables to the overall model for the categories. An omnibus chi-square test showed whether the regression coefficients for all categories were statistically equal to each other. Post hoc t-tests show which categories were statistically different from each other. This model was repeated with different reference categories, in order to statistically compare all categories to each other (in the case of more than 2 categories).

First, we examined whether the overall effect size for externalizing behavior was statistically different from the overall effect size for internalizing behavior. If that was the case, subsequent analyses were conducted separately for these two outcomes. We also examined if there were statistical differences in effect sizes for specific indicators of externalizing (i.e., broad dimension, aggression and delinquency) and internalizing behavior (i.e., broad dimensions, anxiety, and depression). If that was the case, subsequent separate analyses were conducted for these specific outcomes. Second, statistical differences in effect sizes were examined for the dimensions of the interparental relationship. If there were statistical differences, next, we examined to what extent the associations were dependent on moderator variables (i.e., age and gender of the child, family composition, common rater, and other sample and study characteristics), for each dimension separately if there was enough information ($k \geq 3$ and $N \geq 3$).

Publication Bias. Publication bias is a concern for every meta-analytic study because it could lead to an overestimation of the mean effect size. Although obtaining unpublished studies as best as possible should resolve this problem, we examined publication bias by applying conventional methods. We performed Egger regression (Egger, Smith, Schneider, & Minder, 1997), which tests the degree of funnel plot asymmetry as measured by the intercept from regression of standard normal deviates (effect size divided by its standard error) against the estimate's precision (the inverse of the standard error). A significant Egger regression test is an indicator of funnel plot asymmetry. We conducted the Egger test in the context of the multi-level structure of the data, by adding the estimate's precision as a moderator to the three-level overall model in R (i.e., the alternative for the "regtest" function in the metaphor

package in R (Viechtbauer, 2015). When Egger tests were significant, we applied the trim-and-fill procedure, to examine the over- or underestimation of the true effect size (Duval & Tweedie, 2000), using the "trimfill" function of the metaphor package (Viechtbauer, 2015).

Results

Study Sample

Using the sample as the unit of analyses defining the second level (i.e., samples are independently recruited and described in the method section), the selection process resulted in 1,731 effect sizes from 233 independent samples retrieved from 228 studies. Tables 2 and 3 display an overview of the selected studies and the main study characteristics.

Mean Effect Size Analyses

Overall analysis. Results of the overall three-level model showed a significant, positive effect size of $r = .169$ ($p < .0001$, *95%CI* = .155 - .183), indicating a small association between (negativity in) the interparental relationship and children's problem behavior across the 1,731effect sizes. Moreover, effect sizes varied significantly within ($\sigma^2 = .005$, χ^2 (2) = 789.78, $p < .0001$), and between studies ($\sigma^2 = .009$, χ^2 (2) = 376.91, $p < .0001$). Of the total variance, 28.05% was attributable to differences between effect sizes within studies, and 47.21% to differences between studies. This heterogeneity on both levels enabled us to continue with the analyses.

Externalizing versus internalizing. First, the omnibus test showed that the overall effect size differed significantly for externalizing versus internalizing problem behavior (F (1, 1729) = 18.70, $p < .0001$). For both externalizing and internalizing behavior, the results showed a positive association, indicating that (negativity in) the interparental relationship was associated with higher levels of problem behavior. However, interparental relationship problems were more strongly associated with externalizing behavior problems ($k = 204$, $N = 908$, $r = .179$, $p < .0001$, *95%CI* = .165 - .194) than internalizing problem behavior ($k = 168$, $N = 823$, $r = .155$, $p < .0001$, *%95CI* = .139 - .170). Next, omnibus chi-square tests showed that there were statistical differences in effect sizes for specific indicators of externalizing (i.e., broad dimension, aggression and delinquency) (F (2, 905) = 3.01, $p = .049$).

However, the post hoc test showed no consistent differences between the three groups (i.e., only externalizing broad differed slightly from delinquency, the effect size for aggression was statistically similar as those for delinquency and externalizing broad). The

Table 2. Characteristics of studies included in the meta-analysis.

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions	Informants	Dimensions	Informants		
1	Alblow et al. (2009)		USA	93	18	O, F, H, C, CC	M, F, C	E, I	T	67.2	mixed
2	Atkinson et al. (2009)		Australia	236	1	CC	C	I	S	154.9	mixed
3	Barton et al. (2015)		USA	331	2	H, CC	Mix, C	Depr	S	156,00	
4	Beckmeyer et al. (2014)		USA	270	2	CR	Mix	E, I	Mix	103.2	mixed
5	Benson et al. (2008)		USA	1893	12	H	C	E, I, Del, Depr	S, T	142.8	mixed
6	Benzies et al. (1998)		Canada	74 - 80	4	O	M, F	E	M, F	12,00	mixed
7	Benzies et al. (2004)		Canada	56 - 62	4	O	M, F	E	M, F	88.8	mixed
8	Bergman et al. (2014)		USA	247 - 248	8	H	M, F	E, I, Anx, Depr	S, Mix	165.84	mixed
9	Bradford et al. (2008)		USA	641	2	H	C	Del, Depr	S	181.2	mixed
10	Braithwaite et al. (2015)		USA	330	12	H, CC	Mix, C	I, Del	S, Mix	170.88	
11	Brand & Clingempeel (1987)		USA	*11 - 20	31	O, CC	M, F	I, Agg	M, F		boys, girls
12	Bresland et al. (2016)		USA	180	4	H	C	E, I	S, Mix	137.52	mixed
13	Brock & Kochanska (2016)		USA	62	1	C	Mix	I	Mix		mixed
14	Brock & Kochanska (2015)		USA	89	2	S	M, F	I	M, F	66,00	
15	Brock et al. (2017)		USA	86 - 91	6	S	M, F	I	S, M, F	54.00	mixed

Table 2 (continued)

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions	Informants	Dimensions	Informants		
16	Brody & Forehand (1990)	Sample 1	USA	24	1	H	C	Anx	T	160,00	girls
		Sample 2	USA	36	1	H	C	Anx	T	160,00	boys
17	Brook et al. (2001)		USA	254	2	F	M, F	Agg	M, F	24.00	mixed
18	Brummert-Lennings & Bussey (2017)		Australia	663	2	H	C	E, Anx	S	134.28	mixed
19	Buehler et al. (1998)	The Knox County Site	USA	337	4	F, H	C	E, I	S	148.80	mixed
		The Ogden Site	USA	563	4	F, H	C	E, I	S	146.88	mixed
20	Buehler et al. (2006)		USA	416	14	H	M, H	E, I, Depr	S, F, T		mixed
21	Buehler & Welsh (2009)		USA	416	4	H	L	E, I, Del, Depr	S	142.32	mixed
22	Buehler et al. (2007)		USA	416	12	H	M, F, H	E, I, Depr	S, T	142.32	mixed
23	Buist et al. (2011)		Netherlands	280	4	O, H	Mix	E, I	S	174.00	mixed
24	Burman et al. (1987)		USA	26 - 30	48	O, H, D	M, F, Mix	E, I	M, F	106.44, 118.56	boys, girls
25	Camacho et al. (2012)		USA	57 - 72	4	H	Mix	I	Mix	157.19	boys, girls
26	Camisasca et al. (2016)		Italia	60 - 198	6	H	CI	E, I	Mix	110.40	mixed
27	Chang et al. (2004)		Hong Kong	158	1	O	M	Agg	CI	130.70	mixed
28	Chen & Johnston (2012)		Canada	160	4	O, CR	Mix	E, I	Mix	44.50	mixed

Table 2 (continued)

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions[a]	Informants[b]	Dimensions[c]	Informants[d]		
29	Christensen et al. (1983)		USA	32 - 34	2	O	M, F	E	Mix	80.64	boys
30	Chung et al. (2009)		USA	415	1	F	C	I	S	178.32	mixed
31	Cole & McPherson (1993)		USA	107	9	H	M, F, C	Depr	S, M, F	195.60	mixed
32	Coln et al. (2013)		USA	121	4	C, CC	M	E, I	M	103.08	mixed
33	Connolly & Vance (2010)		Australia	411	2	O	Mix	Agg	Mix, T	123.12	mixed
34	Cowan et al. (1996)		USA	27	18	O, H	M, F, H	E, Depr	T	42.00	mixed
35	Crockenberg & Langrock (2001)		USA	81 - 83	16	H, D	M, F	E, I	M	72.00	boys, girls
36	Cui et al. (2005)[a]		USA	404	10	S, H	Mix	Agg, Del, Anx, Depr	S	163.30	mixed
37	Cui et al. (2007)[a]		USA	451	2	CR	CI	E, I	S	151.32	mixed
38	Cummings et al. (1994)		USA	25 - 26	16	O, H, CC	M, C	E, I	M		boys, girls
39	Cummings et al. (2003)	Sample 1	USA	36	6	H	Mix	E, I	Mix		mixed
		Sample 2	USA	36	6	H	Mix	E, I	Mix		mixed
40	Cummings et al. (2006)	Sample 1	USA	224	5	CC	C	E, I, Depr	S, M, F	133.44	mixed
		Sample 2	USA	232	15	H, CC	M, F, L	E, I	M, F, T	71.88	mixed
41	Cummings et al. (2012)[c]		USA	227	18	F, H	Mix, H	Agg, Del, Anx, Depr	S, Mix	72.00	mixed
42	Cummings et al. (2014)		USA	235	16	F, H	M, F	E, I	M, F	72.00	mixed

Table 2 (continued)

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions	Informants	Dimensions	Informants		
43	Dadds & Powell (1991)	Sample 1	Australia	83 - 111	8	O, CR	M	E, Anx	M	58.80	boys, girls
		Sample 2	Australia	19 - 34	8	O, CR	M	E, Anx	M	63.60	boys, girls
44	Dadds et al. (1999)	Sample 1	Australia	95	3	H, C, D	C	Depr	S	147.00	girls
		Sample 2	Australia	65	2	H, D	C	I	S	144.00	boys
		Sample 3	Australia	112	4	C, D	C	E, I	S	147.00	boys
		Sample 4	Australia	63	1	D	C	Depr	S	147.00	boys
45	David et al. (1996)		USA	120 - 134	8	O, H	M	Agg, Anx	M, T	158.40	mixed
46	Davies & Cummings (1998)		USA	56	2	CC	M	E, I	M, CI	90.00	mixed
47	Davies & Lindsay (2004)		USA	172 - 924	4	H, CC	M, C	E, I	S, M	150.80	mixed
48	Davies & Windle (1997)		USA	204 - 239	6	CC	M	Del, Depr	S	186.00	boys, girls
49	Davies et al. (1999)		USA	506	4	S	C, H	Del, Depr	S	184.80	mixed
50	Davies et al. (2007)[c]		USA	178	4	H	Mix	E, I	M, F	72.00	mixed
51	Davies et al. (2012)	sample 1[f]	USA	201	12	F, H, C	M	E, I	M	26.00	mixed
		sample 2	USA	250	16	F, H, C	Mix	E, I	S, Mix	151.20	mixed
52	Davies et al. (2012)[f]		USA	201	3	H	M	E	M	26.00	mixed
53	Davies et al. (2016)[e]	Study 1	USA	243	4	C, D	CI	E	CI	55.20	mixed
		Study 2	USA	263	6	H, C, D	CI	E, Del	M, T	151.44	
54	Davies et al (2018)[e]		USA	243	3	H	Mix, L	E	T	55.20	mixed
55	De Board Lucas et al. (2010)		USA	150	2	CC	C	E, I	S, Mix		mixed

Table 2 (continued)

	Study	Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions[a]	Informants[b]	Dimensions[c]	Informants[d]		
56	De Vito & Hopkins (2001)		USA	60	1	O	M	E	M	40.70	mixed
57	Doh et al. (2012)		South Korea	349	8	CC	M	Agg	M, T	42.00	mixed
58	Donenberg & Baker (1993)		USA	44 - 64	4	O	Mix	E, I	Mix, T	58.80	mixed
59	Doyle & Markiewicz (2005)		Canada	175	2	CC	C	E, I	S	156.00	mixed
60	Doyle et al. (2003)		Canada	239	3	CC	C	Del, Depr	S	157.20	
61	DuRocherSchudlich & Cummings (2003)		USA	267	52	H, C	H	E, Anx, Depr	S, M, F	126.84	mixed
62	Ehrenreich et al. (2014)		USA	192	4	CC	Mix	Agg	T	120.00	boys, girls
63	Eiden et al. (2009)		USA	159 - 166	6	H	Mix	Anx	S, Mix	12.00	mixed
64	Elam et al. (2016)		USA	227	2	H	C	E, I	CI	129.12	mixed
65	Elam et al. (2017)		USA	229 - 276	12	O, S	M, F	Agg, Del	M, F	75.24	mixed
66	El Sheikh & Elmorestaton (2004)		USA	67	4	CC	CI	E, I, Anx, Depr	S, Mix	133.80	mixed
67	El Sheikh (2005)		USA	89 - 91	4	CC	Mix	E, I	Mix	116.76	boys, girls
68	El Sheikh et al (2009)	sample 1	USA	150	4	CC	CI	Agg, Del	T, Mix	111.24	mixed
		sample 2	USA	176	6	CC	CI	E, Agg	M, F, T	104.28	mixed
69	ElSheikh et al. (2008)[b]		USA	250	2	H	M, F	E	Mix	98.80	mixed

Table 1 (continued)

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions[a]	Informants[b]	Dimensions[c]	Informants[d]		
70	ElSheikh et al. (2011)[b]		USA	260	1	CC	CI	Del	Mix	98.76	mixed
71	ElSheikh et al. (2013)[b]		USA	244	2	CC	CI	Anx, Depr	S	98.76	mixed
72	Emery & O'Leary (1984)		USA	58 - 68	16	O, H	M	E, Del, Anx, Depr	M, T		boys, girls
73	Epstein et al. (2004)		USA	272	18	H, CC	M, F, C	E, I	S, M, F	162.24	mixed
74	Erath & Bierman (2006)		USA	360	4	F, H	M	E	M, F		mixed
75	Erel & Kissil (2003)		Israel	55	2	O	C	E, I	T	49.50	mixed
76	Eshbaugh (2008)		USA	2918	2	O	C	Depr	S	159.48	mixed
77	Fletcher et al. (2017)		USA	30 - 38	2	H	C	Depr	S		boys, girls
78	Forehand et al. (1994)		USA	227	2	H	M	Agg, Anx	T	157.00	mixed
79	Fosco & Feinberg (2014)[g]		USA	768	2	H	Mix	E, Anx	S, CI	135.60	mixed
80	Fosco & Feinberg (2018)g		USA	768	1	H	Mix	Del	S	135.60	mixed
81	Fosco & Grych (2008)		USA	150	12	H, CC	Mix, CH	E, I	S, Mix	120.00	mixed
82	Franck & Buehler (2007)		USA	416	24	H	M, F, L	E, I	S, M, F, T		mixed
83	Frosch & Mangelsdorf (2001)		USA	78	8	C, CC	L	E, Agg	H, M, F, T	37.20	mixed
84	Gach et al. (2018)		USA	241	3	H	M	E	M, F, T	36.00	mixed
85	Gagne et al. (2007)		Canada	136	2	CC	C	E, I	Mix	132.00	mixed
86	Gerard & Buehler (1999)		USA	329 335	4	H	C	E, I	S, T	148.80	mixed

Table 1 (continued)

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions	Informants	Dimensions	Informants		
87	Gerard et al. (2006)		USA	551	4	F, H	Mix	E, I	Mix		mixed
88	Goldberg & Carlson (2014)		USA	773	2	O	Mix	E, I	M	36.00	mixed
89	Gomulak-Cavicchio et al. (2006)		USA	227	2	CC	CI	E, I	CI	72.00	mixed
90	Gonzales et al. (2000)		USA	97	12	H, CC	C	Del, Depr	S, M	114.80	mixed
91	Gonzales et al. (2006)		USA	119	2	F	M	Del, Depr	M	155.28	mixed
92	Gordis et al. (2001)		USA	88 - 89	4	H	H	E, I, Agg	S, Mix	135.60	mixed
93	Grych et al. (2003)		UK	142 - 156	72	O, H, CC	Mix, C	E, Anx, Depr	S, T	140.4, 139.8	boys, girls
94	Grych et al. (2004)		USA	338	2	CC	C	Agg, Anx	S	195.48	mixed
95	Gulati & Dutta (2008)		India	120 - 125	16	H	M	E, I	M	166.80	boys, girls
96	Ha et al. (2009)		Netherlands	428	2	O	M, F	Depr	S	182.40	mixed
97	Hammen et al. (2004)		Australia	816	1	O	M	Depr	S	182.00	mixed
98	Han et al. (2017)		South Korea	1662	2	H	Mix	Agg, Anx	M, T	36.00	mixed
99	Hanington et al. (2012)		UK	691-9910	4	CC	M, F	E, I	M	8.00	mixed
100	Hanson (1999)		USA	256 - 652	5	CC	Mix	Del	S, Mix		boys, girls
101	Harold et al. (2013)	sample 1	USA	218	2	H	Mix	E	M, F	71.76	mixed
		sample 2	UK/USA	378	2	H	Mix	E	M, F	77.64	mixed

Table 2 (continued)

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions	Informants	Dimensions	Informants		
102	Harold et al. (1997)	sample 1	USA	178	5	CC	C	Agg, Anx, Depr	S	154.00	mixed
		sample 2[a]	USA	202	16	F, H	C, L	E, Del, Anx, Depr	S, P, T	163.30	boys
103	Harold et al. (2004)		UK	181	18	O, H	Mix	E, Agg, Anx, Depr	S, Mix	139.80	mixed
104	Harrist & Ainslie (1998)		USA	26 - 29	4	CC	M	Agg, Depr	M	63.00	boys, girls
105	Hart et al. (1998)		Russia	101 - 106	4	H, D	M	Agg	T	61.20	boys, girls
106	Harvey et al. (2011)		USA	128 - 161	4	H, C	M, Mix	Del	Mix	44.00	mixed
107	Holmes et al. (2015)		USA	535 - 590	2	H	M	Agg	M	39.24	boys, girls
108	Hou et al. (2016)		USA	350	2	H	C	Del, Depr	S	204.48	mixed
109	Ingoldsby et al. (1999)		USA	97 - 128	8	H, C, R	M	E, I	M, F	24.00	boys
110	Jaycox & Repetti (1993)		USA	32 -35	8	O, H	Mix	E, I	Mix	110.40	boys, girls
111	Jenkins & Smith (1991)		UK	102 - 119	24	H, CR	M, F	E, I	S, M, F		mixed
112	Jenkins (2000)		Canada	71	20	H	M	I, Agg	M, P, T		mixed
113	Jenkins et al. (2006)		Canada	114 - 121	2	H	M	Agg	CI		mixed
114	Johnson & Lieberman (2007)		USA	30	2	H	M	E, I	M	50.45	mixed
115	Johnson & Lobitz (1974)		USA	17	2	O	M, F	E	H	90.24	boys
116	Jones et al. (2001)		USA	96 - 119	2	O	M, F	Depr	S	158.04	mixed
117	Jouriles & McDonald (2015)		USA	107	4	H	M	E, I, Depr	S, M	102.00	mixed

Table 2 (continued)

Study	Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
					Dimensions	Informants	Dimensions	Informants		
118 Jouriles et al. (1987)		USA	22 - 23	8	H	M	Agg, Del, Anx, Depr	S, M	98.4, 104.4	boys, girls
119 Jouriles et al. (1988)		USA	30	4	O, H	M	E	M	24.00	boys, girls
120 Jouriles et al. (1991)	sample 1	USA	200	2	F, CR	M	E	M	38.80	boys
	sample 2	USA	87	6	O, H, CR	M	E, I	M	61.20	boys
121 Jouriles et al. (1991)		USA	320 - 558	4	O	Mix	Del	S, Mix	106.80	boys, girls
122 Jouriles et al. (1996)		USA	55	2	H	Mix	E	Mix	109.38	mixed
123 Kaczynski (2006)		USA	226	18	H, CC	M, F, C	E, I	L, M, F	112.90	mixed
124 Katz & Low (2004)		USA	121	5	O, H	Mix	Agg, Del, Anx, Depr	M	60.50	mixed
125 Keller et al. (2008)[c]		USA	215	12	H, D	Mix	Agg, Del, Anx, Depr	Mix		mixed
126 Kempton et al. (1989)		USA	48	24	H, C, CC	M, F	E, Anx	T	157.00	mixed
127 Kerig (1996)		Canada	34 - 63	96	F, H, C, D, CC	M, F	E, I, Anx, Depr	S, M, F	103.50	boys, girls
128 Kerig (1998)		Canada	86 - 88	16	H, CC	Mix, C	E, I, Anx, Depr	S, Mix	102.90	boys, girls
129 Kim et al. (2008)		USA	130	2	CC	C	E, I	S	192.24	mixed
130 Kjobli & Hagen (2009)		Norway	136	1	F	Mix	Agg	Mix	99.12	mixed
131 Kloep (1995)		Albania	93	5	S, F	Mix	Del, Depr	S	144.00	girls
132 Kocak et al. (2017)		Turkey	298 - 487	2	H	M, C	Agg	S	172.32	mixed
133 Koss et al. (2015)		USA	195	2	H	Mix	E, I	Mix	95.88	mixed

Table 2 (continued)

	Study	Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions	Informants	Dimensions	Informants		
134	Kouros (2008)		USA	297	20	H, C	M, F, H	Agg, Del, Anx, Depr	S, M	133.70	mixed
135	Krishnakumar et al. (2003)	sample 1	USA	542	2	H	C	E, I	S	161.88	mixed
		sample 2	USA	150	2	H	C	E, I	S	165.96	mixed
136	Lancaster et al. (1989)		Australia	100	2	O	M	Agg, Anx	M	45.00	mixed
137	Larsen et al. (2007)		Netherlands	932 - 943	2	CC	C	Agg, Anx	S	163.56	mixed
138	Lee et al. (2005)		Canada	58 - 122	12	CR, CC	M, F	E, I	M, F	37.00	boys, girls, mixed
139	Lee et al. (2015)		South Korea	335	6	F, H, CC	C	I, Agg	S	126.00	mixed
140	Leidy et al. (2009)		USA	106	2	O	CI	E, I	Mix	129.60	mixed
141	Leinonen et al. (2003)		Finland	260	32	H, C	M, F	E, I, Del, Depr	S, CI	151.20	boys, girls
142	Lemola et al. (2012)[d]		Switzerland	176	1	CC	M	Agg	S	139.20	mixed
143	Li et al. (2011)		China	670	4	H	Mix	Agg	P	124.73	mixed
144	Li et al. (2015)		USA	230	4	H	Mix	E, I	Mix	84.84	mixed
145	Lim et al. (2011)		USA	106	4	CC	H	Anx, Depr	S, CI	136.80	mixed
146	Lin et al. (2017)[f]		China	256	4	O, F	Mix	Depr	S	114.72	mixed
147	Lindahl & Malik (1999)		USA	113	4	H, CR	M, F	E	M, F	106.80	boys
148	Lindahl et al. (2004)		USA	82 -155	8	H	H	E, I	Mix	114.10	mixed
149	Lindsey et al. (2009)		USA	268	2	H	C	Agg	T	151.30	mixed
150	Linville et al. (2010)		USA	148	1	O	Mix	E	Mix	24.00	mixed

Table 2 (continued)

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions	Informants	Dimensions	Informants		
151	Liu et al. (2016)		China	1407	1	H	C	Del	S	152.88	mixed
152	Low & Stocker (2005)		USA	136	4	H	CI	E, I	S, Mix	122.00	mixed
153	Lucey & Fitzgerald (1989)	sample 1	Ireland	40	1	O	M	E	M		mixed
		sample 2	Ireland	48	1	O	M	E	M		mixed
154	Mahoney et al. (1997)		USA	146	8	O, CR	M, F	E, I	M, F	79.20	mixed
155	Marchand & Hock (2003)		USA	41 - 51	3	H, D	M, F	I	M, T	72.00	mixed
156	Marchand et al. (2004)		USA	64	8	H, C	M, F	E, I	M	92.00	mixed
157	Marcus et al. (2001)		USA	115	6	H, CC	Mix, C	Agg	Mix, T	118.20	mixed
158	McDonald & Grych (2006)		USA	179	8	H, CC	M, C	E, I, Agg, Anx	S, M	96.36	mixed
159	McDonald et al. (2001)		USA	90	4	O	Mix	E, I	M, F		mixed
160	Miller-Graff et al. (2016)		USA	225	4	H, C	L	E, I	M	158.88	mixed
161	Minze et al. (2010)		USA	57	1	H	M	E	M	56.5	mixed
162	Mosmann et al. (2018)		Brazil	169 - 175	4	CC	Mix	Agg, Del, Anx, Depr	Mix	135.60	mixed
163	Mueller et al. (2014)		USA	531	4	CC	C	E, I, Anx	S, M	102.00	mixed
164	Murphy et al. (2017)		USA	71	1	CC	H	E	T	24.00	mixed
165	Neighbors et al. (1997)		USA	114 - 129	4	H	M	E, Anx	M	157.20	boys, girls
166	Nicolotti et al. (2003)		USA	89	8	H	Mix, C	E, I, Anx, Depr	S, Mix	119.00	mixed

Table 2 (continued)

	Study	Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions	Informants	Dimensions	Informants		
167	Obradovic et al. (2011)		USA	260	2	H	Mix	E, I	CI	64.00	mixed
168	O'Brien et al. (1997)		USA	43	10	H	M, C	E, I, Anx	S, M, T	121.80	mixed
169	O'Donnell et al. (2010)		USA	88	1	CC	C	Depr	S	128.88	mixed
170	O'Leary & Vidair (2005)		USA	99 -104	32	O, CR	M, F	E, I	M, F	66.00	boys, girls
171	Oltmanns et al. (1977)		USA	49	4	O	M, F	E, Del	M, F	116.40	mixed
172	Owen et al. (2008)		USA	148	4	CC	C	E, I	S, M	120.00	mixed
173	Papp et al. (2004)		USA	295	18	O, N, H	Mix	E, I	M, F, Mix	133.70	mixed
174	Papp et al. (2004)		USA	51	4	O	M, F	E, I	M, F	84.00	mixed
175	Peisch et al. (2016)		USA	90 - 120	12	H	M, F, C	E, I	S, M	40.66	mixed
176	Peksaygili & Gure (2008)		Turkey	131 - 154	8	H, CC	M, C	E, I	S	149.4, 150.24	boys, girls
177	Peleg-Popko & Dar (2001)		Israel	108	2	O	M	Anx	S, M		mixed
178	Pendry et al. (2013)		USA	74	4	H, C	Mix	E, I	Mix	69.10	mixed
179	Peris & Emery (2005)		USA	6416	2	O	Mix	E, I	S	181.20	mixed
180	Ponnet et al. (2016)		Belgium	340	12	H	M, F	E	S, M, F	170.88	mixed
181	Porter & O'Leary (1980)		USA	13 - 20	16	O, H	M	E, Del	M	151.8, 91.8, 91.44	boys, girls
182	Prinz et al. (1983)		USA	23	12	O, H	M	Agg, Del	M, T		boys
183	Rhoades et al. (2011)		USA	361	1	H	Mix	Agg	Mix	8.80	mixed
184	Rogers & Holmbeck (1997)		USA	80	2	CC	C	E, Depr	S	144.00	mixed
185	Rowe et al. (2016)		Australia	24	1	H	C	Anx	S	138.96	mixed

Table 2 (continued)

	Study	Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions[a]	Informants[b]	Dimensions[c]	Informants[d]		
186	Salafia et al. (2008)		USA	136	24	F, H, C, R	M	Agg, Del, Anx, Depr	S, M	127.80	mixed
187	Salari et al. (2014)		Sweden	475	4	O, CR	M, F	E	M, F		mixed
188	Schlomer et al. (2015)		USA	452	4	O, F, H	Mix, C	I	S		mixed
189	SchoppeSullivan et al. (2007)		USA	238 - 246	30	N, H	M, F	E, Depr	S, M, F	133.30	mixed
190	Shaughency & Lahey (1985)		USA	41	4	O	M, F	Del	M, F, T		mixed
191	Shelton & Harold (2007)		UK	100	2	O	Mix	I, Agg	S	152.52	mixed
192	Shelton & Harold (2008)		UK	352	18	O, H	Mix	E, Agg, Anx, Depr	S, T	140.00	mixed
193	Shigeto et al. (2014)		USA	59 - 65	2	O	M, F	E	L	12.53	mixed
194	Shin et al. (2014)		South Korea	227	2	CC	C	Agg	S, P		mixed
195	Siegel & Han (2018)		China	2282	2	F	Mix	E, I	Mix		mixed
196	Silva et al. (2016)		Portugal	152 - 153	2	H	C	E, I	T	156.00	mixed
197	Siffert & Schwarz (2011)[d]		Switzerland	192	24	H, D	M	Agg, Del, Anx, Depr	S, M	127.44	mixed
198	Spence et al. (2002)		Australia	4471 - 4483	2	O	M	Anx	S, M	168.00	mixed
199	Stevens et al. (2005)		Netherlands	376 - 415	6	O, F, H, CR	Mix	E	S, Mix	168.00	mixed
200	Stevenson et al. (2018)		USA	203	1	CC	Mix	E	Mix	32.21	mixed

Table 2 (continued)

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions[a]	Informants[b]	Dimensions[c]	Informants[d]		
201	Stocker et al. (2003)		USA	136	2	H	CI	E, I	S, Mix	122.00	mixed
202	Stover et al. (2012)		USA	308	1	H	Mix	Agg	Mix	27.00	mixed
203	Stover et al. (2016)		USA	336	2	H	M, F	Agg	Mix	54.00	mixed
204	Stroud et al. (2015)		USA	149	8	O, H	Mix	E, I	Mix	54.43	mixed
205	SturgeApple et al. (2006)[c]		USA	210	24	H, D	H	E, I	M, F, T	72.00	mixed
206	Stutzman et al. (2011)		USA	1539	2	H	C	Agg, Depr	S	193.90	mixed
207	Su et al. (2011)		USA	236 - 272	2	H	M	Del	S	150.00	boys, girls
208	Tang et al. (2017)[f]		China	249	4	O, F	Mix	E	Mix	115.08	mixed
209	Tissot et al. (2018)	sample 1	USA	53	4	O	M, F	E, I	M	58.30	mixed
		sample 2	Switzerland	29 - 30	4	O	M, F	E, I	M	58.80	mixed
210	Towe-Goodman et al. (2011)		USA	636	2	H	M	Del	M	15.50	mixed
211	Trapolini et al. (2007)		Australia	80	1	O	Mix	E	CI	50.80	mixed
212	Tschann et al. (2002)		USA	150	3	F, H, CR	CI	Del	S	163.20	mixed
213	Tu et al. (2016)[b]		USA	240 - 242	2	H	M	Anx, Depr	S	98.76	mixed
218	Van Eldik (2017)		Belgium	369	2	O	M, F	E	M, F	92.00	mixed
119	Vannatta et al. (2010)		USA	40	6	O	M, F	E, I, Depr	S, Mix	148.80	mixed
220	Verlaan & Schwartzman (2002)		Canada	77 - 97	4	H	M, F	E	CI	141.60	boys, girls

Table 2 (continued)

Study		Sample	Country	N_{ob}	N_{ES}	Interparental Relationship		Child Problem Behavior		Child age (months)	Child gender
						Dimensions[a]	Informants[b]	Dimensions[c]	Informants[d]		
221	Vrijmoeth et al. (2012)		Belgium	101	2	O	Mix	E, Anx	Mix	174.00	mixed
222	Whitson & Elsheikh (2003)		USA	56 - 63	6	H, CC	M, C	E, I	M		mixed
223	Wierson et al. (1988)		USA	178	6	H	M, F, C	E, Anx	T	160.00	mixed
224	Yaman et al. (2010)	sample 1	Netherlands	175	1	O	M	Agg	M	25.17	mixed
		sample 2	Netherlands	175	1	O	M	E	M	24.02	mixed
225	Zarling et al. (2013)		USA	132	2	H	CI	E, I	CI	82.80	mixed
226	Zemp et al. (2016)		Switzerland	99 - 100	2	O	M, F	E	M, F	78.48, 79.08	mixed
227	Zemp et al. (2018)		Germany	528 - 529	8	H, D	M, F	E, I	S	120.00	mixed
228	Zhou et al. (2017)		USA	212	2	CC	M	E, I	M	6.00	mixed

Note. Superscripts identify dependent samples. Interparental relationship Dimensions: O = Omnibus, S = Satisfaction, N = Negative Quality, F = Conflict Frequency, H = Hostility, D = Disengaged behavior, C = Constructive behavior, CR = Child-related conflict, CC = Composite Conflict. Interparental Relationship Informants: M = Mother-report, F = Father-report, Mix = Mix both parents, C = Child-report, L = Lab observation, H = Home observation, CI = combination of informants. Child Problem Behavior Dimensions: E = Externalizing broad, I = Internalizing broad, Agg = Aggression, Del = Delinquency, Anx = Anxiety, Depr = Depressive symptoms. Child Problem Behavior Informants: S = Self-report, L = Lab observation, H = Home observation, M = Mother-report, F = Father-report, P = Peer-report, T = Teacher-report, CI = combination of informants.

Table 3. Overview of study characteristics for associations between the interparental relationship and externalizing and internalizing behavior.

Coding Categories	*Externalizing*			*Internalizing*		
	Descriptives	***k***	***N***	**Descriptives**	***k***	***N***
Sub Dimension						
Omnibus Adjustment		60	162		41	102
Satisfaction		4	11		5	12
Negative Quality		2	7		2	9
Conflict Frequency		22	42		19	47
Hostility		121	419		102	393
Disengaged behavior		10	46		11	50
Constructive behavior		16	43		15	64
Child-related conflict		17	39		13	32
Composite conflict		54	139		47	114
Publication Year		204	908		168	823
Range	1974-2018			1987-2018		
% ESs before 2000	31.06			29.77		
% ESs 2000-2010	45.49			52.01		
% ESs after 2010	23.46			18.23		
Country of Origin						
United States		143	627		120	558
U.K.		9	73		6	69
Canada		12	74		8	95
Australia		7	14		12	24
Finland		1	16		1	16
Netherlands		5	11		4	7
Belgium		3	15		1	1
Sweden		1	4		-	-
Germany		1	4		1	4
Italia		1	3		1	3
Brazil		1	2		1	2
Portugal		1	1		1	1
Israel		1	1		2	3
Hong Kong		1	1		-	-
Albania		1	2		1	2
China		4	10		2	5
India		1	8		1	8
Norway		1	1		-	-
Russia		1	4		-	-
South Korea		4	14		2	4
Switzerland		3	17		2	14
Turkey		3	8		2	7
Gender Children		204	908		168	823
Boys		16	169		11	142
Girls		25	141		22	134
Mixed		163	598		135	547

Age Children (months)		180	762		151	729
Range	6.00-204.48			6.00-204.48		
M	109.94			117.50		
Family Comp. (% intact)		125	558		104	463
Range	0.00-100.00			0.00-100.00		
M	85.30			84.15		
Length of the interparental rel.		48	265		37	310
Range in Years	5.34-18.30			5.34-18.26		
M in Years	11.76			12.27		
Age Mothers (years)		92	411		69	425
Range	24.30-46.20			25.05-46.20		
M	36.67			37.00		
Age Fathers (years)		69	338		54	382
Range	26.60-48.30			32.23-48.30		
M	39.11			39.41		
SES Income		111	443		99	433
Low		17	69		11	40
Medium/Mixed		83	342		81	369
High		11	32		7	24
SES Education		105	553		84	529
Low		22	83		15	52
Medium		39	245		31	294
High		19	89		12	63
Mixed		25	136		26	120
Clinical Sample		204	908		204	823
Yes		23	93		11	31
No		176	797		155	781
Mixed		5	18		2	11
Ethnicity (%white)		176	772		146	737
Range	0.00-100.00			0.00-100.00		
M	72.17			77.17		
Study Interval (months)		204	908		204	823
Cross-sectional		177	756		147	677
Longitudinal		27	152		21	146
Range	3.00-144.00			12.00-96.00		
M	23.63			24.09		
Shared informant		204	908		204	823
Different Inf.		71	450		60	473
Partially Same Inf. Informant		19	41		10	23
Same Informant		117	417		98	327
Mother		64	208		35	128
Father		24	65		17	46
Child		34	62		41	94
Observation		1	2		-	-
Mixed parents		35	79		18	58
Combi Mother/Child		1	1		1	1

Note. ESs = effect sizes.

omnibus chi-square test for specific indicators of internalizing behavior (i.e., broad dimensions, anxiety, and depression) was nonsignificant (F (2, 820) = 2.23, p = .108). Subsequent moderator analyses were therefore conducted for the total samples of externalizing and internalizing behavioral problems separately.

Moreover, publication bias was examined for these two groups of effect sizes (ranging from -.56 to 0.81 for externalizing and from -.58 to .62 for internalizing), and both Egger regression tests were nonsignificant (F(1, 906) = 2.39, p = .123 and F(1, 821) = 2.16, p = .143), indicating that there was no significant asymmetry and therefore no indication of publication bias. Funnel plots are provided as supplementary online material.

Dimensions of the interparental relationship. Next, we analyzed to what extent the dimensions of the interparental relationship were differentially related to externalizing and internalizing problem behavior, respectively. Results are shown in Table 4 and Figure 2.

***Externalizing behavior*.** The omnibus test for externalizing behavior showed that the overall effect size differed significantly for the dimensions of the interparental relationship (F (8, 899) = 5.81, p < .0001). All dimensions, except satisfaction, were modestly to moderately associated with externalizing behavior. First, post-hoc t-test showed a statistically stronger overall association for child-related conflict, than for all other dimensions. Next, associations with externalizing behavior were statistically similar for omnibus adjustment, conflict frequency, hostility, disengaged conflict behavior and composite conflict. Statistically smaller, but still significant associations were found for negative quality and constructive conflict. As this latter association was reversely coded, it shows that the use of less constructive behavior is related to higher levels of externalizing behavior. Finally, the association between satisfaction and externalizing behavior was nonsignificant and statistically smaller than for the other dimensions.

Internalizing behavior. For internalizing behaviors, also, the omnibus test showed that associations between the interparental relationship and internalizing behavior were dependent on the dimension of the interparental relationship that is assessed (F (8,814) = 7.30, p < .0001). See Table 4 for the results. All dimensions, except satisfaction, were modestly associated with internalizing behavior. Post-hoc t-tests showed that the strongest association with internalizing behavior was found for composite conflict, which was statistically stronger than associations for omnibus adjustment, satisfaction, negative quality, hostility, constructive and disengaged behavior. Next was the association for conflict frequency, which was statistically stronger than associations for omnibus adjustment, satisfaction, negative quality,

hostility, and constructive behavior. Then, the association for child-related conflict was statistically stronger than the associations for omnibus adjustment, satisfaction, negative quality and constructive behavior. Moreover, associations for disengaged, constructive and hostile behavior were statistically stronger than for satisfaction. Associations for omnibus adjustment, negative quality and constructive behavior were statistically similar and showed weaker yet significant associations with internalizing behavior. Similar as for externalizing behavior, the overall effect size for the associations between satisfaction and internalizing behavior was not significant.

Comparison between associations for externalizing versus internalizing behavior. Additionally, we examined whether the effect sizes of the dimensions of the interparental relationship were statistically different for externalizing versus internalizing behavior (see Table 4). Results showed that the effect sizes for hostility (F (1, 810) = 23.97, p < .0001) and child-related conflict (F (1, 69) = 7.94, p = .006) were statistically stronger for externalizing behavior than for internalizing behavior. Effect sizes for the other dimensions of the interparental relationship did not statistically differ for externalizing and internalizing behavior.

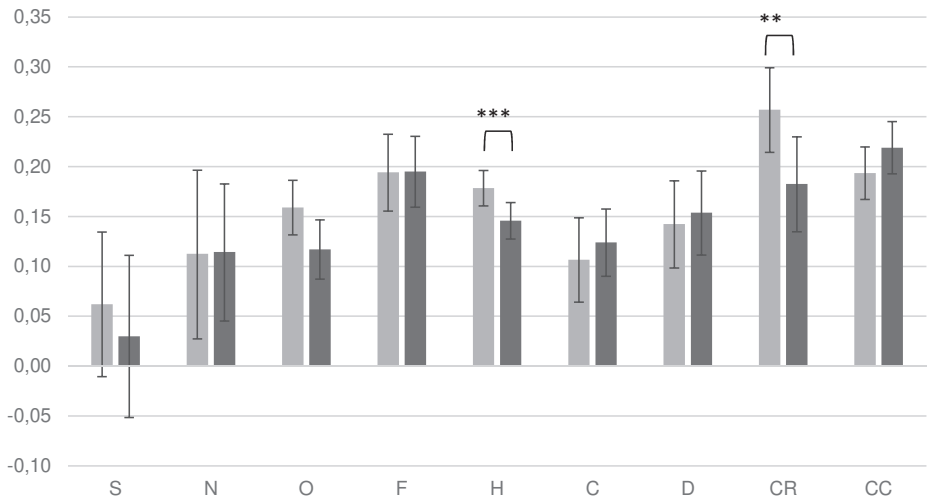

Figure 2. Overall effect sizes for externalizing (light grey) and internalizing behavior (dark grey).
Note. **p<.01, ***p<.0001. O = omnibus adjustment, S = satisfaction, N = negative quality, F = conflict frequency, H = hostility, C = constructive conflict behavior, D = disengaged conflict behavior, CR = child-related behavior, CC = composite conflict.

Table 4. Mean effect sizes for the sub dimensions of the interparental relationship with externalizing and internalizing problem behavior.

	Externalizing Model				Internalizing model				Ext vs. Int
	k	*N*	*r*	*CI 95%*	*k*	*N*	*r*	*CI 95%*	*p*
Satisfaction	4	11	.062[b]	-.011 - .134	5	12	.030[a]	-.052 - .111	.702
Neg. Quality	2	7	.113[**ab]	.027 - .197	2	9	.114[**ad]	.045 - .183	.224
Omnibus	60	162	.159[***ac]	.132 - .186	41	102	.117[***ab]	.087 - .147	.066
Conflict frequency	22	42	.194[***ac]	.155 - .232	19	47	.195[***cf]	.159 - .230	.987
Hostility	121	419	.178[***ac]	.161 - .196	102	393	.146[***de]	.127 - .164	<.0001
Constructive	10	46	.107[***b]	.064 - .149	11	50	.124[***bd]	.090 - .158	.993
Disengaged	16	43	.142[***bc]	.098 - .186	15	64	.154[***bdf]	.111 - .196	.361
Child-related	17	39	.257[***]	.214 - .299	13	32	.183[***cef]	.135 - .230	.006
Composite Conflict	54	139	.194[*** a]	.167 - .220	47	114	.219[***c]	.193 - .245	.246

Note. Overall ES were significant at p < .001 = *** or p < .01 = **. Estimates with the same superscript, are not significantly different from each other.

Moderator Analyses

As significant differences appeared between the dimensions of the interparental relationship, we examined to what extent associations were dependent on moderator variables (i.e., age and gender of the child, family composition, and common rater) for each dimension of the interparental relationship and externalizing and internalizing behavior separately. That is, when enough information was present on the second ($k \geq 3$) and third level ($N \geq 3$), which was not the case for negative quality. See Tables 5 and 6 in the online supplementary material for all omnibus moderator test statistics.

Age of the child. Child age (varying between 24 and 186 months) was a significant moderator of associations between conflict frequency and externalizing ($N = 38$, $k = 19$, F (1, 36) = 4.66, $p = .038$, $b = .001$) and internalizing problem behavior ($N = 44$, $k = 16$, F (1, 42) = 5.46, $p = .024$, $b = .002$). The small nature of the effect sizes indicated that the strength of the association between conflict frequency and internalizing and externalizing problems modestly increased with child age. No other associations between dimensions of the interparental relationship and externalizing or internalizing problem behavior were moderated by the age of the children.

Child gender. No associations between dimensions of the interparental relationship and child externalizing behavior and internalizing problem behavior depended on the gender of the children.

Family composition. The results showed that only the association between composite conflict and internalizing behavior became statistically larger when a relatively larger part of the sample was intact ($N = 63$, $k = 23$, F (1, 61) = 6.87, $p = .011$, $b = .002$). No other associations were dependent on the percentage of intact families in the sample.

Common method variance. For most of the associations, the results showed that effect sizes were significantly stronger when information on the interparental relationship and child behavior was obtained from the same informant versus from completely different informants (p values of omnibus tests varying between < .0001 and .030). For all dimensions, associations were statistically weaker but still significant when information on the interparental relationship and child problem behavior came from different informants (r varying between .067-.168), compared to when information came from the same informant (r varying between .158-.307 for studies with the same informant). Only associations for satisfaction, conflict frequency and constructive behavior with externalizing and internalizing behavior were not dependent on the extent to which information came from common raters.

Sample and publication characteristics. Additional moderator analysis showed that most associations between dimensions of the interparental relationship and externalizing and internalizing problem behavior did not depend on the age of parents, SES, parents educational background, family ethnicity, average length of the interparental relationship in years, time interval, year of publication and the journal impact factor. Few exceptions were found, showing that the strength of associations between hostility and child-related conflict and externalizing behavior slightly decreased when mothers were older (N = 172, k = 49, F (1, 170) = 5.29, p = .023, b= -0.009 and N = 27, k = 12, F (1, 25) = 4.78, p = .038, b = -0.015), and similarly, the strength of associations between child-related conflict and externalizing behavior slightly decreased when fathers were older (N = 25, k = 10, F (1, 23) = 6.33, p = .019, b = -0.024). Conversely, the strength of associations between composite conflict and internalizing behavior increased slightly when fathers were older (N = 40, k = 14, F (1, 38) = 4.37, p = .043, b = 0.018). Furthermore, the strength of associations between omnibus adjustment and disengaged behavior with externalizing behavior slightly decreased when time intervals got larger (N = 162, k = 60, F (1, 160) = 8.68, p = .004, b = -0.002, and N = 46, k = 10, F (1, 44) = 11.49, p = .002, b = -0.010). Finally, only the association between conflict frequency and internalizing behavior depended on the journal impact factor (N = 46, k = 18, F (1, 44) = 9.43, p = .004, b = -0.08) and the association between hostility and internalizing behavior depended on publication year (N = 393, k = 102, F (1, 391) = 4.33, p = .038, b = -0.003).

Discussion

Two decades after the influential meta-analysis of Buehler and colleagues (1997), little progression in synthesizing the growing literature on interparental and child functioning in a way that more precisely distinguishes between key dimensions of the interparental relationship has been made. The current meta-analysis is a renewed and expanded attempt to conceptually integrate research findings on interparental relationship-child behavior linkages. Dissolving the jingle-jangle fallacy, we showed that in the current literature nine distinctive dimensions can be distinguished that have been studied in relation to child behavior. By including a large amount of information and carefully distinguishing empirical assessment strategies we provided a systematic and quantitative summary of associations between these nine dimensions and children's problem behavior. Therewith, as well through examining relevant moderating variables, we increased specificity in knowledge regarding interparental

relationship-child behavior linkages. This is necessary for further theory-building and developing theoretically based family interventions. Moreover, this meta-analysis is methodologically innovative, as state-of-the-art multi-level modeling techniques were used. These techniques enabled us to make optimal use of the available empirical information and provide a thorough examination.

A somewhat different picture was shown for externalizing and internalizing behavior. Child-related conflict was most powerfully related to more externalizing behavior, followed by omnibus adjustment and the other negative conflict dimensions. For internalizing behavior, most powerful associations were found for all negative conflict dimensions, compared to relationship quality dimensions and constructive conflict behavior. Of all nine dimensions, only interparental satisfaction was not relevant for both externalizing and internalizing child behavior.

Dimensions of the Interparental Relationship and Children's Problem Behavior

Looking at the associations for the nine dimensions of the interparental relationship, four interesting specific patterns of results were found. First, a specific stronger association was found for child-related conflict with externalizing behavior compared to other dimensions, which was also stronger than the association for child-related conflict with internalizing behavior. This suggests that specific mechanisms are at play that make child-related conflict more important for externalizing behavior in children and adolescents. In line with the cognitive-contextual model, this result may indicate that child-related conflicts may induce more thoughts of self-blame that upset the child, resulting in acting-out behavior (Grych & Fincham, 1990). Also, according to the Emotional Security Hypothesis, it could be that conflicts about themselves, specifically increases children's concerns for their sense of emotional security in their personal and family functioning (Davies & Cummings, 1994). Why a child behaves more challenging when experiencing more self-blame and insecurity about its functioning in the family might have different reasons. The child may, unconsciously, want to ask for the parent's attention by behaving more challenging, to ensure its place in the family. Conversely, children and adolescents, may show non-normative and delinquent behavior in order to distance itself from the distressing family system. Other explanations might be provided by family systems theory or the modeling hypothesis (Bandura, 1977; Cox & Paley, 1997; 2003; Wilson & Gottman, 2002). These potential mechanism could be working interdependently. Moreover, the strong association among child-related conflict and externalizing behavior, could also be indicative of a bidirectional

process, where externalizing behavior of children induce more disagreements and conflict between parents about how to handle their child.

A second finding that needs attention is that, for internalizing behavior, all conflict dimensions were approximately equally important, and relatively more important than the relationship quality dimensions (i.e., omnibus adjustment, satisfaction, negative quality). Thus, when parents have disagreements more frequently, handle these conflicts in more hostile or disengaged ways, or argue more about child-related topics, children experience higher levels of anxious and depressive symptoms. This supports and adds to the general idea of the modeling hypothesis, the cognitive-contextual model, and emotional security hypothesis, by showing that any aspect of interparental conflict including frequency, the ways of handling disagreements (e.g., hostility, disengaged) and content (i.e., child-related) forms the most robust predictor of child *internalizing* adjustment relative to the other relationship quality dimensions (Davies & Cummings, 1994; Grych & Fincham, 1990; Wilson & Gottman, 2002). The weaker effects of relationship quality dimensions are likely explained by the idea that intra-individual evaluations of parents about their spouse and relationship are less visible for children, and therefore might have less direct negative consequences for child behavior, in comparison to actual conflict behavior. This is in line with the interpretation that the stressfulness of witnessing conflict behaviors poses a bigger risk for children than growing up in a home where parents are dissatisfied but able to successfully encapsulate their problems (Grych & Fincham, 1990, 2001). However, we must take into account, that limited research has focused on satisfaction and negative quality in relation to child behavior and therefore these conclusion may not be authoritative.

A third interesting finding is that the association for interparental hostility was relatively stronger for externalizing problems than for internalizing symptoms. Although hostile behavior between parents is related to problem behavior in general through other mechanisms (i.e., cognitive evaluations of perceived threat and feelings of emotional insecurity), this specific difference may be explained by the modeling hypothesis. Imitating hostile interactional styles between their parents may directly lead to higher levels of aggressive and delinquent behavior because children learn that these aggressive behaviors are acceptable strategies for social interactions or handling conflicts (Bandura, 1977; Fauber et al., 1990; Wilson & Gottman, 2002). That said, this relative difference should be interpreted in the context of other conflict dimensions being as important for externalizing and internalizing behavior, which indicates that the process of modeling might be operating up and above the operation of mediating mechanisms outlined in other theories, such as cognitive

appraisals, emotional security, or parenting behavior (Davies & Cummings, 1994; Grych & Fincham, 1990; Wilson & Gottman, 2002).

Fourth, one of the findings with probably the greatest practical implications, is that the use of higher levels of constructive behavior shows to be a protective factor, as it is related to lower levels of externalizing and internalizing behaviors. Even though this association is statistically weaker than association for some of the negative conflict dimensions, and relatively fewer studies have examined this dimension in relation to child problem behavior, the estimates of these association seems to be consistent. As the amount of information regarding this dimensions was very limited during the time Buehler's meta-analysis (1997), this is the first study to show insight in the relevance of constructive conflict behavior for child behavior. The results support the theoretical notion that disagreements between parents are normative and when handled with positive affect and calm negotiation, can set a positive example for children, regarding social interactions and how to deal with disagreements and negative emotions (Grych & Fincham, 1990, see e.g., McCoy, Cummings, & Davies, 2009; McCoy, George, Cummings, & Davies, 2013).

Strength of associations. Overall, we found small to moderate, significant associations between (negativity in) the interparental relationship and both externalizing and internalizing problem behavior. The strength of these associations is somewhat smaller than the average effect sizes reported by Buehler and colleagues (1997), but in accordance with the meta-analysis from Reid and Crisafulli (1990). Looking at differences in scope of these meta-analyses, our inclusion of relationship quality correlates in addition to conflict dimensions resembles the scope of Reis and Crisafulli (1990) more, since Buehler et al. focused on indicators of interparental conflict alone. Indeed, our results show that overall correlates of relationship quality show weaker associations with child behavior. However, effect sizes for some interparental conflict dimensions were also smaller than reported by Buehler et al. (1997). Looking at the data, 75% of our sample comes from studies that are published after 1997. Tentatively, smaller effect sizes could be explained by methodological developments, such as an increase in multi-informant or multi-method studies that is represented in our analysis. The moderating role of common rater bias in this study shows that uni-informant designs on average yield larger effect sizes.

Moderator Variables

Overall the results of this meta-analysis suits the conclusion of previous work, that age of the child was not related to variability in study results (Buehler & Erel, 1997; Reid & Crisafulli,

1990). However, for conflict frequency, an age effect appeared, indicating that the link between how often parents have disagreements and the level of externalizing and internalizing behavior problems becomes stronger when children get older. This could be explained by the sensitization hypothesis, which proposes that rather than habituating to stress, children's reactions to interparental conflict intensifies with increased exposure (Davies, Meyers, Cummings, & Heindel, 1999; for a review see Harold & Sellers, 2018). A direct examination of this hypothesis showed that overall, children became less reactive to interparental conflict with age, but a history of conflict exposure was related to higher levels of reactivity (Goeke-Morey, Papp, & Cummings, 2013). Support for this explanation also comes from a meta-analysis, which showed that the link between exposure to interparental violence and child externalizing and internalizing problems strengthens over time (Vu, Jouriles, McDonald, & Rosenfield, 2016). From a different perspective, the social cognitive theory suggests that in general older children and adolescents have developed more cognitive abilities to generate thoughts and appraisals about parental disagreements, and therefore can better regulate their emotions and cope with the stress of interparental conflict. However, these results may indicate that although older children can better regulate and are less directly threatened of emotionally distressed, the experience of interparental disagreements manifests itself in less confidence in resolution, more involvement in parental conflicts (Goeke-Morey et al., 2013), and as shown by this study, more general problem behavior. In that case externalizing and internalizing behavior should not be viewed as static disorders that children 'have', but reflecting processes of the functioning of the child (Cummings & Davies, 2002). Remarkable, this age effect is only shown for conflict frequency, whereas the other dimensions are associated to externalizing and internalizing behavior independently of the age of the child. Thus, the results seem to indicate that the sensitization processes may be specifically relevant to increased exposure to conflicts in general, but not regarding specific conflict behavior or child-related conflicts.

Overall the results indicate no gender differences in associations between the dimensions of the interparental relationship and externalizing and internalizing problem behavior. This means that there is no support for the differential reactivity model (Davies & Lindsay, 2001), and boys and girls both react with acting out and internalized symptoms when exposed to interparental negativity, when looking at these direct associations. It could, however, be the case that mediational processes modelling various child or parenting processes still differ as a function of gender (e.g., Brock & Kochanska, 2016; Coln et al., 2013; Cummings et al., 2012; Li, Putallaz, & Su, 2011).

In line with prior process oriented research, most associations did not depend on the percentage of intact families in the sample. This is in line with prior conclusions that interparental negativity and conflict might be more important for child development than family intactness (for reviews, see Amato & Keith, 1991; Emery, 1982; Kelly, 2000). However, by exception, the association between composite conflict and internalizing behavior became stronger when a relatively larger part of the sample was intact. Perhaps in families where parents have frequent, hostile, and unresolved conflicts, children experience higher levels of internalizing problems in a situation where parents stay together and the conflictual situation and accompanying concerns and worries prolongs. When the situation is 'clear' for children, a decision has been made to break-up the interparental relationship, the conflictual situation is still associated with internalizing problems but to a lesser extent because of this decrease in concerns about 'what will happen with their family' (e.g., Amato, Loomis, & Booth, 1995; Morrison & Coiro, 1999; Musick & Meier, 2010).

In addition, and not surprisingly, our results indicated that obtaining information about the interparental relationship and child behavior from the same informant yielded stronger associations for most dimensions. However, when two different informants were used, the dimensions were still related to externalizing and internalizing behavior. Moreover, associations for conflict frequency and constructive conflict behavior were not inflated when data were collected from common raters, and therefore these results show that associations between these nine dimensions and child problem behavior are robust.

Limitations and Directions for Future Research

Some limitations should be considered when interpreting the results. First, we need to be somewhat careful about the comparisons made between the dimensions of the interparental relationship, because of the 70% criteria that was used for item-content and determining which dimensions was assessed. Therefore, the most important recommendation for future research is that to foster further theory-building and help the field move forward, studies should use instruments with increased specificity. Available theories and process-oriented statements suggest that especially how conflict are handled are important for children's adjustment. However, as long as we do not discriminate carefully between conflict frequency and hostility, different conflict behaviors, and resolution in our measures, we will not be able to test these hypotheses with confidence. Clark and Watson (1995) recognized the detailed conception of a target construct and its theoretical context as the first critical step in developing an instrument. Getting our definitions, operationalizations and measures lined up

might be a necessary first step, before continuing with more process-oriented research focusing on the context of interparental conflict and regulatory processes that may explain when and why children are affected by interparental relationship problems.

Next, to stay in line with previous meta-analytic work on this subject this study focused on externalizing and internalizing problem behavior. These are two of the most commonly studied indicators of maladjustment in children and adolescents and therefore show us the importance of interparental negativity. However, current theoretical perspectives suggest that the behavioral reactions of children might depict distinct patterns of developmental cascades and mental health sequelae, resulting in mental health strengths as well as adjustment problems (Davies & Martin, 2013). Taken together with the results that when parents handle conflicts constructively this can foster child adjustment, which shows that interparental conflict is not always or *only* a risk factor (Bergman, Cummings, & Warmuth, 2016), one could state that future research should take a broad view on the interdependency between the interparental relationship and child development, including both the negative and positive sides of family processes. Specifically, future research could at the one hand, study potential other positive outcomes from exposure to constructive conflictual situations. A few studies have done this and showed that constructive behavior was indirectly related to more prosocial behavior, via higher levels of children's emotional security or maternal warm parenting (McCoy et al., 2009; 2013).

Additionally, future research could specifically focus on the question how parents should shape the context in which they discuss disagreements. The importance of this question is underlined by the results that even when defined as disagreements between parents about every day issues (i.e., conflict frequency), children are affected. Interestingly, resolution is central concept in most relevant theories (Cummings & Davies, 2002; Grych & Fincham, 1994) and in the literature statements about resolved versus unresolved conflicts are often made. However, direct measures of *resolution* are limited, and often, the operationalization of resolved, partially resolved or unresolved conflict regards a rather random and often varying grouping of conflict behaviors (e.g., see Cummings, Ballard, El-Sheikh, & Lake, 1991). Moreover, it is the question whether children experience a degree of resolution, based on certain behaviors or expressed affects, in the way this it is often defined and measured. The complexity is shown by a study that ordered conflict tactics on the basis of various response criteria (Goeke-Morey, Cummings, Harold, & Shelton, 2003). This meta-analysis shows that it may be more informative to focus on specific conflict behaviors and expressed affects between parents, and examine how different combinations of these behaviors and affects are

related to reactivity (i.e., cognitive, emotional and behavioral) in children. This result is consistent with the focus on destructive and constructive conflicts of Cummings and Davies (2002). Such an approach might give insights into how parents could regulate their (normative) disagreements in ways that children feel secure about the stability in their family and not threatened by the conflictual situation. This kind of information can guide parent education programs. Importantly, in such studies, it is important to recognize that most parents will use both constructive and destructive conflict behaviors (Cummings et al., 2004). A first study to delineate how these two primary classes of conflict tactics operate jointly in understanding how children cope with and adapt to interparental conflict is conducted and showed that constructive behaviors did have a unique and additive effect on children's adjustment, when controlling for the negative effect of destructive conflict behavior (Davies, Martin, & Cicchetti, 2012).

As a final limitation, it should be acknowledged that almost three-fourths of included sample were samples from the United States of America and 90% of the samples were from Western, educated, industrialized, rich and democratic countries. Therefore, we have to be careful with generalizing these conclusions to other cultures and countries, as research increasingly shows that cognitive and social processes vary across populations (Henrich, Heine, & Norenzayan, 2010). For a final future direction, it is important to acknowledge that although the strength of associations shows the importance of the interparental relationship for children's behavior, it also indicates individual variability in these associations. This could mean that some children are or in some contexts children are affected more by interparental negativity, while other children are more resilient or other contexts can buffer these consequences (e.g., Belsky & Pluess, 2006; Du Rocher Schudlich et al., 2015). Examining these type of questions could be on the agenda for future research.

Implications for Policy Engagement

This meta-analysis underlines the importance of translating research about the interparental relationships-child development linkages into policy engagement (see e.g., Harold & Sellers, 2018; Miller-Graff, Cummings, & Bergman, 2016). Our meta-analysis confirms their review in showing that there is indeed compelling evidence that children of all ages, gender, and in different family compositions, who witness frequent, poor resolved (i.e., hostile, disengaged, low constructive) and child-related conflict between their parents are at risk for developing substantial behavioral problems. Although associations are small, there are of theoretical and

practical relevance, because effects of the interparental relationship accumulate over a child's lifetime (McCartney & Rosenthal, 2000).

Harold and Sellers did a great endeavor to show a cost-benefit model, indicating that the interparental relationship can be a relevant starting point for support aimed at improving youth outcomes (Harold & Seller, 2018). Based on this meta-analysis, a statement in their theoretical review about the interparental relationship-youth psychopathology link and moderating variable can be nuanced. The authors state that "the effect of interparental conflict on children depends upon the manner in which it is expressed, managed and resolved, as well as the extent to which children feel at fault". This might be nuanced conceptually, because 'resolution' is not a distinctively assessed concept in the literature. We do support a focus on how conflicts are handled and are about the children, and like to add that the focus should be on educational efforts, that independently from how conflict are handled, long during frequent disagreements already show important associations with externalizing and internalizing behavior, together with a focus on increasing constructive behavior besides decreasing hostile and disengaged behavior.

Summary and Conclusion

By providing a renewed conceptualization of nine distinct but interrelated dimensions and using state-of-the-art multi-level meta-analytic techniques, we provided an in-depth and comprehensive empirical integration of associations between the interparental relationship and child problem behavior. Therewith, we increased specificity in our knowledge, necessary for further theory-building and developing theoretically based family intervention. Simply stated, only when we know which dimensions are most important for children, we know where we should intervene (Harold & Sellers, 2018). The main conclusion of this meta-analysis is that all forms of negativity in the interparental relationship, except dissatisfaction, showed to be relevant for both externalizing and internalizing behavior. For externalizing behavior, child-related conflict was most important, whereas for internalizing behavior, all negative conflict dimensions were equally important. Most associations were robust regarding child age and gender, family composition and other study characteristics. Looking forward, there is a strong need for more concrete measures that assess specific dimensions of the interparental relationship, to further delineate the context of the interparental relationship and how different forms of negativity are related to child outcomes. In conclusion, this meta-analysis confirms the importance of the interparental subsystem for child adjustment and

shows that designing interventions aimed at educating parents about the effects of frequent and child-related disagreements and both decreasing negative conflict interactions and increasing constructive conflict behavior could foster children's behavioral adjustment.

Supplementary material

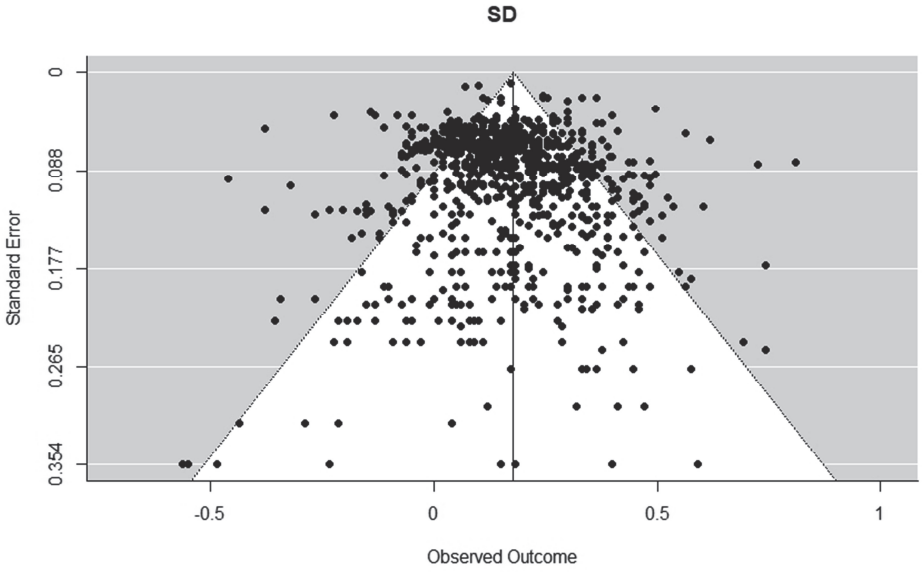

Figure 3. Funnel plot for effect sizes for externalizing problem behavior (N = 908, k = 204).

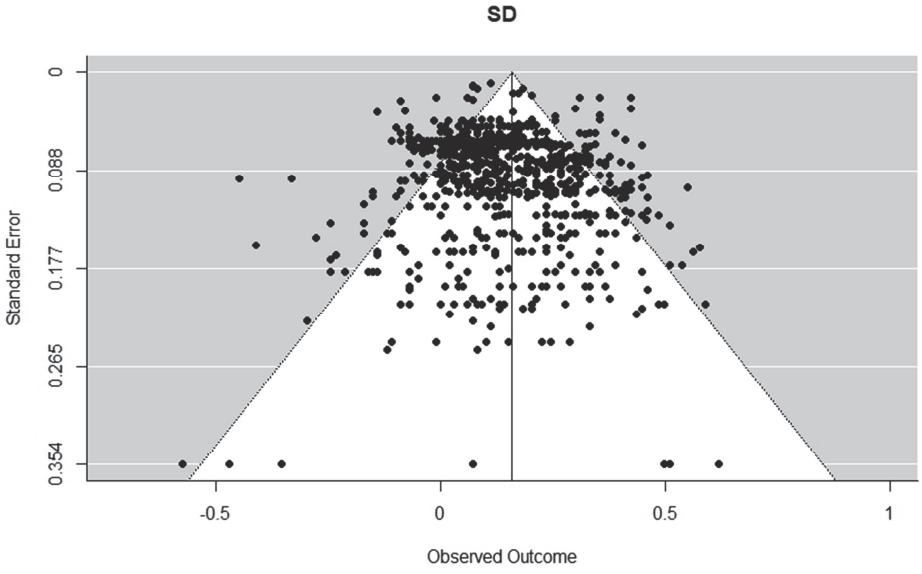

Figure 4. Funnel plot for effect sizes for internalizing problem behavior (N = 823, k = 168).

Table 5. Statistics from omnibus moderator analyses for externalizing behavior.

	Externalizing			
	Age	*Gender*	*Family comp.*	*Shared informant*
Omnibus	$F(1,129) = 0.44$, $p = .510$	$F(2,159) = 1.83$, $p = .164$	$F(1,94) = 1.42$, $p = .237$	**$F(2,159) = 5.21$, $p = .006$**
Satisfaction	$F(1,9) = 1.50$, $p = .252$	$F(1,9) = 0.31$, $p = .592$		$F(1,9) = 3.68$, $p = .087$
Conflict frequency	**$F(1,36) = 4.66$, $p = .038$**	$F(2,39) = 2.96$, $p = .064$	$F(1,19) < 0.01$, $p = .972$	$F(2,39) = 0.60$, $p = .553$
Hostility	$F(1,337) = 0.03$, $p = .857$	$F(2,416) = 2.04$, $p = .131$	$F(1,278) = 0.45$, $p = .503$	**$F(2,416) = 62.64$, $p < .0001$**
Disengaged	$F(1,38) = 2.36$, $p = .133$	$F(2,43) = 0.24$, $p = .787$	$F(1,24) = 2.32$, $p = .141$	**$F(2,43) = 3.80$, $p = .030$**
Constructive	$F(1,41) = 0.03$, $p = .855$	$F(2,40) = 1.94$, $p = .158$	$F(1,20) = 0.63$, $p = .437$	$F(2,40) = 1.74$, $p = .188$
Child-related	$F(1,31) = 3.49$, $p = .071$	$F(2,26) = 1.85$, $p = .172$	$F(1,26) < 0.01$, $p = .960$	**$F(1,37) = 15.39$, $p = .0004$**
Composite conflict	$F(1,118) = 3.13$, $p = .079$	$F(2,136) = 0.20$, $p = .821$	$F(1,73) = 2.12$, $p = .150$	**$F(2,136) = 24.20$, $p < .0001$**

Note. Significant omnibus test statistics are in bold.

Table 6. Statistics from omnibus moderator analyses for internalizing behavior.

	Internalizing			
	Age	*Gender*	*Family comp.*	*Shared informant*
Omnibus	$F(1,84) = 0.23$, $p = .631$	$F(2,99) = 0.15$, $p = .861$	$F(1,66) = 0.35$, $p = .559$	**$F(2,99) = 17.08$, $p < .0001$**
Satisfaction	$F(1,10) = 0.02$, $p = .893$	$F(1,10) = 1.57$, $p = .239$	$F(1,9) = 0.93$, $p = .360$	$F(1,10) = 0.12$, $p = .735$
Conflict frequency	**$F(1,42) = 5.46$, $p = .024$**	$F(2,44) = 1.58$, $p = .218$	$F(1,19) < 0.01$, $p = .970$	$F(2,44) = 2.29$, $p = .113$
Hostility	$F(1,335) = 0.12$, $p = .724$	$F(2,390) = 0.11$, $p = .897$	$F(1,235) = 0.53$, $p = .469$	**$F(2,390) = 36.05$, $p < .0001$**
Disengaged	$F(1,46) = 1.21$, $p = .277$	$F(2,47) = 1.07$, $p = .352$	$F(1,18) = 1.16$, $p = .295$	**$F(1,48) = 9.33$, $p = .004$**
Constructive	$F(1,61) < 0.01$, $p = .991$	$F(2,61) = 2.07$, $p = .135$	$F(1,12) = 3.41$, $p = .090$	$F(2,61) = 1.29$, $p = .284$
Child-related	$F(1,26) = 0.60$, $p = .444$	$F(2,29) = 0.05$, $p = .948$	$F(1,21) = 0.31$, $p = .581$	**$F(1,30) = 6.96$, $p = .013$**
Composite conflict	$F(1,100) = 2.94$, $p = .090$	$F(2,111) = 1.91$, $p = .154$	$F(1,61) = 6.87$, $p = .011$	**$F(2,111) = 15.75$, $p < .0001$**

Note. Significant omnibus test statistics are in bold.

Chapter 3

Longitudinal Associations Between Marital Stress and Externalizing Behavior: Does Parental Sense of Competence Mediate Processes?

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Abstract

Ecological theories emphasize associations between children and elements within their family system, such as the marital relationship. Within a developmental perspective, we longitudinally examined (a) dynamic associations between marital stress and children's externalizing behavior, (b) mediation of these associations by parental sense of competence, and (c) the extent to which associations are similar for mothers and fathers. The sample consisted of 369 two-parent families (46.1% boys; M_{age} at Time 1 = 7.70 years; 368 mothers, 355 fathers). Marital stress related to having a child, children's externalizing behavior, and perceived parental competence were assessed three times across 8 years. Multi-group analyses were used to examine models for both parents simultaneously and test for similarity in associations across spouses. A bivariate latent growth model indicated positive associated change between marital stress and externalizing behavior, supporting the idea of codevelopment. The cross-lagged panel model revealed a reciprocal relation between marital stress and perceived parental competence across a time interval of 6 years. Additionally, two elicitation effects appeared during adolescence, showing that parents who reported higher externalizing problems in early adolescence reported more marital stress and a lower sense of competence two years later. Similar associations were found for mothers and fathers. Overall, this study indicates that marital stress and externalizing behavior codevelop over time and supports literature on developmental differences regarding interrelations between subsystems and individuals within the family system.

Introduction

Ecological theories and family systems theory emphasize that the developing child cannot be understood independently from characteristics of and interactions within the home environment (Belsky & Jaffee, 2006). These theories identify the marital relationship as an essential subsystem in this family system, influencing other subsystems and individuals (Cox & Paley, 2003). Previous research has revealed associations between the marital relationship and child adjustment (Cummings & Davies, 2011). However, most studies have neglected developmental change in the marital relationship and child behavior or reciprocity between those constructs (Cox & Paley, 2003). This study addressed these gaps in previous research, using a large time span including childhood and adolescence. We aimed to improve the understanding of the associations between marital stress related to having a child and children's externalizing behavior by (a) examining interrelations between developmental changes in marital stress and externalizing behavior, (b) investigating whether parental sense of competence mediates the relation between marital stress and externalizing behavior over time, and (c) testing to what extent associations are similar for mothers and fathers.

Bidirectional Influences between the Marital Relationship and Child Behavior

The marital relationship is often considered at the center of the family system (Cox & Paley, 2003), functioning as a source of stress when parents are dissatisfied with their relationship and lack support from their spouse (Belsky & Jaffee, 2006). This stress can "spill over" and affect individual members of the system, such as the developing child. In general, research has shown that several aspects of the marital relationship (e.g., low quality, more stress or conflicts) are related to children's behavioral problems (Stroud, Meyers, Wilson, & Durbin, 2015; Teubert & Pinquart, 2010) and academic achievement (Ghazarian & Buehler, 2010) across several developmental periods. In this study, we focus on a specific, potentially understudied aspect of the marital relationship, namely marital stress related to having a child, or the parenting context (Abidin, 1995). From a family systems perspective, this concept might especially be important for child and parental functioning, and it is closely related to the concept of coparenting, because it taps into the part of the marital relationship where spouses are joined parents (Teubert & Pinquart, 2010).

Conversely, children's behavioral problems can elicit stress within the marital relationship (Broderick, 1993), because children have an active role in shaping their environment and development (Bell, 1968). Unfortunately, however, few studies have

investigated these elicitation effects for the marital relationship (i.e., mainly for parenting), and even fewer studies have examined these elicitation effects beyond early childhood. For example, mothers of children referred for persistent crying reported higher levels of marital distress than did mothers of non-referred children (Papoušek & von Hofacker, 1998). Also, poor adaptation and unpredictability in infants were related to decreases in love and increases in marital conflicts (Belsky & Rovine, 1990). Accordingly, it is likely that heightened levels of behavioral problems of older children and adolescents elicit marital stress, because these behavioral problems can generate interparental disagreements and demand more resources from parents. In retrospect, young adults pointed to adolescence as the period in which they had the most negative impact on their parents' relationship (Ambert, 2001).

(Co)development of Marital Stress and Externalizing Behavior

Most studies so far have neglected developmental changes in marital stress and child behavior or their potential reciprocity, by focusing on either spillover or elicitation effects (e.g., Stroud et al., 2015). It is important, however, to acknowledge that marital stress and externalizing behavior are not static. Research has indicated that, on average, externalizing problems tend to decrease from childhood to adolescence and increase during adolescence before decreasing again into adulthood (Bongers, Koot, van der Ende, & Verhulst, 2004; Petersen, Bates, Dodge, Lansford, & Pettit, 2015). It is important to take into account, in addition to normative (group-level) changes, individual differences in these changes, as well as individual and familial aspects influencing this development (Petersen et al., 2015). Further, although examined less often, marital quality tended to decline over time and across parenthood, and this normative decline also depended on various aspects at the parent and family levels (Kamp Dush & Taylor, 2012; Umberson, Williams, Powers, Chen, & Campbell, 2005). Less is known about the development of other aspects of the marital relationship, such as conflict or stress.

Moreover, incorporating this developmental change, family processes and children's behavior should be viewed as coevolving, influencing and adjusting to each other (De Haan, Prinzie, & Deković, 2012). Cui, Conger, and Lorenz (2005) integrated this perspective and showed that increases in marital distress were associated with decreases in adolescent adjustment over a 3-year period, but they did not investigate potential reciprocity between these two constructs. Yet, both theory and empirical research have suggested reciprocity between the marital relationship and children's behavior (i.e., both spillover and elicitation effects over time). Goldberg and Carlson (2014) showed that for marital support and

externalizing behavior, spillover effects were apparent in families with children between 3 and 5 years old, and elicitation effects appeared between 5 and 9 years old, suggesting reciprocal directions of effects over time. In early adolescence, delinquency and depression were reciprocally linked to marital dissatisfaction over a 2-year period (Cui, Donnellan, & Conger, 2007). Again, over a 2-year period, marital conflict predicted change in children's behavior (i.e., spillover), and children's behavior predicted an increase in marital conflict (i.e., elicitation; Jenkins, Simpson, Dunn, Rasbash, & O'Connor, 2005). However, these studies examined only a restricted time period or developmental period, whereas the present study investigated reciprocity by simultaneously examining spillover and elicitation effects across a large time span covering middle childhood and adolescence. This enabled us to provide insights into the long-lasting consequences for children experiencing marital stress, regarding their adjustment, as well as the enduring effects of increased disruptions in child behaviors on the level of stress in the marital relationship. Moreover, examining the direction of effects showed us whether the interrelations differed for middle childhood and adolescence. Thus, the present study expands previous research by studying the dynamics of the family system by focusing on the codevelopment of and reciprocity between marital stress related to having a child and externalizing behavior across a large time span.

The Mediating Role of Parental Sense of Competence

Additionally, this study goes beyond examining direct associations between changes in marital stress and changes in externalizing behavior over time by aiming to explain why these constructs are interrelated. To answer this question, research has mainly focused on the parent–child relationship or parenting behavior as mediating mechanism (Grych & Fincham, 2011; Kaczynski, Lindahl, Malik, & Laurenceau, 2006) or recently on coparenting (Stroud et al., 2015). However, it is important to identify parent-level mediators of spillover, which might serve as targets for interventions (Baden, 2012). In this study, parental sense of competence (i.e., parents' perceptions about their ability to positively influence their child's development) is examined as a potential mediator, because it has been shown to be an important parental cognitive feature that plays a central role in child and family functioning (Coleman & Karraker, 1998; Jones & Prinz, 2005). Existing work has shown that it is a strong predictor of parents' emotional well-being (Jones & Prinz, 2005), satisfaction with family life (Bandura, Caprara, Barbaranelli, Regalia, & Scabini, 2011) and positive parenting behaviors (De Haan, Prinzie, & Deković, 2009; De Haan, Soenens, Deković, & Prinzie, 2013) and that

it is (in)directly related to child adjustment (Jones & Prinz, 2005; Junttila, Vauras, & Laakkonen, 2007).

In this study, parental sense of competence is proposed a mediator through which marital stress and externalizing behavior exert their influence on each other. First, we hypothesized that perceived parental competence can explain why marital stress affects later externalizing behavior. According to the self-efficacy theory, competence beliefs are shaped by several aspects of the environment, such as other people whom a person shares close relationships with (Bandura, 1994). Because social support in general has been identified as predictor of parental competence (Coleman & Karraker, 1998; Merrifield & Gamble, 2013), it has been argued that the spousal relationship in particular is an important source of support for parenting (Belsky, 1984). Subsequently, several aspects of the marital relationship have been linked to parental competence. Feeling supported by one's spouse (Suzuki, 2010), self- or partner-reported marital satisfaction (Kwok, Ling, Leung, & Li, 2013), and marital maintenance behaviors (Merrifield & Gamble, 2013) have been identified as important predictors of parental sense of competence. Marital stress related to having children has not yet been examined in relation to parental sense of competence but can be expected to show a similar negative association over time, especially given recent research showing that coparenting, another aspect of the marital relationship closely related to the parenting role, has been associated with parental competence (Merrifield & Gamble, 2013; Solmeyer & Feinberg, 2011). Additionally, less perceived parental competence is expected to be related to more child problem behavior over time (Belsky, 1984; Jones & Prinz, 2005). Children might react on the potential doubts or frustrations expressed by parents with a lower sense of competence. Cross-sectionally, negative associations have been reported by earlier studies (e.g., Slagt, Deković, de Haan, van den Akker, & Prinzie, 2012). One empirical study that examined prospective relations between parental sense of competence and externalizing behavior, found no support for this association (Slagt et al., 2012). In this study, we examine whether parental sense of competence provides a mechanism to explain the link between marital stress and later child externalizing behavior.

Second, we hypothesized that parental sense of competence can explain why children's externalizing behavior is related to subsequent marital stress. Children's challenging behavior can elicit or reinforce low feelings of competence in parents, because parents might interpret their children's problems as a result of their failing at parenting. This negative association has been found for both spouses (De Haan et al., 2013; Slagt et al., 2012), although one study found this relation for mothers but not for fathers (Murdock, 2013).

A recent study has shown that this child-driven process, where adolescents' externalizing behavior was related to subsequent changes in parental sense of competence, was present during middle to late adolescence but not during early adolescence (Glatz & Buchanan, 2015). Possibly, effects of adolescent (problem) behaviors become more influential as adolescents get older and the parent–child relationship becomes more egalitarian. Moreover, the idea of interdependence in the family systems theory suggests an important link between feelings of competence about the role in the parenting subsystem and marital functioning (Cox & Paley, 2003; Moore & Buehler, 2011). It can be expected that negative emotions and cognitions associated with a lower parental sense of competence may spill over to the marital subsystem, resulting in more interparental discussions and less experienced support and satisfaction in the dyadic marital relationship (Bandura, 1994; Cox & Paley, 2003). Parental sense of competence has not yet been linked to marital stress related to having a child. However, research has shown that a lower parental sense of competence was related to less marital satisfaction (Kwan, Kwok, & Ling, 2015) and to more proneness to divorce (Moore & Buehler, 2011). In contrast, parental sense of competence was not related to marital satisfaction in a sample of stay-at-home fathers (Rochlen, McKelley, Suizzo, & Scaringi, 2008). To summarize, more externalizing behavior was expected to relate to more marital stress via a lower sense of parental competence.

Differences between Mothers and Fathers

Until now, most research on associations between marital stress, parental sense of competence, and child behavior has neglected fathers (Jones & Prinz, 2005). However, there is an increasing acknowledgment that fathers play a vital role in their children's development (Lamb, 2010). So far, evidence has been mixed, either showing no differences in associations across parents (De Haan et al., 2013; Slagt et al., 2012) or showing prospective associations for mothers only (Murdock, 2013; Rochlen et al., 2008). Therefore, we examine to what extent patterns of associations are similar for mothers and fathers.

Aims and Hypotheses

Summarizing, the overarching aim to increase the understanding of the dynamic associations between marital stress related to having a child and children's externalizing behavior was achieved by examining two related research aims. The first aim was to examine interrelations between change in marital stress and externalizing behavior. We expected positive associated change, indicating a process of codevelopment, and, regarding direction of effects, spillover

and elicitation effects over time (Belsky & Jaffee, 2006). Second, we aimed to investigate the longitudinal mediating role of parental sense of competence in relations between marital stress and externalizing behavior (Bandura, 1994; Jones & Prinz, 2005). We expected more marital stress to be associated with subsequently less perceived parental competence, which in turn was expected to be related to more future externalizing behavior. Conversely, we expected more externalizing behavior to be related to lower feelings of parental competence and, in addition, less perceived competence to be related to more marital stress. Moreover, we explored potential developmental differences in these processes and similarity in patterns of associations across mothers and fathers.

Method

Participants

This study is part of the Flemish Study on Parenting, Personality and Development (see Prinzie et al., 2003). All procedures in this study were approved by the board of the Katholieke Universiteit Leuven. We used data from the third (2001; Time 1 [T1]), fifth (2007; T2) and sixth (2009; T3) wave, because these waves contained the measures of interest. To investigate our research questions, we selected informants who participated at T1 and at least one additional time point within families who stayed together during the study period. Although family processes continue when divorce or death of a parent takes place, taking intervening stressful circumstances and transitions into consideration was beyond the scope of this study (Amato, 2010). Our final sample consisted of 369 families with a child between 6 and 10 years old at T1 (46.1% boys; M_{age} = 7 years 8 months, SD_{age} = 1.16). Boys and girls did not differ in age, $t(367) = -0.98$, $p = .33$. Within these families, 368 mothers and 354 fathers participated at T1, 360 mothers and 346 fathers participated at T2, and 364 mothers and 349 fathers participated at T3. From 329 families, both mothers and fathers provided complete data at all three time points, and in total, 351 mothers and 335 fathers provided complete data at all measurement moments. At T1, mothers' mean age was 36.64 years (SD = 3.50) and fathers' mean age was 38.61 years (SD = 3.85). Percentages of mothers' and fathers' highest educational level were .7% and 2.7% for elementary school, 33.9% and 40.6% for secondary school, 49.7% and 34.5% for non-university higher education, and 15.8% and 22.2% for university, respectively. Missing data points across the study amounted to 2.27% for the mother data and 2.35% for the father data. Little's (1988) missing completely at random test indicated that values missing were completely at random for mothers, $\chi^2(46) =$

6.64, p = .999, and fathers, χ^2 (59) = 17.40, p = .999. The low percentage of missing data was treated with the full information maximum likelihood approach to make optimal use of the data (Kaplan, 2000).

Measures

Marital stress. Parents completed the seven-item marital relationship scale of the Parenting Stress Index (PSI; Abidin, 1995; De Brock, Vermulst, Gerris, & Abidin, 1992) at all waves, capturing the extent to which parents experience stress within the marital relationship related to having a child. Answers are given on a 6-point Likert scale ranging from 1 (*totally disagree*) to 6 (*totally agree*). Cronbach alphas for the average scores ranged between .85 and .89 for both spouses (with higher scores representing higher levels of experienced marital stress). The correlation across spouses' reports was .50 at T1, .44 at T2, and .46 at T3.

Children's externalizing problems. Parents completed the externalizing scale of the Child Behavior Checklist (CBCL; Achenbach, 1991; Verhulst, van der Ende, & Koot, 1996) at all waves. This scale consists of 35 items, including aggressive and delinquent behaviors (e.g., fighting, lying, lacking guilt, and using alcohol or drugs). Each item is rated on a 3-point scale ranging from 0 (*not true*) to 2 (*often/very true*). Cronbach alphas for the sum score ranged between .84 and .88 for both spouses (with higher scores representing more externalizing behavior). The correlation between mother and father reports was .67 at T1, .67 at T2, and .61 at T3.

Parental sense of competence. Parents reported on the sense of competence scale of the PSI at all waves (Abidin, 1995; De Brock et al., 1992). This scale contains 13 items capturing to what extent parents feel they are competent in positively influencing their child's behavior and development. Answers are given on a 6-point Likert scale ranging from 1 (*totally disagree*) to 6 (*totally agree*). Cronbach alphas for the average scores ranged between .73 and .83 for both spouses (with, higher scores representing a higher sense of parental competence). The correlation across spouses was .36 at T1, .37 at T2, and .24 at T3.

Analyses

We performed structural equation modeling in Mplus Version 7 (Múthen & Múthen, 1998–2012). Maternal and paternal reports on the constructs were used separately. We used multi-group analyses to simultaneously examine the hypothesized model for mothers and fathers (i.e., models in which all variables were reported by either mothers or fathers). Next, we tested whether patterns of associations were similar across spouses, by comparing models in

which associations were estimated freely for mothers versus fathers with models wherein the pathways of interest were constrained to be equal across parents.

Developmental changes in marital stress and externalizing behavior were estimated with univariate latent growth models (LGMs). LGM has the advantage of capturing average within subject change, as well as between-subjects differences in this change (Curran & Bauer, 2011). For both constructs, two models were specified and compared: (a) a linear growth model with factor loadings of .0 (T1), .6 (T2) and .8 (T3), to take into account the time intervals of 6 and 2 years, respectively, and (b) an unspecified model, in which the factor loading of the observed variable on the slope at the second time point was freely estimated (factor loadings: T1 = .0,T3 = 1.0).When similar change patterns appeared for spouses, similarity of the growth parameters across spouses was statistically tested.

Then, to address our first aim, regarding the codevelopment of marital stress and externalizing behavior, we modeled a bivariate latent growth model, in which the correlation between the change factor of marital stress and the change factor of externalizing behavior was the parameter of interest. The correlation between change factors was then tested for similarity across spouses (but only if univariate change patterns were similar across spouses). To further examine directions of effects between marital stress and externalizing behavior and to answer our second aim on the longitudinal mediation effect of parental sense of competence, we supplemented the LGM with another time-based approach: cross-lagged panel modeling (CLPM). CLPM provides the condition of time precedence and controls for stability in constructs and within-wave correlations between the variables, thereby providing a stringent test of explained variance in the constructs. Therefore, it is the most appropriate approach for testing directionality of effects and longitudinal mediation effects (Preacher, 2015). First, a baseline model—including stability paths for the variables, T1 correlations and correlated changes between the variables, and all cross-lagged effects—was fitted (Model 1; i.e., including pathways from marital stress directly to externalizing behavior and vice versa, as well as pathways from marital stress and externalizing behavior to perceived parental competence and vice versa). Next, we examined whether the cross-lagged relations were similar across spouses by comparing a free model with a model wherein these pathways were constrained to be equal across parents. Additionally, we examined whether results of the CLPM could be replicated on partner ratings of child externalizing behavior by running two additional models: one in which father ratings of child externalizing behaviors were added to the mother model (i.e., a model with three measurement moments of maternal marital stress, maternal sense of competence, mother reports of externalizing behavior, and father reports of

externalizing behavior) and one in which mother ratings of child externalizing behaviors were added to the father model (i.e., a model with three measurement moments of paternal marital stress, paternal sense of competence, father reports of externalizing behavior, and mother reports of externalizing behavior). Stability paths and within-wave correlations between all included variables were modeled. Both models were analyzed twice: Once, all associations were estimated freely, and once, associations of mother and father reports of externalizing with the other concepts were constrained to be equal. If the constrained models did not fit the data significantly worse than did the freely estimated models, associations between child externalizing behavior and the other constructs were not due to rater bias (alone).

We evaluated model fit with the relative chi-square, comparative fit index, Tucker–Lewis index, root-mean-square error of approximation, and the standardized root-mean-square residual (Byrne, 2013). To compare models, we used chi-square difference testing with the Satorra-Bentler scaling correction (Satorra & Bentler, 2001). To take into account non-normality in the data, we used a robust maximum likelihood estimator in all analyses (Satorra & Bentler, 2001).

Results

Descriptive Statistics

Descriptive statistics and bivariate correlations are displayed in Table 1. Paired-samples t tests showed that mothers reported higher levels of marital stress than did fathers at T1, $t(350) = 3.44$, $p = .001$, $d = .19$, and T3, $t(345) = 2.34$, $p = .020$, $d = .13$, but not at T2, $t(343) = 1.08$, $p = .283$. In addition, mothers reported significant higher levels of externalizing behavior than did fathers at T1, $t(352) = 3.42$, $p = .001$, $d = .15$, and T3, $t(342) = 1.99$, $p = .048$, $d = .10$, but not at T2, $t(343) = 1.24$), $p = .217$. Finally, mothers' and fathers' reports of perceived parental competence did not differ significantly: T1, $t(350) = 1.55$, $p = .123$; T2, $t(343) = 1.70$, $p = .090$; T3, $t(345) = 0.35$, $p = .726$.

Developmental Trajectories of Marital Stress and Externalizing Problem Behavior

The first step in our analyses was to estimate univariate latent growth models for marital stress and externalizing behavior to examine the shape of growth in both constructs, for mothers and fathers separately using a multi-group analysis (see Table 2 for model fit statistics and Table 3 for model results). For marital stress, a multi-group model specifying

Table 1. Correlations, mean scores and standard deviations for study variables.

Measures	1.	2.	3.	4.	5.	6.	7.	8.	9.	M_F	SD_F
1.Marital stress T1	—	.42	.57	.32	.18	.22	-.54	-.34	-.39	1.83	0.73
2.Marital stress T2	.61	—	.64	.23	.31	.25	-.31	-.63	-.46	1.90	0.82
3.Marital stress T3	.57	.74	—	.24	.30	.36	-.36	-.44	-.58	1.87	0.77
4.Externalizing T1	.39	.27	.27	—	.47	.47	-.35	-.26	-.23	5.45	5.02
5.Externalizing T2	.31	.34	.31	.60	—	.65	-.17	-.32	-.27	4.65	4.93
6.Externalizing T3	.25	.25	.30	.46	.62	—	-.22	-.24	-.34	4.76	4.92
7.Sense of competence T1	-.51	-.39	-.33	-.48	-.33	-.27	—	.58	.59	5.29	0.61
8.Sense of competence T2	-.39	-.57	-.51	-.33	-.44	-.39	.58	—	.68	5.17	0.66
9.Sense of competence T3	-.37	-.43	-.55	-.35	-.38	-.52	.51	.69	—	5.10	0.68
M_M	2.00	1.98	2.00	6.34	5.01	5.21	5.22	5.09	5.07		
SD_M	0.84	0.83	0.86	6.07	5.00	5.44	0.64	0.71	0.66		

Note. Descriptives for mother reports (M) are presented below the diagonal; descriptives for father reports (F) are presented above the diagonal. All correlations were significant at $p < .001$.

Table 2. Model fit statistics and model comparisons for latent growth models and cross-lagged panel models.

Model	χ^2	*df*	χ^2/df	CFI	TLI	RMSEA	90%CI	SRMR	Model Comparison[a]	$\Delta\chi^2$	Δdf	*p*
Univariate Latent Growth Model – Marital Stress												
Linear	26.28***	6	4.38	0.951	0.951	.097	.061-.136	.056				
Unspecified	3.42	4	0.86	1.000	1.002	.000	.000-.074	.028	vs. Linear	17.00	2	<.001
Final model	3.77	5	0.75	1.000	1.004	.000	.000-.063	.030	vs. Linear	19.10	1	<.001
Univariate Latent Growth Model – Externalizing												
Linear	7.66	6	1.28	0.993	0.993	.028	.000-.078	.040				
Unspecified	4.73	4	1.18	0.997	0.995	.022	.000-.085	.031	vs. Linear	2.92	2	.233
Gender equality	17.30	11	1.57	0.974	0.986	.040	.000-.074	.075	vs. Linear	10.63	5	.056
Bivariate Latent Growth Model												
Model 1	32.26	21	1.54	0.988	0.983	.039	.000-.064	.032				
Cross-Lagged Panel Model												
Baseline Model	137.04***	18	7.61	0.933	0.756	.135	.115-.157	.047				
Model 2	38.82***	15	2.59	0.987	0.941	.066	.041-.092	.022				
Gender equality	50.33**	27	1.86	0.987	0.986	.049	.027-.070	.037	vs. Model 2	11.52	12	.558

[a] = Chi-square Difference testing with Satorro-Bentler Scaling Correction. **p<.01, ***p<.001.

linear growth fitted the data acceptably; however, the unspecified model provided a statistically better fit to the data (see Table 2). Model results showed that the freely estimated factor loading of the observed variable on the slope at the second time point represented linear growth for mothers (factor loading was .84) and a different, nonlinear growth pattern for fathers (factor loading was 1.75). Therefore, in the final model, linear growth was specified for mothers and the unspecified growth model was estimated for fathers. This model provided a significantly better fit than did the multi-group linear model and did not differ in model fit from the multi-group unspecified model. Model results showed that, on average, the slope factor was not statistically significant, indicating that reported levels of marital stress by mothers and fathers were stable from T1 to T3. It is important to note, however, that significant slope variance indicated between-subjects variability in their rate of change in reported marital stress (see Table 3).

For externalizing behavior reported by parents, a multi-group model specifying linear growth provided excellent fit to the data, and model fit was not significantly worse than was fit of the unspecified model (see Table 2). Next, constraining the growth parameters across spouses for equality did not lead to a significantly worse fit to the data, indicating that change patterns were similar for externalizing behavior reported by mothers and fathers. Model results showed that, on average, the level of externalizing behavior reported by mothers and fathers declined across the eight years. Moreover, significant between-subjects differences in rates of change were present (see Table 3).

Table 3. Univariate growth model's fixed effects, variances and parameter covariances, using multigroup analyses.

Measure	Intercept Mean	Intercept Variance	Slope Mean	Slope Variance	Intercept-Slope Covariance
Marital stress – Mothers	1.99***	0.52***	-0.007	0.41***	-0.14*
Marital stress – Fathers	1.83***	0.34***	0.04	0.10*	-0.04*
Externalizing behavior[b]	5.84***	21.57***	-1.26***	19.03***	-9.79***

*p <.05, ** $p < .01$, *** $p < .001$. [b] = growth parameters were equal across spouses.

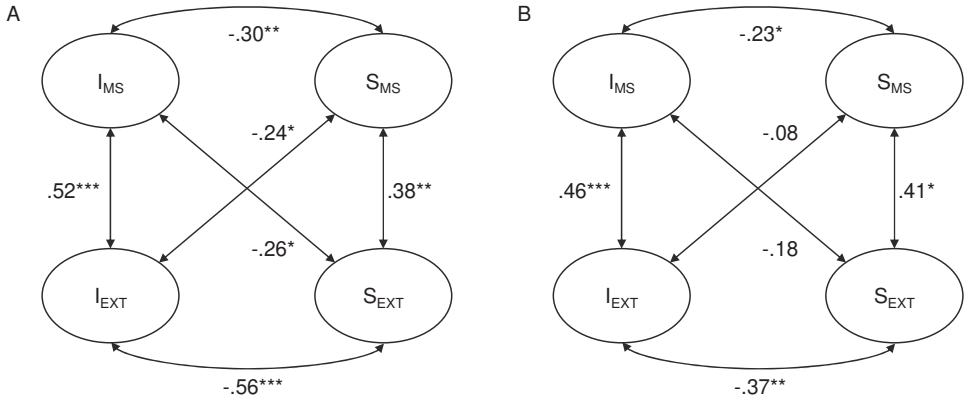

Figure 1. Bivariate latent growth model showing associated change between eight year change in marital stress and externalizing behavior, for mothers (panel A) and fathers (panel B). *Note.* I = Intercept, S = (Linear) Slope, MS = marital stress, EXT = externalizing behavior. * $p < .05$, ** $p < .01$, *** $p < .001$. Standardized covariance estimates are displayed.

Associated Change between Marital Stress and Externalizing Problem Behavior

Our first aim was to investigate whether change in marital stress was related to change in externalizing behavior using a bivariate latent growth model. The individual differences in both change factors enabled us to investigate this association. Models were run separately for mothers and fathers, given different shapes of growth in marital stress for mothers (linear) versus fathers (unspecified), using a multi-group analysis. Model fit statistics are presented in Table 2, and results are displayed in Figure 1. The model fitted the data well and, most important, the results revealed a moderate and positive correlation between the slope factors of marital stress and externalizing behavior for mothers and fathers (see Figure 1). This indicates that a stronger decrease in externalizing behavior is associated with a stronger decrease in marital stress across time and, conversely, that a weaker decrease in externalizing behavior is associated with a weaker decrease in marital stress over time.

Direction of Effects between Marital Stress and Externalizing Behavior

To further examine directions of effects between marital stress and externalizing behavior, as well as the longitudinal role of parental sense of competence, we performed cross-lagged panel analyses using multi-group analyses. Model fit statistics are included in Table 2, and model results are presented in Figure 2 and Table 4. Model fit statistics from the multi-group model showed that the baseline model provided inadequate fit to the data. Based on the

modification indices, 8-year stability coefficients were added to the father model, resulting in an acceptable model fit (Model 2). Next, constraining the cross-lagged effects to be equal across spouses did not yield significantly worse fit to the data than did the model in which associations were freely estimated across spouses, showing that the same pattern of overtime associations appeared for mothers and fathers.

Model results showed that, regarding the direction of effects, higher levels of externalizing behavior at T2 were related to a slightly higher level of reported marital stress at T3 but not between T1 and T2. Moreover, no direct spillover effects were found between marital stress and subsequent externalizing behavior. Furthermore, model results showed that initial time point correlations between marital stress and externalizing behavior were small to moderate and that correlated changes at T2 and T3 between the two constructs were small for both spouses.

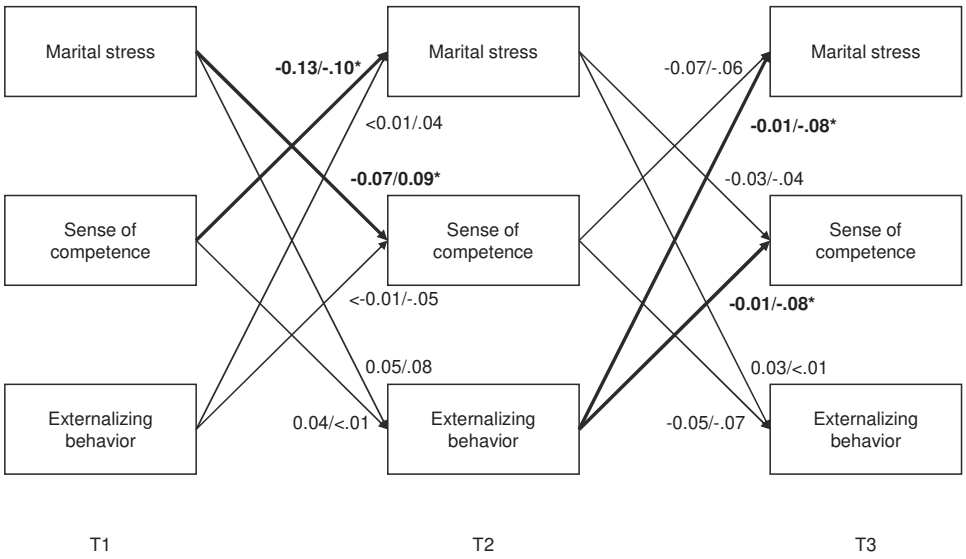

Figure 2. Cross-lagged Pathways in the Multi-Group Cross-Lagged Panel Model. *Note.* Unstandardized B-coefficient before the dash, standardized coefficient behind the dash.
* p < .05.

Mediation by Parental Sense of Competence

The second aim was to examine whether parental sense of competence mediates between marital stress and externalizing problems. Results of the CLPM showed that more marital stress related to having a child at T1 was related to less perceived parental competence at T2 but not between T2 and T3 (see Figure 2). Externalizing behavior at T1 was not significantly related to parental sense of competence at T2, but more externalizing behavior at T2 was associated with less perceived parental competence at T3. Conversely, perceived parental competence was not significantly related to subsequent levels of externalizing behavior across both time intervals. Less parental sense of competence at T1 was related to small increases in marital stress at T2, but parental sense of competence at T2 was not significantly related to marital stress at T3. Additionally, no significant indirect effects were found from marital stress through perceived parental competence to externalizing behavior (b = .08, SE = .06, p = .175, β < .01) or from externalizing behavior through perceived parental competence to marital stress (b = .01, SE = .01, p = .337, β < .01). Also, initial time point correlations were significant and moderate to strong. For mothers, correlated changes were moderate for parental sense of competence with the other two constructs, whereas for fathers, the correlated change between marital stress and sense of competence was strong at T2.

Finally, cross-informant replication analyses in both the mother and the father model showed that the model wherein associations between marital stress, sense of competence and mother and father rating of child externalizing were constrained across the informants, χ^2 (8) = 5.98, p = .649, did not fit the data significantly worse than did the model wherein these associations were estimated freely across informants, χ^2 (8) = 8.63, p = .375, suggesting that the bidirectional effects were not due to rater bias (alone).

Table 4. Results of the final mediational cross-lagged panel model, using multi-group analyses.

	Mothers			Fathers		
Model Parameters	*B*	*SE*	β	*B*	*SE*	β
Autoregressive Paths						
T1 → T2 marital stress	0.53***	.05	.53	0.43***	.06	.38
T2 → T3 marital stress	0.70***	.04	.68	0.42***	.07	.45
T1 → T3 marital stress				0.34***	.06	.32
T1 → T2 externalizing	0.48***	.05	.57	0.45***	.06	.45
T2 → T3 externalizing	0.66***	.07	.61	0.53***	.07	.53
T1 → T3 externalizing				0.20**	.07	.21
T1 → T2 sense of competence	0.58***	.06	.52	0.56***	.05	.52
T2 → T3 sense of competence	0.56***	.04	.62	0.51***	.07	.49
T1 → T3 sense of competence				0.32***	.06	.28
Initial time-point correlations and correlated changes						
T1 marital stress ↔ T1 externalizing	1.98***	.41	.39	1.14***	.24	.31
T1 marital stress ↔ T1 sense of competence	-0.27***	.03	-.51	-0.24***	.03	-.54
T1 externalizing ↔ T1 sense of competence	-1.87***	.24	-.48	-1.05***	.19	-.53
T2 marital stress ↔ T2 externalizing	0.49**	.18	.19	0.79**	.29	.25
T2 marital stress ↔ T2 sense of competence	-0.17***	.03	-.46	-0.23***	.05	-.59
T2 externalizing ↔ T2 sense of competence	-0.77***	.17	-.39	-0.65**	.23	-.28
T3 marital stress ↔ T3 externalizing	0.30*	.14	.13	0.43***	.12	.22
T3 marital stress ↔ T3 sense of competence	-0.10***	.02	-.36	-0.11***	.11	-.43
T3 externalizing ↔ T3 sense of competence	-0.70	.17	-.36	-0.42***	.02	-.25

Discussion

This study examined dynamic associations between marital stress and children's externalizing behavior, mediation of these associations by parental sense of competence, and similarity in these associations across parents, from middle childhood to adolescence among a large community sample. The main results support the idea of codevelopment between marital stress and externalizing behavior; however, they are unsupportive of the hypothesized mediational role of parental sense of competence. Overall, similar associations were found across parents. Supportive of the first hypothesis, associated change over a period of eight years was found, indicating that developmental change in marital stress and in children's externalizing behavior are interrelated for both mothers and fathers. This result supports the idea that family processes and children's behavior codevelop over time (Belsky & Jaffee, 2006; De Haan et al., 2012). Furthermore, this result adds to the literature on family dynamics by suggesting that aspects within the family system that are not directly focused at each other, that is the marital relationship and child behavior, can be important for each other's development. In addition to research indicating that parenting behavior that is explicitly directed at the child (i.e., in interaction) is reciprocally linked to child behavior, this study shows that processes within the marital relationship and child behavior are interrelated in an important way. However, regarding specific spillover and elicitation effects, results showed one elicitation effect during adolescence. Consistent with existing empirical work (Cui et al., 2007), results showed that parents who reported higher externalizing problems in early adolescence reported more marital stress two years later. This is in line with (a) theory and research stating that the influence of children (i.e., child-driven effects) increases during adolescence and (b) family systems theory, which postulates that the developmental changes experienced during adolescence precipitate adjustment in other family subsystems. Moreover, the marital relationship, as the center of family functioning, may be particularly susceptible to these developmental changes (Cox & Paley, 2003).

The second aim was to examine the mediational role of perceived parental competence for associations between marital stress and externalizing behavior. The total indirect effects from marital stress, via parental sense of competence, to externalizing behavior and vice versa were insignificant, thereby not supporting our mediational hypothesis. However, regarding the transactional family processes and direction of effects examined in the model, a few interesting associations emerged. First, we found a reciprocal relation between experienced marital stress related to having a child and perceived parental competence across a time

interval of six years. Specifically, parents who reported higher levels of marital stress during their child's middle childhood reported that they felt less competent as a parent six years later at early adolescence.

This implicates that the marital relationship provides an important context for parents' perceptions of their own ability to influence their child positively and that feelings within the marital system can spill over on the individual parent. To our knowledge, this study is the first to provide knowledge about the family processes that are related to parents' sense of competence over time, and it thereby provides support for family systems theory and sheds insight on the relations of parental sense of competence with broader family functioning (Coleman & Karraker, 1998; Jones & Prinz, 2005). Future research should investigate specific mechanisms that can explain this association (Bandura, 1994). Expressed another way, less perceived parental competence was associated with higher levels of marital stress related to having a child six years later. This suits earlier findings (Kwan et al., 2015; Rochlen et al., 2008) showing that feelings of parental competence are related to subsequent satisfaction in the marital relationship. One possible mechanism behind this association could be that parents who are insecure about their ability to parent view many aspects in the parenting environment as threatening and worry more. The distress related to this insecurity is brought into the marital relationship, because parents may interpret feedback or discussions with their partner as more distressing and may react more emotionally.

This finding fits family systems theory and the idea of spillover of emotions between subsystems (Cox & Paley, 2003). Future research should confirm this association, potentially for other aspects of coparenting as well. It is remarkable that these associations were present only from middle childhood to early adolescence in this study, because one could expect that adolescence is the most vulnerable period for the family system (Cox & Paley, 2003; Steinberg & Silk, 2002). However, although less known as a distinctive developmental period, middle childhood is marked by intensifying transitions. Maturational changes in children and transitions in social contexts take place, and these require parents to extend their activities on behalf of their child (Collins, Madsen, & Susman-Stillman, 2002).

Second, another elicitation effect was found for middle adolescence only. In line with findings in previous research, results showed that parents who reported a higher level of externalizing behavior experienced a slight decrease in their perceived parental competence two years later (De Haan et al., 2013; Jones & Prinz, 2005; Slagt et al., 2012). This result suggests that individual parental sense of competence, similar to the marital subsystem, might be particularly vulnerable during adolescence. This developmental period is marked with

intra-individual and contextual changes and therefore might be specifically demanding and stressful for parents (Steinberg, 2001). The normative developmental changes that adolescents experience, including growing autonomy, spending less time at home, and parent– child relationship characterized by less harmony, may make parents feel less in control and more vulnerable to doubts and uncertainty regarding their parenting role (Kerr, Stattin, & Burk, 2010; Steinberg & Silk, 2002). However, the results should be interpreted carefully, taking into account that the unequal and relatively long time intervals could also have affected the findings.

This study has several strengths. First, it improved the understanding of the association between marital stress and externalizing behavior, by focusing on the codevelopment of marital stress and externalizing behavior and thereby doing more justice to the dynamic nature of the family system. Second, it followed families over eight years and thereby provides important insight into developmental processes. Third, the participation of both parents is considered an important strength of this study (Lamb, 2010). Last, this study provides insight into an understudied yet important aspect of the marital relationship, that is, stress related to having a child. In contrast to more general aspects such as marital quality and conflict, this concept taps into the part of the marital relationship where spouses are joined parents and comanagers of the family (i.e., like the concept of coparenting). From a family systems perspective, this aspect might conceptually be particularly important for family processes, including children's development and parental competence. This suits a new line of research aiming to reach a greater integration of the domains of parenting and the marital relationship (Feinberg, 2003) and adds to the literature about what aspects of the marital relationship play a role in family functioning.

Although we believe that our study provides a useful extension to the existing literature, several limitations should be acknowledged. First, the results can be generalized to two-parent families only. However, these families form a large proportion of today's society (González-Val & Marcén, 2012), and it is important to investigate the development and consequences of ongoing marital stress within families staying together. Also, our measure of marital stress is limited to marital stress experienced in the parental context and could not be generalized to couples without children in the household. Further, due to large sample size this study used questionnaires only. Future research should use a combination of methods of assessment (e.g., observations and diaries) to provide a more robust test of the interrelatedness between marital stress and children's externalizing behavior. Additionally, we relied on parent reports solely, because children were too young to report on their own behavior at the first

wave and because we believe that parents are likely the best informants on their own feelings of stress and competence. Although it is plausible that the relatively large time intervals reduce rater bias somewhat, results should be interpreted carefully in light of shared method variance. For example, it is possible that parents report more behavioral problems, deriving from the attribution that they are not able to influence their child adequately. Even more, attributions of parents might specifically mediate family interactions (Bugental & Happeney, 2002), and future research should, for instance, consider how much parents blame themselves, their partner, or their child for increasing problem behavior. Finally, although our design is fully longitudinal and the temporal order in variables is preserved, no concrete statements about causality can be made, because the results can still be biased by unobserved variables, for example, by parental mental health (Umberson et al., 2005), the parent– child relationship (Erel & Burman, 1995), or other indicators of child functioning. Future research should examine the interplay between these constructs or the specificity of the hypothesized processes.

Overall, the present study provides additional insights into the longitudinal associations between marital stress related to having a child and externalizing behavior and shows that similar family processes occur for mothers and fathers. Our results suggest that marital stress and externalizing behavior codevelop over time and support literature on developmental differences regarding interrelations between subsystems and individuals within the family system.

Chapter 4

A Within-Family Analysis of the Interplay among Interparental Conflict, Adolescent Emotional Insecurity, and Psychological Problems

This chapter is submitted as:
van Eldik, W. M., Davies, P. T., De Haan, A. D., Arends, L. R., Cummings, E. M., & Prinzie, P. (2019). A within-family analysis of the interplay among interparental conflict, adolescent emotional insecurity, and psychological problems.

Abstract

This study is the first to examine youth emotional insecurity as a mediator of the association between interparental conflict and their psychological problems at a within-family level in a sample of 279 adolescents (M_{age} children Wave 1 = 12.6 years) and their parents. Both parents reported on interparental conflict and child psychological problems and adolescents completed surveys of their emotional insecurity. Consistent with previous research, traditional cross-lagged panel models supported emotional insecurity as a mediator of interparental conflict. In contrast, although within-family analyses indicated that fluctuations in emotional insecurity specifically predicted externalizing symptoms, within-family fluctuations in interparental conflict were unrelated to adolescent emotional insecurity. Conceptual and methodological implications of the differences in findings across the analyses are discussed.

Introduction

The importance of interparental conflict for children's development is well documented (Buehler et al., 1997). Going beyond indicating that interparental conflict increases children's vulnerability to developing psychological problems, a 'second generation' of research has emerged over the past couple of decades that is concerned with developing process-oriented perspectives on why and how children are affected by interparental conflict. These new directions seek to identify the causal processes that underlie relations between interparental conflict and children's development (e.g., Cummings & Cummings, 1988; Fauber, Forehand, Thomas, & Wierson, 1990; Grych & Fincham, 1990). Part of this second generation is the emotional security theory (EST), which has emerged as a prominent theoretical model for explanatory processes accounting for these relations (Cummings & Davies, 1996; Davies & Cummings, 1994; Davies, Martin, & Sturge-Apple, 2016). EST proposes a mediational cascade in which (1) exposure to destructive interparental conflict compromises children's goal of preserving a sense of security in the interparental subsystem and (2) children's prolonged difficulties preserving emotional security increases their vulnerability to develop broader and more stable patterns of psychopathology. Preserving emotional security in the interparental relationship is conceptualized as a latent goal for children that is reflected in three observable component processes: (a) emotional reactivity, characterized by intense and prolonged distress reactions to interparental conflict, (b) regulation of exposure to interparental conflict by involvement or avoidance, and (c) negative internal representations of interparental relations, represented by children's evaluation of the adverse consequences of interparental conflict for their own and their family's well-being (Davies & Cummings, 1994).

EST is rooted in developmental psychology, which is concerned with understanding and explanation of (1) intra-individual change and (2) inter-individual differences in intra-individual change (Baltes, Cornelius, & Nesselroade, 1978). Translating this core definition of developmental psychology into EST results in a characterization of the mediational cascade focused on: (1) within-family transactional processes (i.e., at the level where causal family processes take place) and (2) between-family differences in within-family processes. Until now empirical longitudinal studies have been able to provide some support for the second component referring to between-family differences in within-family processes. These studies made use of latent difference score models (LDS; McArdle, 2009) and showed that compared to children in families with lower levels of interparental conflict, children in high conflict

homes exhibited stronger increases in emotional insecurity and psychological problems over time and that emotional insecurity played a role in explaining these individual differences over time (Davies, Martin, & Cicchetti, 2012; Davies, Martin, & Cummings, 2018; Davies, Sturge-Apple, Bascoe, & Cummings, 2014). In addition, one prior study using a cross-lagged panel model (CLPM) assessing the direction of effects between interparental destructive conflict (i.e., hostile and dysphoric behavior), emotional insecurity and psychological problems in a broader bidirectional model, showed that higher levels of destructive interparental conflict were related to higher levels of children's emotional insecurity and emotional insecurity was subsequently related to more psychological problems across annual waves (Davies, Martin, Coe, & Cummings, 2016b). However, in contrast to within-family models, CLPM can only demonstrate that children who experience more destructive conflict behavior between their parents exhibit higher emotional insecurity and more psychological problems over time, compared to children who are exposed to lower levels of destructive interparental conflict) (Keijsers & Van Roekel, *in press*).

Importantly, a significant part of understanding the developmental process proposed by EST has been neglected because of the first component. That is, within-family associations among these constructs, have yet to be examined systematically. In highlighting the significance of this gap, research has shown that conclusions from studies capturing co-variation in rank-order positions of families (i.e., between-family differences, such as LDS models or CLPMs) can often not be replicated on the within-individual or -family level (Dietvorst, Hiemstra, Hillegers, & Keijsers, 2017; Hamaker, Kuiper, & Grasman, 2015; Keijsers, 2016; Kievit, Frankenhuis, Waldorp, & Borsboom, 2013). This is referred to as Simpson's paradox and means that inferences about causal within-family processes cannot be drawn from studies capturing between-family differences (Kievit et al., 2013). Thus, a critical remaining question is whether changes in emotional insecurity can explain why interparental conflict is related to children's trajectories of mental health. Consistent with this question, EST has advanced the shifting gears metaphor of unfolding developmental pathways from the risky family process model (Davies et al., 2018; Repetti et al., 2011). According to this metaphor, the development of each child is represented as a successive series of interlocking, shifting gears. Alterations in the first metaphorical gear representing experiences with destructive interparental conflict are hypothesized to set in motion subsequent shifts in second gear representing child insecurity. In turn, the movement of the second gear of insecurity may give rise to shifts in the metaphorical gear of psychological adjustment representing more long-term developmental outcomes. Logically, these interlocking processes take place within

one family (i.e., movement in the interparental conflict gear in family A, are expected to be related to movement in subsequent gears in family A, and not to be related to changes in family B). Accordingly, the goal of this paper is to examine whether adolescents' emotional insecurity mediates pathways between two types of destructive interparental conflict (i.e., hostility and stonewalling) and two types of adolescents' psychological problems (i.e., externalizing and internalizing behavior) at the within-family level, within a broader transactional model that includes bidirectional associations between adolescent problems, insecurity, and interparental conflict.

As a template for organizing our research questions and hypotheses, Figure 1 illustrates our within-family transactional conceptualization of emotional security theory. Paths A represent EST's main hypothesis that adolescents who experience an increased level of destructive interparental conflict, relative to that family's expected score, will exhibit an increased level of insecurity in the interparental subsystem the next year relative to their own expected level of insecurity. In turn, adolescents who experience an increased level of insecurity, relative to their expected level, are further hypothesized to exhibit an increased level of adjustment problems the next year compared to their expected level of problems. EST proposes that these mediational pathways are particularly likely to develop from exposure to conflicts characterized by hostility and disengagement (e.g., stonewalling; Davies et al., 2016a). In support of this hypothesis, prior work capturing between-family differences identified both forms of destructive conflict as predictors of children's emotional insecurity (Davies, Sturge-Apple, Winter, Cummings, & Farrell, 2006) and showed mediational support for emotional security explaining links between both hostile and stonewalling conflict behavior and adolescents' psychological problems (Davies et al., 2016; Du Rocher Schudlich & Cummings, 2007). Only the first link of the mediational cascade has been investigated in a within-family design for interparental hostility and changes in signs of emotional insecurity for children between 8 and 19 years old (Goeke-Morey, Papp, & Cummings, 2013). This study provided partial support and found that within-family increases in conflict exposure predicted increases in emotional reactivity (i.e., however, depending on the experimental setting), but were not related to changes in avoidance. Based on theory and prior empirical work, we hypothesized that on a within-family level, fluctuations in emotional insecurity would mediate associations between fluctuations in both interparental hostility and stonewalling behavior and changes in adolescents' externalizing and internalizing problems.

To provide a stringent test of the mediational cascade proposed by EST, we take into account developmental psychopathology and family systems perspectives that propose

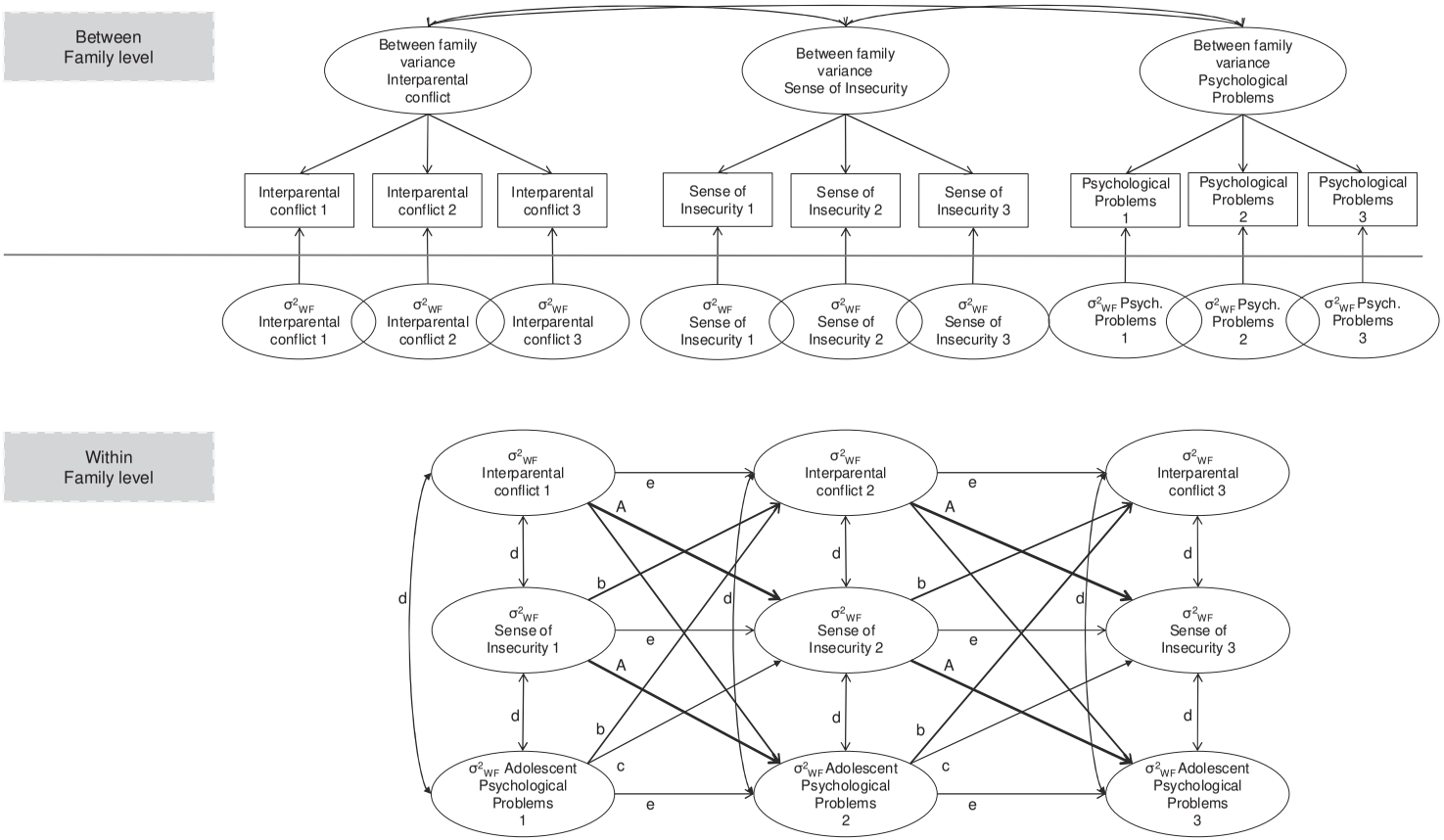

Figure 1. Graphical presentation of a Random-Intercept Cross-Lagged Panel Model disentangling between-family differences and within-family associations between interparental conflict, adolescent's sense of insecurity and psychological problems.

Note. RI = random intercept, σ^2_{WF} = within-family variance.

children have an active role in shaping their environment and development (Cicchetti & Toth, 2009; Cox & Paley, 2003; Sameroff & MacKenzie, 2003). Regarding bidirectional transactional associations, the b paths in Figure 1 signify the possibility that children's coping (i.e., insecurity) and psychological adjustment (i.e., externalizing and internalizing problems) may shape interparental conflict dynamics. Prior work, based on between-family designs, has generated findings supporting the role of children's externalizing and internalizing behavior as predictors of subsequent interparental interactions and relationship adjustment (Cui, Donnelan, & Conger, 2007; Davies et al., 2016b; Jenkins, Simpson, Dunn, Rasbash, & O'Connor, 2005; Van Eldik et al., 2017). Although less is known about how children's concerns about security in the interparental relationship may shape interparental interactions (Davies et al., 2016a), some initial work provides some, albeit mixed, support for children's signs of insecurity as predictors of interparental conflict. For example, a previous study showed that children's behavioral dysregulation (i.e., a form of children's distress in response to interparental conflict that is characterized by acts of verbal or physical aggression, misbehavior, or hurting oneself) predicted subsequent increases in interparental hostile conflict across two-year intervals (Schermerhorn, Cummings, DeCarlo, & Davies, 2007). This would indicate that children's insecurity might negatively impact interparental functioning over time. In contrast, another study indicated that a broader multi-dimensional assessment of insecurity (i.e., emotional reactivity, involvement, avoidance, and negative internal representations) failed to predict subsequent changes in interparental hostile and disengaged conflict behavior across one-year intervals (Davies et al., 2016b). Building on prior work and addressing an important empirical gap, this study will test whether adolescents' fluctuations in signs of insecurity and psychological problems are related to levels of destructive interparental conflict behavior one year later at the *within*-family level (paths b).

As another part of bidirectionality in EST, the c paths illustrate the notion that children's psychological difficulties tax their ability to preserve a sense of security in the face of interparental conflict, reflected in a direct association from externalizing and internalizing problems to subsequent levels of emotional insecurity. A first cross-sectional study found support for this process, showing that children with histories of aggressive behavior were more emotionally aroused during a live simulation of adult conflict (Klaczynski & Cummings, 1989). However, a longitudinal study failed to find support for the hypothesis that psychological problems (i.e., combination of externalizing and internalizing symptom) are precursors of subsequent changes in emotional insecurity across one-year intervals (Davies et al., 2016b). This study will build on this prior work and examine, at the within-family level,

whether adolescents who show more psychological problems relative to their own expected level of psychopathology, experience increases in their sense of insecurity during the next year.

This study will focus on within-family processes during adolescence, as this time period can be expected to be a period of heightened sensitivity to social contexts for several reasons. From a neurobiological perspective, specific changes in neural systems and hormone production during adolescence are related to the development of more complex social-cognitive skills (e.g., mentalizing, perspective taking) and specific changes in social-affective processing (e.g., increases in empathy). Together these developmental changes make adolescence a crucial time of vulnerability for social contexts (Crone & Dahl, 2012). For example, these developmental changes are theorized to increase adolescent awareness of subtle interparental difficulties and the potential consequences for the child and family system (Cummings, Ballard, El-Sheikh, & Lake, 1991; Davies, Myers, Cummings, & Heindel, 1999). In addition, cumulative or simultaneous change models would predict significant life events, such as interparental conflict, to have a profound influence on subsequent development during transitional periods in which multiple changes are occurring (e.g., school transitions, social transitions, pubertal development; Graber & Brooks-Gunn, 1996). In complementing these models, family systems theory proposes that the dynamic transitions during adolescence (e.g., school transitions, changes in parent-child relationship dynamics) increase the sensitivity of both children and parents to family processes (Cox & Paley, 2003). Taken together, these conceptualizations highlight the possibility that adolescence may be a sensitive period for both: (1) the operation of emotional security as a mediator of youth vulnerability to interparental conflict and (2) the potential role of youth functioning in altering the course of interparental conflicts over time.

In summary, although prior work has been successful in exhibiting differences between adolescents from lower and higher conflict homes regarding changes in their emotional insecurity and psychological problems families (Cummings & Miller-Graff, 2015; Davies et al., 2016a), no prior studies have examined if interparental conflict, emotional insecurity and child adjustment problems are linked longitudinally *within* families (i.e., intra-individual change processes; Baltes et al., 1978). Therefore, the study was designed to break new ground by being the first to test EST's mediational cascade as a within-family causal process. To address this aim, our Random-Intercept Cross-Lagged Panel model (RI-CLPM) analyses across three annual measurement occasions from early to middle adolescence were specifically designed to parse within-family transactions from stable between-family

differences (Hamaker et al., 2015). Thus, RI-CLPM analyses afford the identification of directionality in processes that are operating within families while also ruling out the operation of any third variables that could explain between-family differences (Kievit et al., 2013). For the sake of specificity at this early stage of examining EST at the within-family level and respecting the complexity of these statistical models, our study includes separate investigations for adolescents' externalizing and internalizing symptoms.

The RI-CLPM design examines within-family transactions between interparental conflict, emotional insecurity, and psychological problems while controlling for: (1) stable differences between families in these constructs; (2) within-family level stability in the constructs over time; and (3) within-family associations between the constructs within each measurement occasion. Within our transactional within-family model of emotional security, we specifically tested (a) the mediational role of emotional security in within-family pathways between two forms of destructive interparental conflict (i.e., hostility and stonewalling) and adolescents' psychological problems, and, (b) whether these mediational pathways hold while controlling for bidirectionality in the transactional family context. As a base of comparison, we first conducted 'traditional' longitudinal between-family analyses examining rank-order co-variation between interparental conflict, emotional insecurity and psychological problems to replicate findings generated by prior work. Finally, we examined whether within-family transactions of insecurity varied as a function of child gender. The limited research comparing mediational pathways of insecurity for boys and girls have shown no gender differences in between-family designs, (for a review, see Davies et al., 2016a; Davies et al., 2016b). However, it is possible that although there are no gender differences regarding rank-order covariation, gender difference exist in within-family processes. For example, Goeke-Morey et al. (2013) showed that within families, exposure to interparental conflict led to increases in boys', and not girls', negative representations across time. As a first full test of mediation, we compared the applicability of the within-family pathways of insecurity for boys and girls.

Method

Participants

Participants in this study were 279 adolescents and their mothers and fathers who were recruited from communities in a moderately sized metropolitan area in the Northeastern US and a small city in the Midwestern US. They participated in three annual waves of data collection. To ensure that adolescents had the opportunity to witness interparental

interactions, inclusion criteria required that mothers, fathers, and adolescents had regular contact with each other over the past year, defined by at least an average of 3 days a week (*M* = 6 days per week). Adolescents were in seventh grade at Wave 1, on average 12.6 years old (*SD* = .57, range 11 to 14) and 52% were girls. Most parents were married at Wave 1 (i.e., 85%). Adolescents lived with their biological mothers (94%) and fathers (79%) in most cases, with the remainder living with adoptive or stepmothers (3%) or –fathers (16%) or guardians (female: 3%, male: 5%). For racial background, most adolescents identified as White (73%), and smaller groups identified as African American (17%), multi-racial (8%) and other races (2%). Median household income of the families was between $55,000 and $74,999 per year. Median education level of mothers and fathers was some college education. Retention rates were 93% across each of the two contiguous waves of data collection. Data were collected between 2007 and 2011.

Procedures

Adolescents, mothers, and fathers visited the laboratory for completing confidential survey measures at each of the three measurement occasions. The study was approved by the Institutional Review Board at each research site. Families were compensated monetarily for their participation.

Measures

Interparental conflict. At each wave, mothers and fathers independently completed the Conflict and Problem-Solving Scales (CPS; Kerig, 1996) to assess interparental conflict in the home. For the purposes of this study, we created hostility and stonewalling subscales as different indicators of destructive interparental conflict. Parents reported on their own and their partner's (a) hostile behavior, consisting of verbally aggressive conflict tactics such as yelling, accusing, and insulting (16 items; e.g., "Raise voice, yell, shout") and physically aggressive conflict tactics, including threatening or inflicting physical harm (14 items; e.g., "How often do you/your spouse throw objects, slam doors, break things"), and (b) stonewalling behavior, consisting of withdrawal, avoidance of conflict topics, and unresponsiveness (six items; e.g., "How often do you/your spouse sulk, refuse to talk"). Items on these subscales were rated on 4-point scales (0 = *never* to 3 = *often*). The internal consistency, test–retest reliability, and various forms of validity of the CPS are well established (e.g., Kerig, 1996). In the present sample, the CPS scales evidenced satisfactory internal consistency values (alpha coefficients ranged from .79 and .92 across all waves).

Mother and fathers reports regarding their own and their partners behavior were averaged into two dyad scores reflecting the level of hostility and stonewalling behavior in the dyad (alpha's for composite scales on average across the three waves were .94 for hostility and .86 for stonewalling).

Emotional insecurity. At each wave, adolescents completed the Security in the Interparental Subsystem (SIS; Davies, Forman, Rasi, & Stevens, 2002) scales to assess emotional insecurity. All items were answered on a four-point Likert-scale (1 = *not at all* to 4 = *very true to me*). In accordance with prior procedures (e.g., Davies et al., 2014) we created the following four subscales by averaging the relevant items: (a) Emotional Reactivity, assessing multiple, prolonged experiences of fear and distress in response to conflict (nine items; e.g., "When my parents argue, I feel scared"), (b) Insecure Representations, assessing appraisals of the deleterious impact of interparental conflict for the family (four items; e.g., "When my parents have an argument, I wonder if they will divorce or separate") and children's evaluation that interparental conflict proliferates to negatively impact their welfare and relations with parents (four items; e.g., "When my parents have an argument, I feel like they are upset at me"), (c) Involvement, assessing adolescents' regulation of exposure to conflict by getting involved (nine items; e.g., "I try to solve the problem for them") and (d) Avoidance, assessing adolescents' efforts to reduce their exposure to the conflict (seven items; e.g., "I try to get away from them"). Across the three waves, alpha's ranged were .89, .88, and .87 for emotional reactivity; .87, .87, and .83 for insecure representations, .74, .77, and .78 for involvement, and .84, .84, and .85 for avoidance, for waves 1 to 3 respectively. The SIS emotional reactivity, insecure representations, involvement and avoidance scales were averaged to create a parsimonious composite of adolescents' emotional insecurity at each of the waves. Scale-level internal consistency coefficients for the insecurity composites were .92, .93, and .93 across waves 1 through 3.

Adolescent externalizing and internalizing behavior. At each wave, mothers and fathers completed the aggressive behavior, delinquency, anxious/depressed, withdrawal, and somatic complaints scales of the Child Behavior Checklist (CBCL; Achenbach, 1991). We created an (a) externalizing problem scale, averaging 33 items that assess aggressive behavior (e.g., "Gets in many fights") and delinquency (e.g., "Lying or cheating"), and (b) and internalizing problem scale, averaging 31 items combining the anxious/depressed (14 items, e.g., "Nervous, high-strung, or tense"), the withdrawal (nine items, e.g., "Unhappy, sad, or depressed"), and the somatic scales (nine items, "e.g., "Feels dizzy"). Internal consistencies were excellent for maternal (M_{ext} α = .91, M_{int} α = .85) and paternal (M_{ext} α = .92, M_{int} α = .87)

CBCL reports. Mother and father assessments of adolescents' externalizing and internalizing problems were moderately to highly correlated within each wave, with *r*s ranging from .38 to .70, *p*s < .001. Therefore, mother and father reports were subsequently averaged together within each measurement occasion to obtain more rigorous and parsimonious multiple informant composites of psychological problems.

Statistical Analyses

To examine the main hypotheses of this study, four random intercept cross-lagged panel models were constructed in Mplus version 8 (Hamaker et al., 2015; Muthén & Muthén, 1998-2012). Each model combined one dimension of interparental conflict (i.e., hostility or stonewalling), adolescent's emotional insecurity, and one form of adolescents' psychological problems (i.e., externalizing or internalizing problems (Figure 1). This multilevel modeling approach differs from traditional cross-lagged panel modeling by including a random intercept for each construct (i.e., interparental conflict, emotional security, psychological problems) (Hamaker et al., 2015; Mund & Nestler, 2018). This random intercept captures stable individual differences between families. That means that, for each construct, the family has an expected score that is based on the sample mean across three years and the family's individual stable trait factor. Consequently, the within-family level variance captures each family's year-to-year fluctuations compared to their own expected score. As a result, it is possible to investigate how within-family fluctuations in interparental conflict, adolescents' emotional insecurity and psychological problems are associated with each other over time.

To investigate the within-family mediational role of emotional insecurity in associations between interparental conflicts and adolescents' psychological problems, we tested a baseline model including one-year stability paths (i.e., the horizontal paths e in Figure 1), Wave 1 correlations and correlated changes at Wave 2 and Wave 3 (i.e., the vertical paths d in Figure 1), and, at the between-family level, random-intercepts for each construct and covariances between them (i.e., paths f in the upperpart of Figure 1). Most important to our research question, we included one-year cross-lagged paths with interparental conflict predicting emotional insecurity one year later and both interparental conflict and emotional insecurity predicting psychological problems one year later (i.e., paths A in Figure 1). As a central test of the mediational cascade, we tested indirect effects with psychological problems at Wave 3 predicted by interparental conflict at Wave 1 via in emotional insecurity at Wave 2, at the within-family level. We evaluated model fit using the comparative fit index (CFI), the root mean squared error of estimation (RSMEA) and the standardized root mean residual

(SRMR). As part of our research question, we examined whether adding bidirectional paths (i.e., paths b and c in Figure 1) would significantly improve model fit. To arrive at the most parsimonious models, we examined whether one-year cross-lagged effects, one-year stability paths, and correlated changes at Wave 2 and Wave 3 were similar across adolescence. To this end, we compared our main model in which all paths were freely estimated over time to models in which the one-year cross-lagged effects, one-year stability paths and concurrent correlations between residual variance at Wave 2 and Wave 3 were constrained to be equal over time. Finally, we examined gender differences in within-family cross-lagged effects to examine whether the mediational cascade from interparental conflict, via emotional insecurity to psychological problems were similar for boys and girls. For this purpose, we examined the model in a multi-group analysis, comparing whether constraining paths A to be equal across boys and girls provided a significantly worse fit to the data as estimating paths A freely across gender.

As a base of comparison, we used the same step-wise procedure for analyzing traditional cross-lagged panel models. These CLPMs mirror the RI-CLPMs described above, except that there are no random-intercepts included in this model (Hamaker et al., 2015). For all model comparisons, we used the Satorra-Bentler χ^2 (S-B χ^2) difference test, because we estimated our models using the maximum likelihood estimation with robust standard errors (i.e., MLR) to account for non-normality in the data (Muthén & Muthén, 1998-2012). The low percentage of missing data in our sample (12%) was estimated through full-information maximum likelihood (FIML) methods. FIML data estimation successfully retains the full sample for primary analyses by minimizing bias in regression and standard error estimates for all types of missing data when the amount of missing data is under 20% (Buhi, Goodson, & Neilands, 2008; Enders, 2001; Schlomer, Bauman, & Card, 2010).

Results

Table 1 shows the means, standard deviations, and correlations for the primary variables across the three measurement occasions.

Table 1. Means, standard deviations, and correlations for the primary model variables.

	M	SD	N	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. W1 Interpar. Hostility	0.81	0.33	261														
2. W2 Interpar. Hostility	0.80	0.34	243	.82*													
3. W3 Interpar. Hostility	0.77	0.31	224	.79*	.82*												
4. W1 Interpar. Stonew.	0.95	0.42	261	.63*	.63*	.58*											
5. W2 Interpar. Stonew.	0.91	0.43	240	.64*	.76*	.64*	.76*										
6. W3 Interpar. Stonew.	0.91	0.40	224	.54*	.59*	.70*	.70*	.74*									
7. W1 Adol. insecurity	1.72	0.47	250	.15*	.14*	.16*	.19*	.17*	.13								
8. W2 Adol. insecurity	1.65	0.47	230	.33*	.30*	.32*	.27*	.28*	.25*	.52*							
9. W3 Adol. insecurity	1.59	0.45	219	.36*	.31*	.34*	.23*	.27*	.29*	.40*	.67*						
10. W1 Adol. externalizing	0.21	0.20	267	.16*	.15*	.14*	.11	.15*	.07	.12	.02	.09					
11. W2 Adol. externalizing	0.20	0.22	249	.06	.14*	.09	.10	.18*	.04	.19*	.00	.01	.84*				
12. W3 Adol. externalizing	0.18	0.20	235	.06	.15*	.18*	.10	.17*	.15*	.17*	.13	.12	.79*	.80*			
13. W1 Adol. internalizing	0.19	0.16	267	.26*	.24*	.29*	.23*	.21*	.20*	.10	.11	.21*	.58*	.39*	.38*		
14. W2 Adol. internalizing	0.16	0.14	249	.20*	.27*	.21*	.23*	.29*	.14*	.14*	.02	.09	.57*	.63*	.49*	.66*	
15. W3 Adol. internalizing	0.15	0.16	235	.16*	.17*	.23*	.14*	.19*	.20*	.08	.16*	.15*	.43*	.36*	.57*	.61*	.69*

Traditional Cross-Lagged Panel Models

Baseline models provided adequate fit for both hostility (externalizing: S-B χ^2 (15) = 57.81, CFI = .948, RMSEA = .101, SRMR = .031, internalizing: S-B χ^2 (15) = 47.52, CFI = .956, RMSEA = .088, SRMR = .038) and stonewalling (externalizing: S-B χ^2 (15) = 52.22, CFI = .950, RMSEA = .094, SRMR = .032, internalizing: S-B χ^2 (15) = 42.81, CFI = .957, RMSEA = .082, SRMR = .040). Adding bidirectional paths B and C to the models, did not significantly improve model fit for any of the models (ΔS-B χ^2 (2) ranging between 0.18 and 2.96, all *p*s > .23). Constraining cross-lagged effects over time did not provide a significantly worse fit to the data in all models (ΔS-B χ^2 (3) ranging between 0.99 and 4.96, *p*s > .18). Constraining concurrent correlations to be equal across waves 2 and 3 (ΔS-B χ^2 (3) ranging between 3.11 and 6.29, all *p*s > .10) did not result in a significantly worse fit to the data. Finally, carry-over effects for conflict behavior and emotional insecurity could be constrained over time (ΔS-B χ^2 (3) ranging between 2.20 and 3.32, *p*s > .19), but not for externalizing problems (ΔS-B χ^2 (3) ranging between 8.08 and 10.91, *p*s < .04). A representation of the final models is presented in Figure 2.

In line with previous research the results supported EST and showed a significant indirect effect indicating a mediational cascade in which on average (1) higher hostile and stonewalling conflict behavior at Wave 1 predicted higher levels of in insecurity at Wave 2, and (2) higher insecurity at Wave 2 predicted greater externalizing and internalizing problems at Wave 3. Total indirect effects were significant for both hostility and stonewalling predicting externalizing and internalizing behavior via emotional insecurity (indirect effects for hostility-externalizing: β = .03, *p* = .002, hostility-internalizing: β = .02, *p* = .02, stonewalling-externalizing: β = .02, *p* = .01, and stonewalling-internalizing: β = .01, *p* = .04). Thus, compared to adolescents in low-conflict homes, adolescents in high-conflict homes reported stronger increases in insecurity over time and subsequently they showed stronger increases in psychological problems over time.

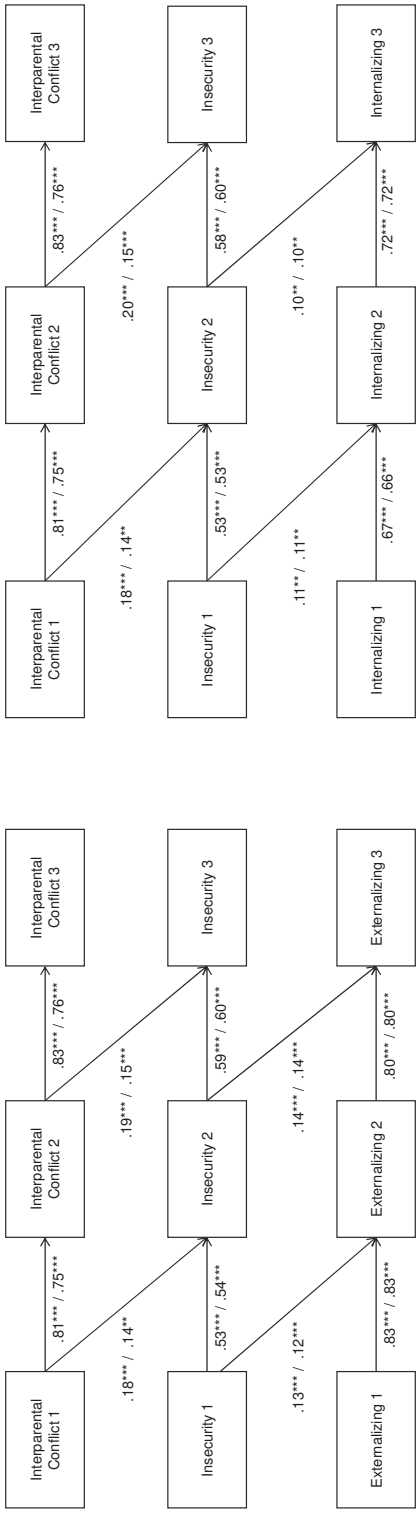

Figure 2. Graphical presentation of standard CLPM with standardized associations between interparental conflict, emotional insecurity, and externalizing (left) and internalizing (right) behavior. Parameters are presented for hostility / stonewalling.
Note. ** $p < .01$, *** $p < .001$. Concurrent correlations are omitted for reasons of clarity

Random-Intercept Cross-Lagged Panel Models

Shifting to the within-family analyses, we first tested whether there was sufficient variance at the within-family (i.e., fluctuations in the same family) and between-family (i.e., differences between families) levels by calculating intra-class correlations (ICC). ICCs were .81 for hostility, .73 for stonewalling, .53 for emotional insecurity, .80 for externalizing and .65 for internalizing problems. Accordingly, all constructs exhibited substantial variance due to stable family differences and fluctuations within families over time.

Externalizing behavior. For externalizing problems, fit of the baseline models were good for both hostility (S-B χ2 (9) = 15.33, CFI = .992, RMSEA = .050, SRMR = .039) and stonewalling (S-B χ2 (9) = 11.65, CFI = .997, RMSEA = .032, SRMR = .025). Adding bidirectional paths B and C to the models, did not significantly improve model fit (ΔS-B χ^2 (2) ranging between 1.30 and 4.52, all *p*s > .10), except for paths c from externalizing behavior to insecurity 1 year later in the stonewalling-model (ΔS-B χ^2 (2) = 6.18, $p < .05$). Constraining cross-lagged effects over time did not provide a significantly worse fit to the data in all models (hostility: ΔS-B χ^2 (3) = 1.17, stonewalling: ΔS-B χ^2 (3) = 1.02, all *p*s > .76). Finally, constraining concurrent correlations to be equal across waves 2 and 3 (hostility: ΔS-B χ^2 (3) = 3.41, stonewalling: ΔS-B χ^2 (3) = 1.07, all *p*s > .33) and carry-over effects across time (hostility: ΔS-B χ^2 (3) = 5.69, stonewalling: ΔS-B χ^2 (3) = 6.21, all *p*s > .10) did not result a significant worse fit to the data. The final models are depicted in Figure 3.

Providing partial support for our hypotheses (i.e., paths A in Figure 1), results showed a lagged association between within-family fluctuations in adolescent emotional insecurity and externalizing behavior. This association indicated that when adolescents reported more emotional insecurity than their expected score in a certain year, they were showing more externalizing behavior compared to their expected score one year later. However, fluctuations in interparental conflict were not related to fluctuations in adolescents' insecurity one year later. Indirect effects linking interparental conflict at Wave 1, emotional insecurity at Wave 2 and externalizing behavior at Wave 3 were not significant.

Although model fit improved significantly by adding paths c from externalizing behavior to insecurity one year later in the stonewalling-model, path results showed that the cross-lagged paths were not significant ($\beta_{W1\text{-}2}$ = -.11, $\beta_{W2\text{-}3}$ = -.19, *p*s = .05). Within-family stability paths e indicated medium, positive carry-over effects for all constructs, such that years in which parents or adolescents scored above their own expected score were likely to be followed by years on which they scored above their expected score as well (see Hamaker et

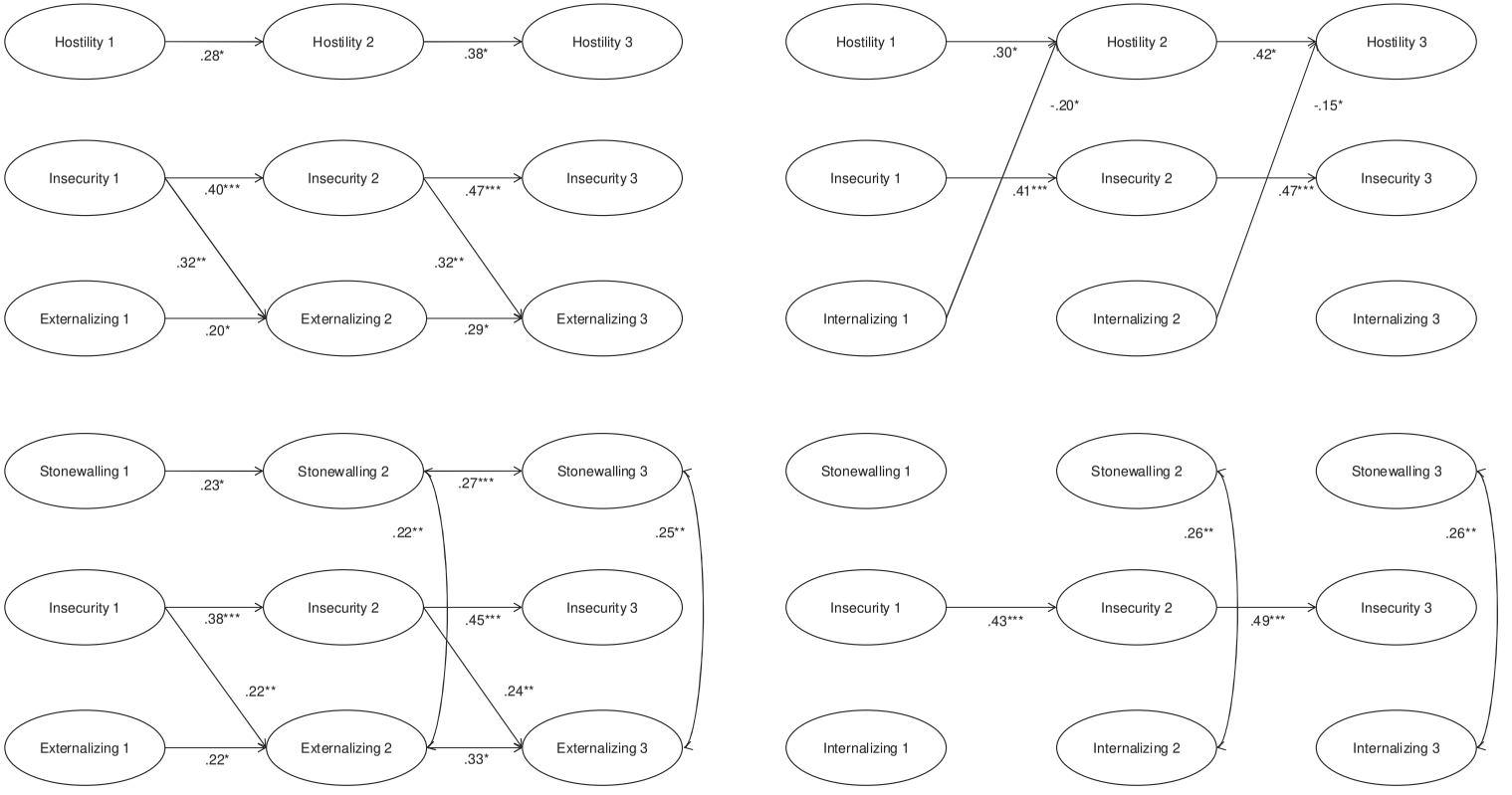

Figure 3. Graphical presentation of within path model with standardized associations between interparental hostility and stonewalling behavior, emotional insecurity, and externalizing (left) and internalizing (right) behavior.
Note. *$p < .05$, ** $p < .01$, *** $p < .001$.

al., 2015 for further interpretation). Additionally, in general no concurrent associations between interparental conflict, emotional insecurity, and externalizing behavior were found. As the exception, within-family deviations in stonewalling behavior were positively related to within-family deviations in adolescent externalizing behavior. Thus, when parents reported using more stonewalling behavior compared to their expected score of stonewalling, they also reported that their adolescent showed more externalizing behavior relative to their expected score in that same year. At the between-family level, interparental hostility and stonewalling correlated strongly with adolescents' insecurity (r hostility = .56, r stonewalling = .45, ps < .001). Externalizing problems did not correlate with hostility (r = .15, p = .07) or stonewalling (r = .14, p = .07). Finally, adolescents' emotional insecurity correlated with externalizing behavior at the between-family level in the stonewalling model (r = .25, p = .04), but not in the hostility model (r = .16, p = .20).

Internalizing behavior. For internalizing problems, fit of the baseline models were good for both hostility (S-B χ^2 (9) = 15.70, CFI = .991, RMSEA = .052, SRMR = .036) and stonewalling (S-B χ^2 (9) = 8.56, CFI = 1.000, RMSEA < .001, SRMR = .023). Adding bidirectional paths b and c to the models, did not significantly improve model fit (ΔS-B χ^2 (2) ranging between 1.40 and 3.43, all ps > .18), except for paths b from internalizing behavior to interparental hostility one year later (ΔS-B χ^2 (2) = 8.36, p = .02). Constraining the cross-lagged effects over time did not provide a significantly worse fit to the data in all models (hostility: ΔS-B χ^2 (3) = 1.12, stonewalling: ΔS-B χ^2 (3) = 0.78, ps > .29). Finally, constraining concurrent correlations to be equal across waves 2 and 3 (hostility: ΔS-B χ^2 (3) = 1.64, stonewalling: ΔS-B χ^2 (3) = 3.60, ps > .31) and carry-over effects across time (hostility: ΔS-B χ^2 (3) = 5.07, stonewalling: ΔS-B χ^2 (3) = 2.70, ps > .17) did not result in a significantly worse fit to the data. The final models are presented in Figure 3.

Regarding our research question about the mediational role of emotional insecurity at the within-family level (i.e., paths A in Figure 1), the results indicated that fluctuations in interparental conflict were not related to fluctuations in adolescents' insecurity one year later. Likewise, fluctuations in insecurity were not related to fluctuations in internalizing behavior one year later. Indirect effects linking interparental conflict at Wave 1, emotional insecurity at Wave 2 and internalizing behavior at Wave 3 were not significant.

Moreover, considering bidirectionality (i.e., paths b in Figure 1), results indicated that higher levels of adolescents' internalizing behavior, compared to their expected scores, predicted lower levels of parents' hostile conflict behavior relative to their expected score the next year. Parents who reported higher levels of internalizing behavior for their adolescent

reported using less hostile behavior during conflict one year later.

Within-family stability paths e indicated medium positive carry-over effects for interparental conflict dimensions and emotional insecurity. However, no carry-over effects were found for internalizing, indicating fluctuations in internalizing behavior across time were unrelated to each other. Additionally, in general, no concurrent associations between interparental conflict, emotional insecurity or externalizing behavior were found. As the exception, within-family deviations in stonewalling were positively related to within-family deviations in adolescents' internalizing behavior. Thus, when parents reported using more stonewalling behavior compared to their average level, they also reported their adolescent showed more internalizing behavior relative to their average level in that same year (r_{W4} = .38, r_{W5} = .26, ps < .01).

At the between-family level, interparental hostility and stonewalling correlated positively with adolescents' insecurity and internalizing behavior (r hostility-SIS = .56, r hostility-internalizing = .27, r stonewalling-SIS = .50, r stonewalling-internalizing = .23, ps ≤ .01). Adolescents' emotional insecurity was not related to internalizing behavior at the between-family level (hostility model: r = .21, p = .07, stonewalling model: r = .27, p = .05).

Gender differences. In all models, mediational cross-lagged paths (i.e., paths A and the direct path from interparental conflict to psychological problems) could be constrained to be equal for boys and girls (ΔS-B χ^2 (3) ranging between 1.68 and 3.62, all ps > .30), indicating similar transactional within-family processes for boys and girls.

Discussion

Studying intra-individual change is a key component of developmental psychology and, although often not explicitly stated, a central part of many models of developmental psychopathology and family systems models (Baltes et al., 1978; Cox & Paley, 2003). EST was designed to explain why and how interparental conflict affects children's adjustment over time and incorporates both elements of change defined in Baltes' definition of developmental psychology (1978) on a family level. However, no prior work has studied the mediational cascade at the intra-individual or within-family level, despite growing evidence for between-family differences in associations between destructive interparental conflict, children's emotional insecurity and psychological problems (Cummings & Miller-Graff, 2015; Davies et al., 2016a). Addressing this important gap, the goal of this paper was to provide the first test of the hypothesis that adolescents' emotional insecurity in the interparental relationship mediates associations between interparental conflict and adolescent psychological problems

within families. Moreover, we aimed to test this mediational cascade proposed by EST within a broader transactional model that included bidirectional associations between the constructs.

As a base of comparison to previous research, we first tested mediation using traditional CLPMs that capture between-family differences in conflict processes over time. Consistent with previous research (Davies et al., 2016b), our results supported the general principle that adolescents in families with higher levels of destructive interparental conflict exhibit higher levels of emotional insecurity and psychological problems over time, and emotional security plays a mediational role in these associations (i.e., between-family differences in within-family transactional processes). However, results from our investigation of the mediational cascade as a within-family causal process (i.e., on the level of intra- or intra-familial change) exhibited no support for the full mediational hypothesis. Specifically, within-family fluctuations in destructive conflict behavior were not related to subsequent levels of adolescents' emotional insecurity. Moreover, within-family levels of adolescents' emotional insecurity were related to subsequent levels in externalizing behavior, but not internalizing behavior, across annual intervals. In supporting the generalizability of the results, this pattern of findings was comparable for boys and girls.

From a developmental perspective, a lack of support for a link between within-family fluctuations in interparental conflict and subsequent levels of emotional insecurity during adolescence can be explained by stress autonomy and experiential canalization models (Gottlieb, 1991; Morris, Ciesla, & Garber, 2010; Sroufe, 1997). Findings generated in between-family design covering childhood and adolescence (e.g., Davies et al., 2016b) indicated especially strong associations during adolescence, and results from our traditional CLPMs confirm links between destructive interparental conflict and subsequent insecurity during adolescence. The relatively strong rank-order between-family differences together with the lack of within-family effects could suggest that adolescents have already developed relatively stable and automatic patterns of responding to exposure to interparental hostile or stonewalling conflicts. On average, adolescents in higher-conflict homes respond with more insecurity compared to adolescents from lower-conflict homes (i.e., traditional CLPM results). Consequently, subsequent increases in conflict during adolescence may not evoke additional increases in insecurity for adolescents. This combination of findings leads to the testable hypothesis for future research that there will be more within-family variance in the constructs, stronger associations between interparental destructive conflicts and emotional insecurity and weaker between-family differences during early childhood, compared to the adolescent period.

Our findings, however, differ from previously reported within-family analyses showing changes in certain specific sign of insecurity in response to changes in the level of interparental hostile conflict for both younger and older children (Goeke-Morey et al., 2013). That is, processes were found for emotional reactivity, not for avoidance, and gender- and age-specific patterns were found for children's involvement and negative representations. As our study used a more complete assessment of insecurity (i.e., emotional reactivity, involvement, avoidance, and negative representations), the difference in findings between our and the study of Goeke-Morey et al. (2013) may be reconciled by the different levels of assessment used. Difference in findings might also result from dissimilarities in methodologies used. Goeke-Morey et al. (2013) interviewed children in immediate responses to analog representations as well as video-taped parental conflicts, instead of our questionnaire asking adolescents' own perception of their reactions when exposed to interparental conflict. As both methods have advantages and disadvantages, future research is needed to draw more definite conclusions.

Moreover, the findings of Goeke-Morey et al. (2003) also added an important qualifier that children in general became less responsive to conflict over time *as long as conflict does not intensify.* It may be the case that in the current study within-family increases in destructive conflict were not large or strong enough to "shift the next gear", that is setting in motion subsequent changes in the adolescents' signs of emotional insecurity. Additionally, central to Repetti and colleagues' (2011) metaphor of 'shifting gears' to illustrate within-family relationships between stressful events, children's immediate responses and long-term health outcomes, is that the different 'gears' turn at different speeds meaning that parts of transactional mediational cascades take place at different time scales. For example, it may be the case that mediational processes involving emotional insecurity at within-family level may operate within shorter (e.g., days, weeks, or months) or longer (e.g., periods of years) temporal spans. This would require different research designs combining different nested times scales (i.e., events occurring at shorter time scales influencing events occurring on longer time scales; see Schermerhorn & Cummings, 2008; Schermerhorn, Chow, & Cummings, 2010).

Although the first part of EST's mediational cascade was not supported in this study on a within-family level, partial support was found for the second part. Increased levels of adolescents' externalizing behavior were preceded by their increased levels of emotional insecurity (i.e., emotional reactivity, avoidance, involvement, negative representations) one year earlier. In support of EST, difficulties preserving emotional security in the interparental

relationship may intensify into broader and more stable patterns of delinquency and aggression (Davies & Cummings, 1994; Davies et al., 2016a). The exploration of mechanisms underlying this cascading path is still in relatively early stages, but prior work has shown some support for hostile social information processing mediating associations between children's insecure representations and later maladjustment (Bascoe, Davies, Sturge-Apple, & Cummings, 2009). As children develop internal models for filtering, interpreting and responding to stressors in close relationship that they use in later (social) settings, children growing up in conflictual homes may develop models that are proficient in filtering threat cues, attributing malevolent interpretations to others' behaviors and generative of aggression solutions (Davies, Sturge-Apple, & Martin, 2013). Additionally, alterations in children's biological stress response system are hypothesized to form a partial explanation for insecurity-adjustment links (SRS; e.g., Davies, Sturge-Apple, Cicchetti, & Cummings, 2008; Repetti et al., 2011). These relatively preliminary notions may direct future work in examining the underlying mechanisms of within-adolescent associations between insecurity and externalizing problems (Davies et al., 2016a; Davies et al., 2013).

Moreover, in this study no within-family link was found between adolescents' insecurity and their internalizing problems. This finding adds to the complexity regarding the *multifinality* of emotional insecurity (Davies et al., 2016a). That is, although between-family findings overall showed somewhat greater consistency or strength for associations between emotional insecurity and internalizing problems (Davies et al., 2016a), the present study indicates that on a within-family level and during adolescence signs of insecurity are related to subsequent levels of externalizing and not internalizing problems. For example, guided by the reformulation of emotional security theory (Davies & Martin, 2013), one possible explanation is that youth experiencing increases in emotional insecurity may be experiencing specific patterns of insecurity characterized by more coercive and attention-seeking functions that specifically coalesce into externalizing behaviors over time. Future research adopting within-family approaches has the best potential to help the further interpretation of our findings and test whether the intra-individual development of specific patterns of insecurity promotes the development of specific forms of psychological problems.

Our findings on broader transactions between adolescent and interparental functioning provided partial support for the child effects hypotheses. Although adolescent emotional insecurity and externalizing problems were not related to subsequent interparental conflict, the results of the current study revealed that internalizing symptoms predicted subsequent interparental interactions within families. Although prior work examining inter-familial

differences, showed that adolescents' internalizing problems predicted subsequent increases in interparental conflict (Cui et al., 2007), our study showed reversed associations on the within-family level. When adolescents showed increased levels of internalizing symptoms, compared to their own expected level, parents showed a decreased level of hostile conflict the next year. The reversed, negative associations at the within-family, relative to positive associations found on the between-family level, provides an excellent example of Simpson's paradox: inferences drawn from group-level studies cannot be interpreted as within-family developmental processes (Hamaker et al., 2015; Kievit et al., 2013). In general, this finding supports the idea that children play an active role in shaping their environment (Cicchetti & Toth, 2009; Cox & Paley, 2003; Minuchin, 1985). More specifically, this finding indicates the possibility that parental awareness of their adolescents' internalizing symptoms may increase parental efforts to protect them by reducing their hostility towards each other. The concurrent associations between adolescents' psychological problems and parents' level of stonewalling behavior adds to this interpretation and tentatively suggest that parents try to solve their problems in different ways that are less threatening to the adolescent, resulting in using more withdrawing and sulking behavior. If future studies replicate such processes, clinicians should be aware that reductions in hostile behavior may not necessarily reflect a process that is beneficial to long-term outcomes for the family. Given that stonewalling tends to be increased when adolescent psychological problems are increased, the reduction in interparental hostility may occur at the cost of tendencies to use other destructive ways of handling disagreements. Reductions in hostility and a subsequent increased use of disengaged behavior may reflect a maladaptive cascade toward, at some point, a greater likelihood of separation and dissolution (Gottman, 1993; 1994).

Additionally, future work could use a more fine-grained approach to examine whether specific signs or patterns of emotional insecurity are related to subsequent levels of interparental conflict within families. A prior study by Schermerhorn et al. (2007) suggests opposite patterns for child agentic behavior and child behavioral dysregulation in shaping subsequent interparental interactions. Finally, the present study indicates that on the within-family level adolescents' psychological problems were not predictive of later fluctuations in their emotional insecurity. This finding complements prior work examining between-family differences that found no support for psychological problems as precursor of later coping problems (Davies et al., 2016b; Davies et al., 2012). However, it is possible that this specific sensitization process may occur within smaller time periods. For example, real-time or day-to-day research designs could indicate whether adolescent show more signs of insecurity on

moments or days they experience more anxiety, depressive feelings, or externalizing behavior.

Study limitations also merit discussion. First, as this is the initial test of emotional security as a mediator at the within-family level, our results have to be replicated before drawing definite conclusions. Second, although relatively larger sample sizes are necessary to obtain associations at the within-family level variance (Hamaker et al., 2015) and our sample size could be considered moderate, we had enough power to find small effects for the second link of the mediational cascade. Replication with studies having more power would help to further confirm and strengthen the interpretation of our results. Third, specific caution should be exercised with generalizing these findings to other samples given that our study consisted of predominantly White families from middle-class backgrounds. For example, it might be possible that, in the language of the risky family processes model (Repetti et al., 2011), the subsequent "gears" of adolescent insecurity and psychological problems are more likely to be shifted in higher risk samples of families experiencing more destructive forms of interparental conflict. Therefore, before drawing authoritative conclusions about the EST mechanism on a within-family level, results should be replicated in varying contexts. Fourth, our choice for measures was guided by our attempt to limit additional sources of error in our measurement that may undermine the reliability of our within-family analyses (e.g., different coders for observational measures of interparental conflict or teachers reporting on adolescent psychological problems across waves). However, incorporating multiple methods (e.g., observational assessments) and additional informants for key constructs (e.g., adolescent report of parental conflict) is an important direction for future research. Finally, the choice of consistent measures constrained us to the use of three waves of data, while a research design with four measurement moments would strengthen the test of the mediational cascade.

In conclusion, this study breaks new ground by providing a first test of how fluctuations in interparental conflict *within* a family are related to *intra-individual fluctuations* in adolescent insecurity and psychological problems. Thus, our analytic approach to disaggregating within-family transactions from stable trait-like, between family differences over three annual measurement occasions in adolescence moved beyond the predominant examination of inter-individual differences in intra-individual change by testing the mediational cascade proposed by EST at the level of intra-individual change (Hamaker, 2012; Hamaker et al., 2015). Results revealed that during adolescence, within-family fluctuations in interparental destructive conflict (i.e., hostile and disengaged) did not precede subsequent fluctuations in adolescents' emotional insecurity. Additionally, increased levels of

adolescents' emotional insecurity did precede increased levels of externalizing problems, but not internalizing problems, during the next year. In addition, one bidirectional process was found, in which increased levels of internalizing behavior preceded decreased levels of hostility between parents. As this is the first step in testing EST at a within-family level, formulating translational recommendations is premature (Davies, Winter, & Cicchetti, 2006; Davies et al., 2016). However, our study underscores the importance of more systematically characterizing the forms of change that are central to EST and, more broadly, other social-developmental theories. For example, from a clinical perspective, inter-individual differences in families and changes in the rank ordering of families do not carry the same translational implications as understanding change processes at the intra-individual or within-family level (Baltes et al., 1978; Keijsers, 2016). Drawing more firm conclusions about whether parental changes in their conflict management behaviors will result in changes children's coping and adjustment are possible *only* by using analyses at a within-family level.

Chapter 5

Moderation of Longitudinal Associations between Interparental Stress and (Mal)Adaptation by Personality: Contrasting Differential Susceptibility and Diathesis-Stress Models

This chapter is submitted as:
Van Eldik, W. M., De Haan, Arends, L. R., & Prinzie, P. (2018). Moderation of longitudinal associations between interparental stress and (mal) adaptation by personality: Contrasting differential susceptibility and diathesis-stress models.

Abstract

This study aimed to contrast differential susceptibility and diathesis-stress models in examining adolescents' Big Five personality dimensions as moderators of longitudinal associations between interparental stress and four developmental outcomes in emerging adulthood. Hereby, we focus on maladaptive, externalizing and internalizing problems, and adaptive outcomes, self-efficacy and general romantic satisfaction. Data from a longitudinal study were used (475 families, adolescents' M_{age} = 15.82, SD_{age} = 1.15), with both parents reporting on their interparental stress and mothers reporting on their adolescent's personality in 2009, and emerging adults reporting on their (mal)adaptive functioning in 2015. Hierarchical regression analyses showed that extraversion, benevolence, emotional stability and imagination were related to (mal) adaptation across the six-year interval. Importantly, conscientiousness shaped associations between interparental stress and internalizing problems and self-efficacy. Supporting the diathesis-stress model, adolescents high on conscientiousness reported higher internalizing problems only when exposed to high interparental stress. Evidencing the differential susceptibility model, adolescents high on conscientiousness reported lower self-efficacy when exposed to high interparental stress, and, higher self-efficacy when parents reported low stress. Both theoretical individual-difference models found support. Adolescents who are highly conscientious might be relatively more at risk for developmental problems when exposed to interparental problems.

Introduction

The theoretical notion that children respond differently to the same environment is quite consistent in the literature, with repeatedly found evidence for the differential susceptibility and diathesis-stress models (Belsky & Pluess, 2016, Zuckerman, 1999). However, attention for these models in the context of the interparental relationship has been scarce (e.g., Philbrook et al., 2018). This is unfortunate because the interparental subsystem is recognized as one of the most influential familial contexts for child development by several theoretical paradigms, such as the social learning theory (Bandura, 1977), family systems models (Cox & Paley, 1997, 2003; Minuchin, 1974), emotional-security theory (Davies & Cummings, 1994) and the cognitive-contextual model (Grych & Fincham, 1990). Overall, these models suggest that problems in the interparental relationship affect other individuals and subsystems in the family, such as the developing child, by forming a source of stress or by influencing children's internal working models of social relationships. In support of this notion, a growing amount of empirical findings shows direct links between interparental conflicts or stress and several developmental outcomes in children and adolescents, such as externalizing and internalizing problems, academic achievements, or social outcomes (Buehler et al., 1997; Ghazarian & Buehler, 2010; Grych & Fincham, 2001; Van Eldik et al., 2017, Van Eldik et al., 2018). One prospective study showed additional support for long-term effects into emerging adulthood (Hayatbakhsh et al., 2013).

Importantly, most empirical work studying links between the interparental relationship and child outcomes generated small to medium effect sizes (Buehler et al., 1997; Van Eldik et al., 2018). Integrating individual difference models in the context of the interparental relationship leads to the hypothesis that there is substantial individual variability in associations between the interparental relationship and child problem behavior, which could be explained by interactions with individual characteristics that make children more or less affected by this familial stressor (Belsky & Pluess, 2016; Zuckerman, 1999). Therefore, this study was designed to break new ground by being the first to contrast differential susceptibility and diathesis-stress models in examining adolescents' Big Five personality dimensions as moderators of longitudinal associations between interparental stress and four developmental outcomes in emerging adulthood, that is externalizing and internalizing problems, self-efficacy and general romantic satisfaction. Interparental stress refers to the level of dissatisfaction, lack of support, and disagreements between spouses (Abidin, 1995).

The differential susceptibility hypothesis argues that individual characteristics that make some children more vulnerable to negative environments *also* make them benefit most from positive environments (Belsky, Bakermans-Kranenburg, & Van IJzendoorn, 2007; Belsky & Pluess, 2009; 2016). Differential susceptibility goes beyond the classic diathesis-stress model, which states that certain individuals are *only* more vulnerable to negative environments due to certain individual factors (Zuckerman, 1999). Both differential susceptibility and diathesis-stress models have received support from studies reporting interactions between several environmental factors and different individual characteristics (for an overview see Belsky & Pluess, 2016).

Comprehensive ways of describing individual differences in how people generally tend to respond to their environment, is by examining differences in their temperament or Big Five personality dimensions (Buss, 1991; Denissen & Penke, 2008a). As far as we know, few prior studies have examined the moderating role of children's temperament in associations between interparental discord or conflict and developmental outcomes during preschool years or adolescence (David & Murphy, 2007; Davies & Windle, 2001; Hentges, Davies, & Cicchetti, 2015). Overall, these studies generated findings showing that different temperamental attributes (i.e., task orientation, dysrhythimicity, effortful control, negative emotionality) affected the extent to which preschoolers and adolescents were affected by the level of interparental discord. Two studies did not contrast between differentially susceptibility and diathesis-stress models (David & Murphy, 2007; Davies & Windle, 2001). Hentges and colleagues (2015) did contrast between these two models and provided specific support for the differential susceptibility hypothesis. Preschoolers' with high negative emotionality exhibited greater increases in problem behavior when exposed to high destructive interparental conflict, and, these similar children evidenced greater decreases in problem behavior in the context of constructive interparental conflict.

Although the Big Five personality dimensions (i.e., extraversion, agreeableness, conscientiousness, emotional stability (versus neuroticism), and openness to experience; Caspi & Shiner, 2006) have not been studied as potential vulnerability or susceptibility markers in associations between the interparental relationship and children's adjustment yet, they have been studied as such in the parenting context. Two studies, which used data from the same project as the present paper, showed that children's agreeableness, extraversion, conscientiousness and imagination affect the strength of associations between parental overreactive discipline and externalizing behavior both cross-sectional and over time (De Haan, Prinzie, & Deković, 2010; Prinzie et al., 2003). Additionally, two other prior studies

showed that children's agreeableness and extraversion shaped associations between parental psychological control and externalizing and internalizing behavior respectively (Mabbe, Soenens, Vansteenkiste, & Van Leeuwen, 2016), and, adolescents' agreeableness, extraversion and emotional stability affected associations between parental overprotectiveness and social competence (Lianos, 2015). Although these studies, unfortunately, did not explicitly test whether moderating effects support the differential susceptibility hypothesis or diathesis stress model, these results support the idea that effects of the family context depend on children's personality dimensions.

In the present study we focus on the transition into emerging adulthood, because this life phase is recognized as a most unstable developmental stage characterized by identity exploration, transitions in social roles and love relationships, and making career decisions. The instability of this life phase makes emerging adults prone to psychological problems (Arnett, Zukauskiene, & Sugimura, 2014; Roisman, Masten, Coatsworth, & Tellegen, 2004). Emerging adulthood is also a developmental period in which individuals feel they are "in-between" adolescence and adulthood, focused on a gradual process of becoming independent, yet in close contact and relying on their parents and family context (Arnett et al., 2014). Studying our research question across the transition into emerging adulthood will enhance knowledge about how family dynamics continue to play a role for emerging adults. To have a broad view on psychological functioning in emerging adulthood, we focus on two negative and two positive developmental outcomes. Internalizing and externalizing behavior are two important indicators of maladaptation in emerging adulthood (Arnett et al., 2014). General self-efficacy, defined as confident self-beliefs to cope with a variety of demands in life, is an important predictor of life satisfaction and (absence of) loneliness in this life phase and therefore the first indicator of adaptation (Schwarzer & Jerusalem, 1995; Thompson, 2017). Moreover, the salient life task of committing to one romantic partner is becoming a more complex task (Shulman & Connolly, 2013) that is delayed into later adulthood, but is aided by prior exploration and initial experiences (Roisman et al., 2004). Therefore, the second indicator of adaptation is general romantic satisfaction, which can be interpreted as satisfaction with romantic, dating and intimate experiences, independent of relationship status.

To summarize, the overall aim of this prospective longitudinal and multi-informant study was to contrast differential susceptibility and diathesis-stress models in examining adolescents' Big Five personality dimensions as moderators of longitudinal associations between interparental stress and (mal) adaptation in emerging adulthood (i.e., externalizing and internalizing behaviors, self-efficacy and romantic satisfaction). Thereby, we add to

existing knowledge by providing new insights in the applicability and generalizability of these two theoretical models in the context of the interparental relationship. Specifically, we expected adolescents' personality dimensions to moderate associations between interparental stress and (mal) adaptation in emerging adulthood, based on previous research focused on the parenting context (De Haan et al. 2010; Lianos, 2015; Mabbe et al., 2016). Given the lack of empirical research that examined personality as susceptibility markers for interparental stress specifically, or for the different types of outcomes in emerging adulthood, however, we could not formulate hypotheses about which personality dimensions would specifically serve as vulnerability or susceptibility markers. Identifying what factors make adolescents more or less affected by interparental stress during this developmental transition, has the potential to help target intervention and prevention programs in a more informed way by identifying a potentially vulnerable or susceptible group.

Methods

Participants and Procedure

Participants were part of a total sample of 674 families, who participated in the large longitudinal [name of study removed for blinded review]. This study started in 1999 and consists of nine waves of data collection until now. This study was approved by the board of the Catholic University Leuven. A proportional stratified sample of elementary-school-aged children and their families was randomly selected (Prinzie et al., 2003). In this study, data of the sixth (T1: 2009) and eighth wave (T2: 2015) were used as these contained the measures of interest and included the transition into emerging adulthood. In 2009, both parents received paper questionnaires by mail and in 2015 emerging adult participants completed online questionnaires.

In total, 475 families participated in 2009 and 2015 (445 mothers and 396 fathers participated at T1 and 386 emerging adults participated at T2). At T1, mothers were on average 45.04 years (*SD* = 3.55), fathers were on average 46.97 years (*SD* = 4.28), and children were on average 15.82 years old (*SD* = 1.15). Of the 475 families, 78.3% of parents were together at T1, all families were native Belgians and parents were of mixed educational backgrounds representative of the Flemish population. At T2, children were on average 21.82 (*SD* = 1.15) years old, 56% followed some form of education and 36.3% had a job. Regarding living situation, 48.8% lived with their parents, whereas 18.5% lived in a student home, 7.2% lived with a friend or romantic partner, and 0.8% lived alone, 4.0% reported 'other' as living

situation, and for 20.6% living situation was unknown. Little's MCAR showed that missing data points were completely at random ($\chi^2(87) = 105.96$, $p = .08$), enabling the inclusion of all 475 families using the full information maximum likelihood approach in Mplus (Kaplan, 2000).

Measures

Interparental stress. Mothers and fathers reported on their own experienced support, disagreements and intimacy in their partner relationship T1, using the seven-item *marital relationship* subscale of the Dutch translation of the Parental Stress Index (Abidin, 1995; De Brock et al., 1992). Items (e.g., 'Having a child has caused more problems than I expected in my relationship with my spouse') were answered on a six-point Likert scale (1 = *totally disagree* to 6 = *totally agree*). Average scale scores were calculated (mothers: α = .80, *N* = 432, fathers: α = .81, *N* = 396).

Adolescents' Big Five personality dimensions. At T1, mothers reported on their adolescents' Big Five personality characteristics, using the Hierarchical Personality Inventory for Children (H*i*PIC; Mervielde & De Fruyt, 2002). The HiPIC consists of 144 items that are answered on a five-point Likert scale (1 = *almost not characteristic* to 5 = *very characteristic*). Number of items, definitions and Cronbach's alphas for the five dimensions of the H*i*PIC are: extraversion (32 items; energy, expressiveness, optimism, and reversed shyness; α = .93), benevolence (40 items; altruism, compliance, and reversed dominance, egocentrism, and irritability; similar to adult agreeableness; α = .93), conscientiousness (32 items; achievement striving, concentration, orderliness, and perseverance; α = .96), emotional stability (16 items; reversed anxiety, and self-confidence; α = .90) and imagination (24 items; curiosity, creativity, and intelligence; similar to adult openness to experience; α = .93).

Externalizing and internalizing problems. At T2, emerging adults reported on their externalizing and internalizing behavior using the Adult Self-Report (Achenbach, 1991, 2007; Achenbach & Rescorla, 2003). The externalizing syndrome scale consists of 35 items and assesses aggressive (e.g., 'I argue a lot'), rule-breaking (e.g., 'I lie or cheat'), and intrusive behaviors (e.g., 'I show off or clown'). The internalizing syndrome scale consists of 39 items that assess anxious (e.g., 'I am nervous or tense'), withdrawn (e.g., 'I would rather be alone than with others'), and somatic symptoms (e.g., 'I feel dizzy or lightheaded'). All items were answered on a three-point Likert scale (0 = *not true,* 1 = *somewhat or sometimes true*, 2 = *very true or often*) and total scores were computed by summing all items scores for the externalizing (α = .86) and internalizing scale (α = .91).

Self-efficacy. At T2, emerging adults filled-in the ten-item Dutch translation of the General Self-Efficacy scale (e.g., 'Thanks to my resourcefulness, I can handle unforeseen situations') (Schwarzer & Jerusalem, 1995; Teeuw, Schwarzer, & Jerusalem, 1994). The items were answered on a four-point Likert scale (1 = *not at all true* to 4 = *exactly true*) and average scores were calculated ($\alpha = .85$).

Romantic satisfaction. At T2, emerging adults were asked the following question: *Generally speaking, how satisfied are you with your love life, on a scale from 1 to 10 (ranging from not satisfied to completely satisfied)*? This question could be answered by all emerging adults, independently of whether they were in a current relationship.

Statistical Analyses

First, descriptive statistics for and bivariate correlations between the variables and adolescent age were calculated in SPSS 24. Then, to answer our research questions, stepwise hierarchical regression analyses were conducted in Mplus 7.0 (Muthén & Muthén, 1998-2012). We used a robust maximum likelihood estimator (MLR) to take into account any non-normality in our data. Predictors were centered to reduce multicollinearity, and interaction terms were computed in SPSS 24 and saved for use in Mplus.

Regression analyses were conducted separately for the four dependent variables. For each dependent variable, interparental stress and the Big Five personality dimensions were entered in Step 1 (main effects), and interaction terms between interparental stress and personality traits were added in Step 2, in five separate models (2a: Extraversion, 2b: Benevolence, 2c: Conscientiousness, 2d: Emotional stability, 2e: Imagination). Given that mother- and father-reports of interparental stress were dependent (ICC = .52), the standard errors of the coefficients were adjusted for the intraclass correlation, using a correction described by Kish (Hox, Moerbeek, & Van de Schoot, 2010, p. 5). All models were run using multi-group models, in order to examine differences for the four parent-child gender dyads (mother reported interparental stress of sons and daughters ($N = 225$), and father reported stress of sons and daughters ($N = 250$)). For all outcome variables, model fit statistics of models in which main effects (step 1) and interaction effects (step 2a-2e) were estimated freely across the four gender dyads, were compared to model fit statistics of models in which these effects were constrained to be equal across the four groups

To interpret significant interaction effects in terms of differential susceptibility or diathesis-stress, we conducted four post hoc analyses according to statistical recommendation outlined by Del Giudice (2017a; 2017b) and Roisman and colleagues (2012). First, simple

slope testing was performed. Scores on the moderator (i.e., personality dimension) at 1SD below and above the sample mean were used to derive simple regression lines for the effects of interparental stress on the outcome variable at scores of 2SD below and above the sample mean. Next, regions of significance on interparental stress (RoS on X) were generated, which identify the range of values of interparental stress for which effect of a moderator (i.e., a personality dimension) on an outcome variable reached statistical significance. Support for the differential susceptibility hypothesis is evidenced when a personality dimension is related to an outcome variable at *both* high and low levels of interparental stress (e.g., extraversion is related to higher levels of externalizing problems at *high* levels of interparental stress *and* to lower levels of externalizing problems at *low* levels of interparental stress). Conversely, the diathesis-stress model would be supported if findings show that a personality dimension is related to an outcome variable *only* at high levels of interparental stress. Then, we calculated the proportion of interaction (PoI) index (Del Giudice, 2017a; 2017b; Roisman et al., 2012). This index is the proportion of the total area between the two lines in the simple slopes plot that lies on the positive side of the cross-over point (i.e., low interparental stress). In other words, it calculates the proportion of individuals affected 'for better'. Combined with the RoS on X test, values of the PoI index between .20 and .80 could be interpreted as supportive of the differential susceptibility hypothesis and values at .00 as evidence for the diathesis-stress model (Del Giudice, 2017a; 2017b). Finally, we examined whether quadratic terms of interparental stress (X^2) and the interaction effect (ZX^2), or the set of both nonlinear terms together, significantly predicted the outcome variable, as a non-linear interaction effect might interfere with an apparent differential susceptibility effect (Roisman et al., 2012).

Results

Descriptive Statistics

Descriptive statistics and bivariate correlations are displayed in Table 1. All correlations were in the expected direction. Because age of the participants was not related to any of the predictor or outcome variables, age was not included as a covariate in the analyses.

Table 1. Correlations between and descriptive statistics for study variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
T1 (2009)											
1. M: Interparental stress											
2. F: Interparental stress	.50***										
3. Extraversion	-.21***	-.17***									
4. Benevolence	-.24***	-.18***	.18***								
5. Conscientiousness	-.16**	-.05	.18***	.50***							
6. Emotional Stability	-.26***	-.17**	.45***	.19***	.06						
7. Imagination	-.21***	-.16**	.48***	.31***	.53***	.34***					
T2 (2015)											
8. Externalizing	.08	.01	.05	-.26***	-.14**	.01	-.05				
9. Internalizing	.14**	.06	-.26***	-.13*	.01	-.28***	-.04	.53***			
10. Self-efficacy	-.06	-.01	.25***	-.01	.04	.37***	.23***	-.15**	-.39***		
11. Romantic Sat.	-.15**	-.03	.16**	.12*	.01	.13*	.02	-.15**	-.39***	.09	
12. Age	<.01	.01	-.04	.07	.04	.04	-.08	.01	.04	.01	.06
N	432	396	445	445	445	445	445	385	385	372	386
M	2.07	1.94	3.37	3.49	3.21	3.51	3.53	10.36	14.64	2.89	6.47
SD	0.92	0.81	0.55	0.47	0.67	0.61	0.59	7.12	10.42	0.40	2.82

Note. *p<.05, **p<.01, ***p<.001.

Moderation Effects of Big Five Personality Dimensions

Model statistics are reported in Table 2 (externalizing and internalizing problems) and Table 3 (self-efficacy and romantic satisfaction). Overall, the hierarchical models provided adequate to good fit to the data for all dependent variables. Results from the multi-group comparisons showed that, for all four outcome variables, constraining all main and interaction effects did not result in significantly worse model fit statistics. Because all results were similar across parent and child gender, no distinction across gender dyads is made in the remainder of the results section. Statistics can be requested from the first author.

Externalizing problems. Extraversion was associated with more externalizing problems, and benevolence was related to less externalizing problems six years later. There were no main effects of interparental stress, conscientiousness, emotional stability, and imagination, and there were no significant moderation effects.

Internalizing problems. Extraversion, benevolence and emotional stability were associated with less internalizing problems, whereas imagination was associated with more internalizing problems. Associations between interparental stress and internalizing behavior were moderated by conscientiousness. The simple slopes plot (Figure 1) showed that interparental stress was related to more internalizing behavior at high levels of conscientiousness ($\beta = .21$), but not at low levels of conscientiousness ($\beta = .02$). RoS on X showed that the regression of conscientiousness on internalizing reached significance at values of interparental stress lower than -1.28SD and higher than +0.59SD (Appendix I). Because the lower bound fell below the observed range of interparental stress in the current sample, which was at -1.07SD, conscientiousness was related to higher levels of internalizing problems *only* at values of interparental stress above +0.59SD. These results support the diathesis-stress model. Next, the PoI was 0.38, which falls into the .20-.80 window of PoI index (Del Giudice, 2017a; 2017b). Finally, none of the nonlinear terms were significantly related to internalizing problems. Overall, based on the combination of statistics, this interaction pattern is in line with the diathesis-stress model.

Self-efficacy. Extraversion, emotional stability and imagination were associated with more self-efficacy, and conscientiousness moderated associations between interparental stress and self-efficacy. The simple slopes plot indicated that interparental stress was related more self-efficacy at high levels of conscientiousness ($\beta = -.14$), but not at low levels of conscientiousness ($\beta = .06$) (Figure 1). The RoS of X indicated that conscientiousness was associated with self-efficacy when the scores of interparental stress were lower than -0.41SD

Table 2. Model results for externalizing and internalizing problems.

	Externalizing					Internalizing				
	B	*SE*	*p*	β	*M* R^2 *(range)*[a]	*B*	*SE*	*p*	β	*M* R^2 *(range)*[a]
Model 1					.095 (.072-.119)					.125 (.121-.130)
Interparental Stress	-0.04	0.57	.889	-.01		0.48	0.69	.288	.05	
Extraversion	**1.80**	**0.71**	**<.0001**	**.16**		**-4.25**	**0.93**	**<.0001**	**-.23**	
Benevolence	**-4.39**	**0.83**	**<.0001**	**-.33**		**-2.47**	**0.99**	**.009**	**-.12**	
Conscientiousness	0.04	0.73	.944	<.01		0.67	0.89	.375	.04	
Emotional Stability	-0.04	0.71	.943	-<.01		**-3.31**	**0.91**	**<.0001**	**-.19**	
Imagination	-0.17	0.79	.773	-.02		**2.64**	**0.99**	**.005**	**.16**	
Model 2a	-0.27	0.71	.576	-.03	.096 (.071-.120)	-1.05	0.81	.100	-.07	.128 (.115-.145)
Model 2b	-0.03	0.82	.967	-.002	.096 (.072-.119)	0.42	0.97	.643	.02	.125 (.122-.128)
Model 2c	0.61	0.68	.173	.07	.096 (.074-.119)	**1.39**	**0.84**	**.041**	**.09**	.130 (.121-.139)
Model 2d	0.66	0.65	.109	.08	.098 (.073-.124)	0.43	0.80	.493	.03	.125 (.123-.126)
Model 2e	-0.21	0.76	.710	-.02	.096 (.072-.120)	-0.32	0.89	.678	-.02	.126(.122-.130)

Note. Significant coefficients are in bold. Interaction effect between interparental stress and 2a: Extraversion, 2b: Benevolence, 2c: Conscientiousness, 2d: Emotional stability, 2e: Imagination. [a]For four gender-dyad groups.

Table 3. Model results for self-efficacy and romantic satisfaction.

	Self-Efficacy					Romantic Satisfaction				
	B	*SE*	*p*	β	*M* R^2 (*range*)[a]	*B*	*SE*	*p*	β	*M* R^2 (*range*)[a]
Model 1					.169 (.142-.196)					.048 (.046-.049)
Interparental Stress	0.02	.14	.184	.06		-0.13	.37	.326	-.05	
Extraversion	**0.08**	**.18**	**.008**	**.13**		**0.65**	**.49**	**.005**	**.13**	
Benevolence	**-0.11**	**.20**	**.004**	**-.15**		**0.68**	**.54**	**.016**	**.12**	
Conscientiousness	0.01	.17	.632	.02		-0.27	.48	.213	-.07	
Emotional Stability	**0.19**	**.17**	**< .0001**	**.31**		**0.43**	**.47**	**.039**	**.09**	
Imagination	**0.08**	**.20**	**.023**	**.14**		**-0.53**	**.50**	**.027**	**-.12**	
Model 2a	0.02	.17	.549	.03	.170 (.140-.198)	-0.11	.48	.626	-.03	.048 (.044-.051)
Model 2b	-0.02	.19	.672	-.02	.170 (.144-.196)	0.40	.56	.180	.07	.053 (.049-.061)
Model 2c	**-0.06**	**.15**	**.007**	**-.12**	.179 (.150-.212)	0.21	.49	.354	.05	.050 (.049-.051)
Model 2d	0.01	.16	.654	.02	.170 (.141-.196)	-0.18	.45	.338	-.05	.048 (.045-.052)
Model 2e	-0.03	.18	.310	-.06	.171 (.144-.200)	0.13	.48	.566	.03	.049 (.048-.049)

Note. Significant coefficients are in bold. Interaction effect between interparental stress and 2a: Extraversion, 2b: Benevolence, 2c: Conscientiousness, 2d: Emotional stability, 2e: Imagination. [a]For four gender-dyad groups.

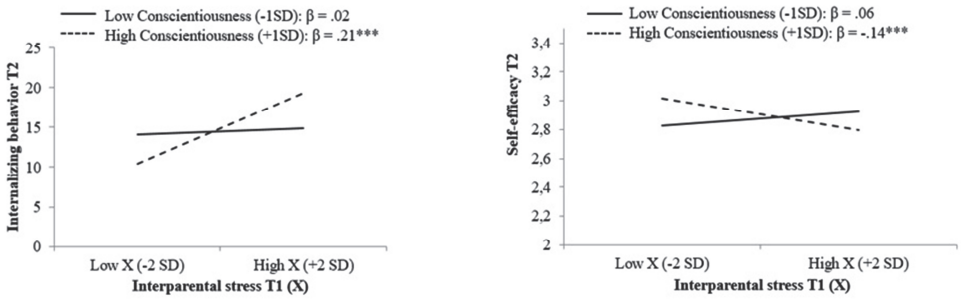

Figure 1. Simple slopes for the prospective association between interparental stress Time 1 (T1) and internalizing at Time 2 (left) and self-efficacy at Time 2 (right), computed at one standard deviation below (low) and above the mean (high) of conscientiousness.

or higher than +1.27SD, falling both in the actual range of interparental stress scores (Appendix I). So, children high on conscientiousness showed higher self-efficacy when interparental stress was lower than -0.41SD, and lower self-efficacy when interparental stress was higher than +1.27SD. The PoI value was 0.62, supportive of differential susceptibility. Finally, neither X2, ZX2, nor both were statistically significant. Thus, all diagnostics support differential susceptibility.

Romantic satisfaction. Extraversion, benevolence and emotional stability were related to higher levels of emerging adults' satisfaction with their love life, and imagination was associated with relatively lower levels of satisfaction. No significant main effects of interparental stress, conscientiousness, or moderation effects were found.

Discussion

The aim of this prospective longitudinal and multi-informant study was to extend our understanding of whether adolescents' Big Five personality dimensions shape how much they are affected by interparental stress during the transition into emerging adulthood. The findings indicate a moderating role of adolescents' conscientiousness, in associations between interparental stress and internalizing problems and general self-efficacy. When exposed to high levels of interparental stress, only adolescents with higher conscientiousness reported more internalizing problems. This interaction pattern was in line with the diathesis-stress model. Also, only adolescents with higher conscientiousness reported higher self-efficacy when exposed to low interparental stress, and *also*, lower self-efficacy when exposed to high

interparental stress. This second finding was supportive of the differential susceptibility model.

Our findings suggest that conscientiousness plays an important role in explaining whether some individuals are more or less affected by interparental stress, for the transition into emerging adulthood. Conscientiousness is often related to positive health and life outcomes (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). In the current study, however, a potentially important downside of being highly conscientiousness was found, which may be explained by three related mechanisms. First, highly conscientious individuals have a general tendency to favor order. According to family systems theory, the family system is an organized whole consisting of clear subsystems (Cox & Paley, 1997). High levels of interparental stress might create a 'disorder' in the interparental subsystem, which may be noticed by, and threatening to more conscientious children especially.

Second, conscientiousness has been found to be linked to appraisals of self-responsibility and self-control (i.e.,responsibility for and control over situations) and active problem-solving coping approaches with relatively less focus on one's emotional reactions (Campbell-Sills, Cohan, & Stein, 2006; Penley & Tomaka, 2002). These orientations are consistent with the self-disciplined and achievement-oriented nature of conscientious individuals, which in general, promotes resilience and self-efficacy. However, self-responsibility, control and active coping may not be optimal when individuals are faced with stressors that are uncontrollable or chronic, such as interparental stress (Campbell-Sills et al., 2006; Penley & Tomaka, 2002; Penley, Tomaka, & Wiebe, 2002).

Third, conscientiousness is related to guilt-proneness, which is normally dealt with by striving harder and using reparative behaviors (Fayard, Roberts, Robins, & Watson, 2012). Again, as interparental stress is uncontrollable – or unrepairable – this unresolved guilt could lead to higher levels of negative affect (Fayard et al., 2012). Feeling more threatened by the "disorder" in the family and being faced with appraisals, coping strategies and affects that are not helpful in the context of this stressor, might make highly conscientious adolescents more vulnerable for experiencing internalizing problems and low self-efficacy. Of course, given that these mechanisms were not explicitly investigated in the current study, our interpretation of these results is tentative, and these proposed mediational pathways should be studied in the future. Nevertheless, given the long-term consequences of emerging adults' internalizing symptoms and self-efficacy for later life outcomes (Arnett et al., 2014; Thompson, 2017) these results identify a potentially important target (group) for family interventions. As this first study used a sample of mostly intact, white and middle-class families was used, future

research should show whether conscientiousness functions as a similar vulnerability or susceptibility marker in samples more mixed in terms of ethnicity, social-economical background or with relatively higher probabilities of interparental stress or conflicts (Del Giudice, 2017a; 2017b; Henrich, Heine, & Norenzayan, 2010).

Apart from these effects for high conscientious adolescents on internalizing problems and self-efficacy, no effects of interparental stress on emerging adults' (mal) adaptation were found. As far as we know, this is the second study to prospectively examine the effects of interparental relationship problems on children's development in the developmental period of emerging adulthood. Considering the instability and changes in this developmental period that are related with the well-being (i.e., regarding social environments, living arrangements, work), it may be that direct influences of the interparental relationship on emerging adult's well-being are less prominent during this transition. Hayatbakhsh and colleagues (2013) did found associations between interparental relationship adjustment with internalizing and externalizing problems in emerging adulthood across a seven-year interval, for an Australian community sample. However, the associations they found were confounded by family structure, showing that especially children from reconstructed families indicated higher levels of psychopathology. Other empirical studies highlight these long-term effects of family disruptions as well (e.g., Wickrama, Lee, & O'Neal). As most studies zooming in on late adolescence and emerging adulthood focus on retrospective reports about interparental conflict (e.g., Johnson, LaVoie, & Mahoney, 2001), there is a significant gap of knowledge about how more recent and current indicators of interparental relationship quality affect children during emerging adulthood.

Additionally, or alternatively, our lack of direct effects might be explained by our measure of interparental stress. Previous research suggests that interparental stress, an indicator of interparental maladjustment, is less strongly related to developmental outcomes than overt interparental conflict behavior (Van Eldik et al., 2018). Overt interparental conflict may be more visible and more threatening for children than more general relationship adjustment and therefore be related more strongly to the developmental trajectories of children (Davies & Cummings, 1994; Grych & Fincham, 1990). Therefore, this result may not be generalizable to other dimensions of the interparental relationship and future research should show insight into the long-term effects of exposure to interparental conflict (see also Vu, Jouriles, McDonald, & Rosenfield, 2016). Alternatively, few main effects of interparental stress may be found partly because we used parental reports, whereas there is evidence for an important role of children's perceptions of the interparental relationship (Neiderhiser, Pike,

Hetherington, & Reiss, 1998). Then, looking at general romantic satisfaction specifically, it might be that our measure may capture a too general concept to find direct associations with interparental stress. Previous research has showed that higher levels of interparental conflict were related to emerging adults' lower romantic relationship quality (Cui & Fincham, 2010), and positive interparental interactions mid-adolescence were related to emerging adults' positive relationship interactions eight years later (Masarik et al., 2013). When these associations are explained by the underlying mechanisms of social learning (Bandura, 1977), it could be that we were not able to capture this association using more general measures of emerging adult's relationship satisfaction.

Although not the primary focus of this study, adolescents' personality dimensions showed to be related to our indicators of (mal) adaptation across the six-year interval, adding to the literature about the predictive power of personality (Roberts et al., 2007). In line with previous studies, extraversion was related to adaptive outcomes (Becht et al., 2016; Prinzie, Van Harten, Deković, Van den Akker, & Shiner, 2014). Extraversion was also related to more externalizing behaviors, which may be explained by high levels of the underlying facets energy and expressiveness (Becht et al., 2016). In line with previous research, benevolence was related to less externalizing and internalizing behavior and lower self-efficacy, and emotional stability with less externalizing and internalizing problems and higher self-efficacy (Becht et al., 2016; Ebstrup, Eplov, Pisinger, & Jørgensen, 2011; Prinzie et al., 2014; Van den Akker, Deković, Asscher, Shiner, & Prinzie, 2013). Last, this study shows that higher extraversion, benevolence, and emotional stability, and lower imagination, were related to higher romantic satisfaction in emerging adulthood. Other research found that personality dimensions predict long-term relationship satisfaction through means of emotion regulation and interpersonal behavior (Vater & Schröder-Abé, 2015). These mechanisms may be generalizable to the dating or romantic life experiences of emerging adults, explaining why certain individuals navigate through this developmental process more satisfactory.

Conclusion

We examined whether adolescents' Big Five personality dimensions shaped associations between interparental stress and (mal) adaptation in emerging adulthood. This is the first study to contrast between differential susceptibility and diathesis-stress in explaining individual differences in adolescents' sensitivity in the context of the interparental relationship. This novel research question was examined using a comprehensive model of Big

Five personality dimensions, focusing on maladaptive and adaptive developmental outcomes, and focusing on the developmental transition into emerging adulthood. The results showed that extraversion, benevolence, emotional stability and imagination were related to (mal) adaptation across a six-year interval. Most importantly, conscientiousness functioned as a 'vulnerability marker' in associations between interparental stress and internalizing problems, and as a 'susceptibility maker' in associations between interparental stress and self-efficacy. Thereby, support for both the diathesis-stress and differential susceptibility models is found. These results are of clinical relevance as a group of adolescents is recognized who may be more at risk for developmental problems when exposed to interparental problems. When replicated, this information could be integrated in intervention programs aiming to support adolescents in families in which the interparental relationship is a source of stress.

Appendix I

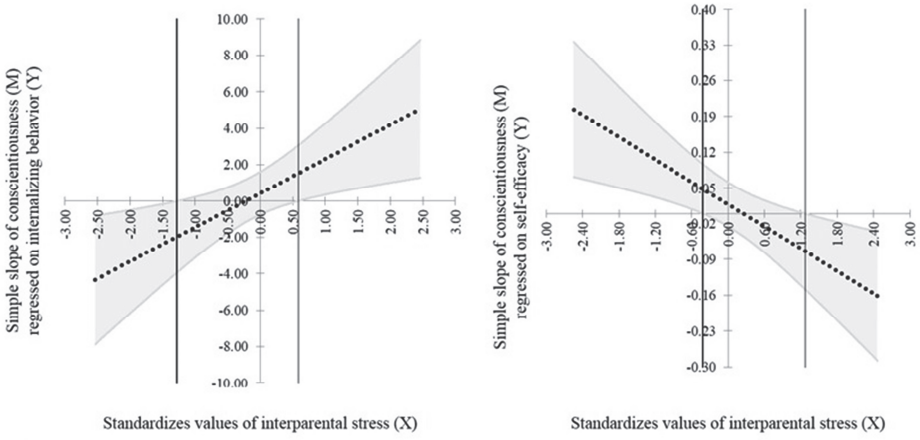

Figure 1. Johnson-Newman plot showing the regions of significance of interparental stress (RoS on X), for internalizing (Y) (left) and self-efficacy (Y) (right).

Chapter 6

Personality, Depressive Symptoms, Interparental Relationship and Parenting: Prospective Associations of an Actor-Partner Interdependency Model

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Abstract

Grounded on Belsky's process model and family systems theories, and using an Actor-Partner-Interdependency Modeling (APIM) approach, the current study was the first to examine whether Big Five personality characteristics and depressive symptoms of parents and their partner are related to adolescent-perceived parenting behavior directly and indirectly via interparental stress experienced by both parents. Longitudinal data (T1:2001, T2:2007, T3:2009) from a large community sample of Flemish families was used (N = 455, T1 children Mage = 7.10 years). Results revealed that, for both parents, more agreeableness and autonomy predicted more warmth, and more depressive symptoms and lower agreeableness predicted more overreactive discipline (i.e., actor-effects). Both parents' depressive symptoms predicted their own interparental stress (i.e., actor-effects). Regarding partner-effects, paternal overreactive discipline was shaped by mother's extraversion and experienced interparental stress, and paternal warmth was affected by mother's experienced interparental stress in addition to fathers' own psychological resources. In contrast, maternal parenting was affected by their own psychological resources only. Although no consistent mediating role of interparental stress was found, one small dyadic indirect effect indicated that maternal depressive symptoms were related to more paternal overreactive discipline via heightened levels of interparental stress experienced by both parents. These results provide new support for the idea of interdependency between parents and specifically support the fathering vulnerability hypothesis. Tentatively, this study informs clinical practice by showing that family interventions aiming to improve parenting should pay attention to specific personality characteristics affecting parents' behavior and adopt a dyadic approach including both parents, especially when targeting paternal parenting.

Introduction

The past three decades have done much to address the fundamental determinants-of-parenting question: "Why do parents parent the way they do?" (Belsky, 1984, p. 83). The importance of parents' personal psychological resources (e.g., personality, depression) as well as contextual resources of support and stress (e.g., the interparental relationship) are underscored in Belsky's process model as well as in classical family systems theory models (Belsky & Jaffee, 2006; Cox & Paley, 2003; Erel & Burman, 1995; Minuchin, 1985). Empirical evidence shows support for associations of parental personality characteristics, depressive symptoms, and the interparental relationship with parenting behavior (e.g., Erel & Burman, 1995; Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Prinzie, Stams, Deković, Reijntjes, & Belsky, 2009; Wilson & Durbin, 2009). However, Belsky's process model hypothesized a mediational process in which parental individual resources are related to parenting both directly and indirectly, via sources of stress and support such as the interparental relationship. This process has not been empirically investigated including *both* personality and depressive symptoms as psychological resources and the interparental relationship as a mediator yet (Leinonen, Solantaus, & Punamaki, 2003; Shelton & Harold, 2008). Moreover, following the family systems theories' claim of interdependency between family members, there is the real possibility that parenting behavior is not only predicted by individual parents' characteristics, but those of partners as well (Cox & Paley, 2003; Minuchin, 1985). Unknown is the extent to which parents are interdependent, regarding associations between their psychological resources, interparental stress and parenting.

Addressing these gaps in the literature, the overall aim is to enhance knowledge on predictors of parenting. This prospective study is unique in that it combines personality characteristics and depressive symptoms in predicting parenting (McCabe, 2014) and interparental stress as a mediator in these associations. Furthermore, we will benefit from the Actor-Partner-Interdependency Modeling (APIM) approach and examine parents' own psychological resources as well as their partner's, and interparental stress experienced by both parents (see Figure 1 for an overview of the model). Importantly, we examine different types of parenting behaviors that are consistently associated with individual differences in children's development: warmth, autonomy–supportive parenting, and overreactive discipline (De Haan, Deković, & Prinzie, 2012; Lekes, Gingras, Philippe, Koestner, & Fang, 2010; Prinzie, et al., 2009; Prinzie, De Haan, & Belsky, 2019). Also, adolescent-perceptions of parenting are used consistent with the notion that the impact of parenting on adolescent adjustment is mediated

by how adolescents perceive their parents' behavior (Neiderhiser, Pike, Hetherington, & Reiss, 1998).

Primary Determinants of Parenting: Parental Psychological Resources

Two important types of personal psychological resources determining parenting behaviors are personality characteristics and depressive symptoms (i.e., referring to paths c'_{AM} and c'_{AF} in Figure 1; Belsky, 1984; Belsky & Jaffee, 2006). Individual differences in personality are known to shape how people respond to developmental tasks (Caspi, Roberts, & Shiner, 2005). Parenting is an important developmental task, and theoretically, a mature and healthy personality is expected to contribute to the provision of supportive parental care (Belsky, 1984). In the current study, personality characteristics are conceptualized according

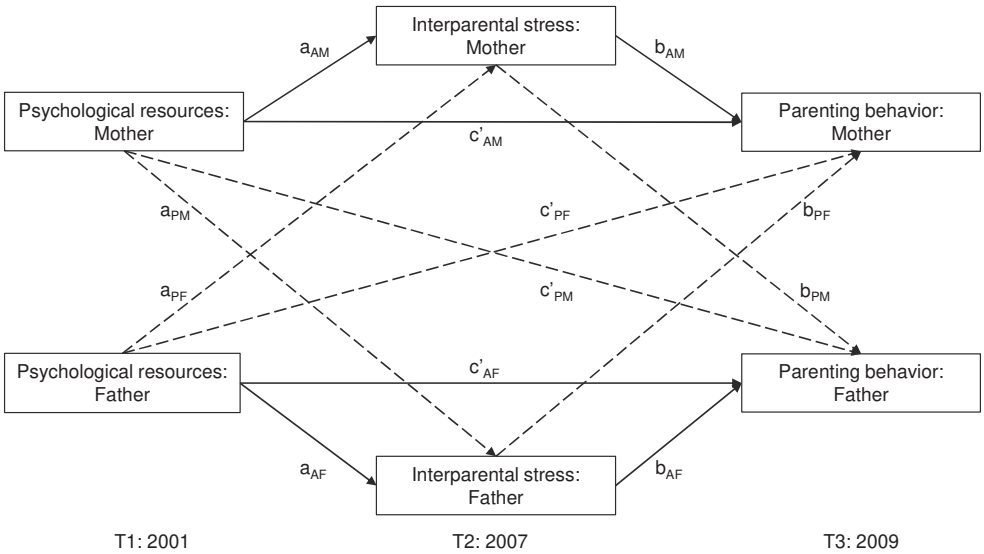

Figure 1. Simplified representation of conceptual and statistical actor-partner-interdependency-model.
Note. Continuous line = actor-effect, dotted line = partner-effect. a = direct path from predictor to mediator variable (personality-marriage association), b = path from mediator to dependent variable (marriage-parenting association), c' = relation between the predictor and dependent variable (personality-marriage association), when the mediator is included. AM = mother-driven actor-effect, PM = mother-driven partner-effect, AF = father-driven actor-effect, PF = father-driven partner-effect. Psychological resources = Big Five and depressive symptoms. Parenting behavior = warmth, autonomy support and overreactivity. For reasons of clarity these overarching terms are used, however, each personality characteristic, depressive symptoms and the three parenting behaviors are included separately in the model.

to the comprehensive and systematic Big Five framework (Hendriks, Hofstee, & De Raad, 1999; McCrae & Costa, 1999). The Big Five dimensions are typically labeled as extraversion (i.e., sociability and agency), agreeableness (i.e., empathy, consideration of other's needs), conscientiousness (i.e., control impulses, plan), emotional stability (versus neuroticism), and autonomy (i.e., intellect, autonomy, imagination). Regarding specific Big Five–parenting associations, a meta-analysis showed that mothers and fathers scoring higher on all five dimensions engage in warmer and more structured parenting, whereas mothers and fathers scoring higher on agreeableness, emotional stability, and openness show more autonomy-supportive parenting (Prinzie et al., 2009; Prinzie et al., 2019). Thus, specific personality dimensions relate to different types of parenting behaviors. Empirical studies examining effects of all Big Five dimensions on parenting simultaneously, showed that some but not all dimensions were uniquely related to parenting when controlling for the others (Bornstein, Hahn, & Haynes, 2011; De Haan et al., 2012). Thus, the effects of the Big Five dimensions on parenting may to some extent be overlapping.

Within developmental psychology, the link between depressive symptoms and parenting behavior has been investigated (Lovejoy et al., 2000). A depressive mood is marked by increased negative affect (i.e., distress, irritability, and anger) and decreased levels of positive affect (i.e., energy, enthusiasm, and engagement). Therefore, higher levels of depressive symptoms in parents are expected to be related to more hostile and negative interactions and less positive interactions with their children (Clark & Watson, 1988; Lovejoy et al., 2000). Meta-analytic work chronicles consistent relations between depressive symptoms and both higher levels of negative parenting (e.g., hostility, overreactive discipline) and lower levels of positive parenting (e.g., engagement, warmth, autonomy-support), for mothers (Lovejoy et al., 2000) and fathers (Wilson & Durbin, 2010).

Although personality dimensions and depressive symptoms are interrelated, and their associations with parenting behaviors are not independent (McCabe, 2014), very few studies have addressed the extent to which parental psychological resources are associated with parenting while accounting for interrelations among personality and depressive symptoms. The fact that depressive symptomology is related to emotional stability as measured in the Big Five (i.e., neuroticism; Kotov, Gamez, Schmidt, & Watson, 2010), raises the general question of overlapping and unique effects of the psychological resources on parenting. Because this study focuses on personality and depressive symptoms, new insights in unique and combined effects of these distinctive ways of operationalizing the construct of psychological resources on parenting can be elucidated.

Mediation by Interparental Stress

The interparental relationship is a central contextual source of stress and support in the family context expected to mediate associations between parents' psychological resources and parenting behavior (Belsky, 1984; Cox & Paley, 2003). Interparental stress is defined as the experienced level of dissatisfaction, lack of support, and amount of disagreements within the relationship (Abidin, 1995) and can be considered an indicator of the multidimensional concept interparental maladjustment (Fincham & Rogge, 2010). Interparental stress can be related to parenting in either of two opposing ways (see Figure 1: paths b_{AM} and b_{AF}; Belsky & Jaffee, 2006; Cox, Paley, & Harter, 2001; Grych, 2002). First, stress in the interparental relationship experienced by a parent may *spill over* and undermine the quality of parenting and the developing parent-child relationship. The opposing *compensation hypothesis* asserts that parents *compensate* for the lack of emotional support in their spousal relationship by seeking a closer and more positive relationship with their child. Although some studies provide empirical support for the compensatory hypothesis (e.g., Cummings, Merrilees, & George, 2010), results from most empirical studies are consistent with the spill-over hypothesis (Buehler, Benson, & Gerard, 2006; Cui & Conger, 2008; Erel & Burman, 1995).

With reference to the associations between psychological resources and the interparental relationship (i.e., paths a_{AM} and a_{AF} in Figure 1), the *intrapersonal approach* suggests that personality characteristics are potential 'enduring vulnerabilities' for interparental distress (Karney & Bradbury, 1995). These associations have been extensively investigated, with a meta-analysis showing the most robust positive associations between the personality dimensions emotional stability, agreeableness, and conscientiousness and parents' own interparental satisfaction (Heller, Watson, & Ilies, 2004). More recent studies confirm the existence of medium-sized associations for these three personality dimensions, and additionally for extraversion (Dyrenforth, Kashy, Donnellan, & Lucas, 2010) or for all five dimensions with relationship satisfaction (Solomon & Jackson, 2014).

Regarding depressive symptoms, individuals experiencing depressive symptoms will show certain behaviors and enhanced negative affect that could contribute to the occurrence of interparental conflict and stress (Davila, Bradbury, Cohan, & Tochluk, 1997). Research attests to the evidence of (detrimental) prospective effects of depressive symptoms on quality of the interparental relationship, both for men and women (e.g., Davila, Karney, Hall, & Bradbury, 2003; Proulx, Helms, & Buehler, 2007).

Research thus provides empirical grounds for the mediating role of interparental stress, explaining why parental psychological resources are related to parents' parenting. Surprisingly, however, studies evaluating this mediational process are rare. Two notable efforts do provide some preliminary albeit mixed support for this process in early adolescence, for associations between parental depressive symptoms, supportive and hostile interparental interactions and parental styles (i.e., an authoritative, non-involved or punitive parenting style; Leinonen et al., 2003), and for associations between parental depressive symptoms, interparental conflict and parent-child rejection (Shelton & Harold, 2008). Whereas most studies focus on either personality or on depressive symptoms, the present study will examine the mediational role of interparental stress, considering both psychological resources.

Interdependency in Mother-Father Dyads

Research has traditionally focused on how parents' own psychological resources and perceptions of the interparental relationship affect parenting. According to family-systems theory, however, individuals within the family system are interdependent (Cox & Paley, 2003; Minuchin, 1985). This interdependency is captured well by Actor-Partner Interdependency Models (APIMs; e.g., Kenny & Ledermann, 2010). In comparison with research designs in which both mothers and fathers are included, but their interdependency is not, APIMs are able to provide *additional* insight into the extent to which observed associations between psychological resources, interparental stress and parenting are due to a parent's own experiences, and to those of their partner as well (Whisman, Uebelacker, & Weinstock, 2004). The current study will provide new insights in the potential interdependency between parents, by examining direct associations between one parent's psychological resources and that parent's own parenting (i.e., actor-effects; paths c'_{AM} and c'_{AF} in Figure 1) and their partner's parenting (i.e., partner-effects; paths c'_{PM} and c'_{PF} in Figure 1), and the mediating role of interparental stress experienced by both parents in these dyadic processes (i.e., Figure 1: combinations of the paths a_{AM}, b_{AM}, a_{AF}, b_{AF}, a_{PM}, b_{PM}, a_{PF}, and b_{PF}).

Two contrary hypotheses about partner-effects of psychological resources and the interparental relationship on parenting behavior are described in the literature. First, fewer psychological resources and more interparental stress of one parent could undermine the quality of the partner's parenting, reflecting a (*stress) cross-over process* (Cox et al., 2001; Nelson, O'Brien, Blankson, Calkins, & Keane, 2009). Second, the partner of a parent with

lower psychological resources and higher experiences of interparental stress may also try to compensate such adversity by showing more *seemingly* positive and less negative parenting, thereby reflecting a *compensatory cross-over process*. We state "seemingly" because compensatory parenting could also promote reduced support for an adolescent's autonomy, in attempt to keep the child close and, thereby, protect him or her (Cox et al., 2001).

In contrast to the large amount of studies examining actor-effects, to the best of our knowledge no studies have examined partner-effects between personality dimensions and parenting behavior (i.e., paths c'_{PM} and c'_{PF} in Figure 1). With regard to depressive symptoms, two cross-sectional studies showed partner-effects while controlling for actor-effects. The first study showed stress cross-over partner-effects, indicating that Flemish mother- and father-adolescent communication was negatively affected by the depressive symptoms of the partner (Ponnet et al., 2013a). The second study reported compensatory cross-over partner-effects in an American sample, indicating that when either mothers or fathers reported depressive symptoms, the spouse reported more supportive responses to seven-year old children's negative emotions (Nelson et al., 2009).

Partner-effects of the interparental relationship on parenting have also received limited attention (i.e., paths b_{PM} and b_{PF} in Figure 1). One longitudinal APIM-study showed that mothers and fathers whose partner engaged in more destructive conflict behavior in the interparental relationship evinced less sensitivity when observed interacting with their child (i.e., cross-over process; Klausli & Owen, 2011). However, for associations between interparental support and responsive parenting no partner effects were found up and above actor-effects (Klausli & Owen, 2011; Nelson et al., 2009; but see Ponnet, Mortelmans, Wouters, Van Leeuwen, Bastaits, & Pasteels, 2013b, for contradictory cross-sectional evidence).

Regarding partner-effects of psychological resources on the interparental relationship, parents can bring certain personality characteristics or a depressed affect into the relationship that have direct effects on the quality or amount of stress in the parental relationship experienced by the partner (Figure 1: paths a_{PM} and a_{PF}; Malouff, Thorsteinsson, Schutte, Bhullar, & Rooke, 2010; Robins, Caspi, & Moffit, 2000). A meta-analysis showed that individuals reported higher relationship satisfaction if their partners scored higher on emotional stability, agreeableness, conscientiousness and extraversion (Malouff et al., 2010). Results of two recent cross-sectional APIM-studies showed some evidence for partner-effects of all Big Five traits on relationship satisfaction (e.g., individual's reported higher relationship satisfaction if their partner scores higher on agreeableness) (Orth, 2013; Schaffhuser,

Allemand, & Martin, 2014). For depressive symptoms, one APIM-study indicated that a partner's depressive symptomology was related to lower relationship satisfaction (i.e., partner-effect)— even after taking into account one's own depressive symptoms (i.e., actor-effect) (Whisman et al., 2004).

Differences between Mothers and Fathers

There are reasons to believe that associations between psychological resources, the interparental relationship and parenting may vary for fathers and mothers. Particularly, the fathering-vulnerability hypothesis stipulates that paternal parenting might be more vulnerable to (environmental) stressors than mothering (Cummings et al., 2010). Regarding actor-effects, two meta-analyses conclude that depressive symptoms and marital problems are similarly related to maternal and paternal parenting (i.e., actor-effects; Erel & Burman, 1995; Wilson & Durbin, 2010). Gender differences regarding partner-effects are less often studied. However, one study shows similar partner-effects between the interparental relationship and a responsive parenting style for mothers and fathers (Ponnet et al., 2013b). In the current study, we will explore several patterns in interdependency to determine whether mothers and fathers are similarly or differently affected by actor- and partner-effects.

The Overall Model and Present Study

To summarize, the overall aim of this study was designed to break new ground by examining to what extent personality dimensions and depressive symptoms of parents and their partner are related to adolescent-perceived parenting behavior directly and indirectly via interparental stress experienced by both parents. As the first study to combine personality and depressive symptoms of both parents and interparental stress experienced by both parents in one model, we used a prospective design covering an eight year period. Therewith, we provide a thorough test of the mediational process proposed in Belsky's process model and of the potential interdependency between mothers and fathers in this mediational process. Specifically, this study can elucidate to what extent personality and depressive symptoms are more important for parenting, to what extent psychological resources of partners are important for parenting, up and above parents' own resources, to what extent the interparental relationship functions as an explanatory mechanism in these dyadic processes, and finally to what extent these processes are similar for mothers and fathers. With those new insights this study can inform clinical practice by helping target family interventions aiming to improving maternal and paternal parenting behavior.

Based on existing literature, we expected 1) actor-effects for the Big Five dimensions and depressive symptoms on parental warmth, autonomy and overreactive discipline (Figure 1: paths c'_{AM} and c'_{AF}); 2) indirect three-step-processes, where associations between parental psychological resources and parenting behavior are mediated by interparental stress (Figure 1: paths b_{AM} and b_{AF} and a_{AM} and a_{AF}), and; 3) cross-over *or* compensatory partner-effects of one parent's psychological resources on the other parent's parenting behavior, directly (Figure 1: paths c'_{PM} and c'_{PF}), and indirectly via the parent's or their partner's experienced interparental stress (Figure 1: paths b_{PM} and $b_{PF,}$ a_{PM} and a_{PF}).

Method

Participants

This study is part of the ongoing Flemish Study in Parenting, Personality and Development. A proportional stratified sample of elementary-school-aged children and their families was randomly selected in 1999. Strata were constructed according to geographical location, children's sex and age. All participants gave written informed consent. The institutional review board of the Katholieke Universiteit Leuven approved all procedures. We used data from the third (2001; T1), fifth (2007; T2) and sixth wave (2009; T3), as these waves contained the measures of interest.

A total of 596 families participated at T1. Families were included when data was available for both spouses and for at least two of the three measurement waves. No further selection criteria were applied based on demographic characteristics. This resulted in a final sample of 455 families (in 24 families fathers never participated, in 104 families one or both parents dropped out after T1, and in 13 families data of one or both parents were available at T2 or T3 only). Mothers in the final sample reported lower levels of interparental stress (t (467) = -3.16, p = .002) than mothers within families who did not reach the inclusion criteria. Also, fathers (t (552) = 2.03, p = .043) and mothers (t (571) = 3.24, p = .001) in the final sample reported on average a slightly higher level of education.

The final sample of 455 families consisted of parents of 216 boys (47.5%) and 239 girls (52.5%). On average, at T1 children were 7 years and 10 months (ranging from 6 years to 9 years and 11 months), mothers were 36.5 years (SD = 3.48) old and fathers were 38.4 years (SD = 4.02) old. At T1, in 407 families (89.5%) parents were together. Percentages of mothers' and fathers' educational level were 0.7% and 3.0% for elementary school, 36.4% and 40.9% for secondary school, 49.3% and 36.7% for non-university higher education, and

13.6 % and 19.5% for university. Within this final sample, 451 mothers and 440 fathers participated at T1, 444 mothers and 431 fathers participated at T2, and 412 adolescents participated at T3. Missing data in the final sample mounted 4.56 %, with 19.56% of the cases having incomplete data. Missing data points were completely at random (Little's MCAR test; χ^2 (223) = 223.49, p = .48).

Measures

Personality characteristics. Parents rated their personality characteristics using the Five-Factor Personality Inventory at T1 (2001; FFPI; Hendriks, Hofstee, & De Raad, 2002). The FFPI consists of 100 brief items assessing individual differences in behavior, which are rated on a five-point scale (1 = *not at all applicable* to 5 = *entirely applicable).* The FFPI scale and factor scores have high internal consistencies, substantial stabilities, and good construct validity in the normal population (Hendriks et al., 2002). Uncorrelated factor scores were produced, using factor weights, established in a large (N = 2,494) Dutch normative sample (Hendriks et al., 2002). Example items for each of the personality dimensions and Cronbach's alphas for mothers and fathers, respectively, were as follows in this study: Extraversion, "Loves to chat" (α = .89, .90), Agreeableness, "Respects others' feelings" (α = .89, .88), Conscientiousness, "Does things according to a plan" (α = .89, .89); Emotional Stability, "Can take his/her mind off his/her problems" (α = .90, .88); and Autonomy, "Wants to form his/her own opinions" (α = .85, .87).

Depressive symptoms. Mothers and fathers reported their depressive symptoms at T1 (2001), using the twelve-item depression subscale of the Dutch translation of the Parenting Stress Index (PSI; Abidin, 1995; De Brock, Vermulst, Gerris, & Abidin, 1992). An example item is "I often feel like giving up" and answers were given on a six-point Likert scale (1 = *totally disagree* to 6 = *totally agree).* A higher score on this scale represents a higher level of depressive symptoms. The scale was reliable for mothers (α = .80) and fathers (α = .80).

Interparental stress. Mothers and fathers reported on their own experienced support and stress in the interparental relationship at T2, related to having a child, using the seven-item *marital relationship* subscale of the Dutch translation of the PSI (Abidin, 1995; De Brock et al., 1992). An example item is "Having a child has caused more problems than I expected in my relationship with my spouse" and answers were given on a six-point Likert scale (1 = *totally disagree* to 6 = *totally agree*). A higher score on this scale represented less support and more stress in the interparental relationship. The scale was reliable for mothers (α = .81) and fathers (α = .83).

Perceived parenting. Adolescent ratings of three types of parenting behavior shown by their mother and father were used (T3). First, adolescents rated their parents' warmth using the scale of the Parenting Practices Questionnaire (Robinson, Mandleco, Olsen, & Hart, 1995), which consists of eleven items that measure the extent to which parents are involved in their child's life and expressed warm parenting (e.g., "Gives comfort and understanding when I am upset"). Answers were given of a five-point Likert scale (1 = *never* to 5 = *always*). The scale was reliable for ratings of mothers' (α = .89) and fathers' (α = .90) warmth. Second, adolescents reported autonomy-supportive parenting provided by their parents, using the Mother–Father–Peer Inventory (MFP; Epstein, Baldwin, & Bishop, 1983), consisting of seven items and assessing the extent to which parents exhibit responsive parenting (e.g., 'Encourages me to make my own decisions'). The scale was reliable for ratings of mothers' (α = .83) and fathers' (α = .85) autonomy-supportive parenting. Third, adolescents reported on overreactive discipline using the Parenting Scale (Arnold, O'Leary, Wolff, & Acker, 1993). The nine items tapping overreactive discipline measure parents' tendency to respond with anger, impatiently and aversively, to their child's problematic behavior. Items present discipline encounters (e.g., "When I misbehave…") followed by two options that act as opposite anchor points for a seven-point scale (e.g., "My mother speaks to me calmly" versus "My mother raises her voice or yells"). The scale was reliable for reports of maternal (α = .82) and paternal (α = .84) overreactive discipline.

Analyses

First, means and standard deviations of the study variables and bivariate correlations among the variables were presented. Then, we performed structural equation modeling in Mplus 7.4 (Múthen & Múthen, 1998-2012) to test our proposed APIM (see Figure 1 for a simplified representation of the APIM and the supplementary material for the full APIM). To maximize our sample, missing values on the model variables were imputed using multiple imputation (Schafer & Graham, 2002). We used the rule of thumb underlined by three simulation studies, that state that the number of imputations should be informed by the percentage of incomplete cases in your data (Bodner, 2008; White, Royston, & Wood, 2011), and created 20 datasets. Next, Mplus was capable of importing these twenty datasets and combining the results in one single step (Acock, 2005).

Following recommendations by Kenny and Ledermann (2010) and Fitzpatrick, Gareau, Lafontaine, and Gaudreau (2016) we tested for specific dyadic patterns in the APIM, enabling us to examine whether mothers and fathers are similarly influenced by actor- and

partner-effects in a systematic manner. In all models, within-wave correlation between the variables at T1 and the residuals at T2 and T3 were included in all models, for mothers and fathers, and between mother- and father-variables. A baseline model including all possible actor-, partner- and indirect effects was specified first (i.e., all paths in Figure 1). Next, patterns of interdependency were tested, in terms of nested models, systematically reducing the number of effects estimated. In the first step, four models in which one type of effect was excluded were tested against the baseline model (i.e., in model A: pathways a_{PF}, b_{PF}-and c'_{PF} are constrained to zero; model B: a_{AF}, b_{AF}-and c'_{AF} were constrained to zero; model C: a_{PM}, b_{PM}-and c'_{PM} were constrained to zero; model D: a_{AM}, b_{AM}-and c'_{AM} were constrained to zero). Next, it was examined whether the best fitting model could be further trimmed in order to find the most parsimonious model (Fitzpatrick et al., 2016; Kenny & Ledermann, 2010). Scripts are accessible as supplementary online material. In the final model, similar paths were constrained across both spouses to examine if these pathways were statistically similar for mothers and fathers.

We evaluated model fit with Chi-square (χ^2), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Standardized Root Mean Square Residual (SRMR) and the Root Mean Square Error of Approximation (RMSEA). We evaluated chi-square and CFI differences to compare nested models (Byrne, 2013). We had adequate power to asses our main question and test differences between the nested structural models ($N = 455$, $\Delta RMSEA = .05$, *power* = .92; MacCallum, Browne, & Cai, 2006; Preacher & Coffman, 2006).

Results

Descriptive Statistics

Means and standard deviations of the study variables and zero-order associations for mothers and fathers are presented in Table 1. Cross-parent zero-order correlations (not displayed in a Table) showed that higher levels of maternal depressive symptoms ($r = .14$, $p = .003$) and interparental stress ($r = .20$, $p < .001$) were related to more adolescent-perceived paternal overreactive discipline (i.e., all parenting behavior discussed in the result section concern adolescent-perceived parenting and therefore this phrase will not be repeated hereafter) and more paternal depressive symptoms were associated with higher levels of maternal

Table 1. Descriptive statistics and bivariate correlations for model variables.

	Fathers											
Mothers	1	2	3	4	5	6	7	8	9	10	$M_{fathers}$	$SD_{fathers}$
1. Depression T1	**.33****	-.29***	-.08	-.11*	-.45***	.04	.34***	.14**	-.06	-.07	1.69	0.58
2. Extraversion T1	-.20***	**.12***	-.07	.05	.08	-.27***	-.15**	.01	.03	.01	-0.01	1.04
3. Agreeableness T1	-.03	-.16**	**.23****	.07	.02	-.03	-.06	-.19***	.06	-.03	0.02	0.96
4. Conscientiousness T1	-.16**	-.05	.15**	**.29****	.12*	.24***	-.05	-.02	-.03	-.01	0.02	0.97
5. Emotional Stab. T1	-.47***	.07	-.09	-.04	**.19****	.07	-.18***	-.06	.06	.03	-0.04	0.96
6. Autonomy T1	-.14**	-.16**	.12*	.10*	.06	**.19****	-.06	-.08	.04	.03	0.03	1.04
7. Interp. Stress T2	.44***	-.09	-.03	-.10*	-.24***	-.07	**.48****	.21***	-.17**	-.18***	1.98	0.87
8. Overreactive disc. T3	.13**	.02	-.07	-.04	-.10*	-.05	.14**	**.23****	-.39***	-.28***	3.53	1.16
9. Warmth T3	-.09	-.01	.11*	.14**	-.07	.19***	-.05	-.34***	**.50****	.58***	2.84	0.80
10. Autonomy support T3	-.01	-.04	.09	.07	-.04	.15**	-.06	-.35***	.54***	**.55****	2.98	0.61
$M_{mothers}$	1.82[a]	0.02	-0.03	0.02	-0.02	-0.01	2.06	3.38[a]	3.44[a]	3.05[a]		
$SD_{mothers}$	0.64	0.99	1.00	0.96	0.95	0.98	0.93	1.02	0.73	0.56		

Note. Coefficients regarding fathers are presented above the diagonal, regarding mothers below the diagonal. Coefficients on the diagonal are correlations between mothers and fathers. *p<.05, **p<.01, ***p<.001. [a] Paired sample t-tests revealed that mothers reported greater depressive symptoms than fathers (t (438) = 3.80, p < .001, d = 0.26), adolescents rated their mothers as less overreactive (t (408) = -2.62, p = .009, d = 0.18), more warm (t (409) = 15.98, p < .001, d = 1.12) and more supportive of their autonomy than fathers (t (409) = 2.54, p = .011, d = 0.18).

interparental stress (r = .13, p = .009). Higher maternal conscientiousness (r = .13, p = .011), autonomy (r = .16, p = .001) and lower maternal interparental stress (r = -.16, p = .001) were related to higher paternal warmth. Higher paternal autonomy was related to less maternal overreactive discipline (r = -.12, p = .017), and higher paternal interparental stress was associated with more maternal overreactive discipline (r = .16, p = .002) and less maternal autonomy-supportive parenting (r = -.13, p = .009). Also, more maternal interparental stress was associated with less paternal autonomy-supportive parenting (r = -.16, p = .002). Lastly, more maternal depressive symptoms (r = .21, p < .001) and lower maternal emotional stability (r = -.11, p = .020) were associated with higher paternal interparental stress.

The Actor-Partner Interdependency Model: Patterns of Interdependency

The baseline model was a saturated model. Next, model fit statistics showed that only the fit of model A, which includes mother-driven actor- *and* partner-effects, and father-driven actor- (but not partner-) effects, did not fit the data statistically worse than the baseline model, $\Delta\chi^2(27) = 33.24$, p = .189, Δ_{CFI} = .007. Subsequently, more restricted patterns of interdependency were tested for model A. Because all more restricted patterns fit the data significantly worse, the unconstrained model A was retained. All model fit statistics are provided as supplementary online material. To assess parental gender differences in associations, mother-driven and father-driven actor-effects were constrained to be equal. Model fit of this constrained model was not statistically worse, indicating that actor-effects are similar for mothers and fathers. This final model fit the data well, $\chi2(54) = 71.44$, p = .056, *CFI* = 0.982, *TLI* = 0.958, *RMSEA*[*95%CI*] = .027[.000-.042], *SRMR* = .029.

Parent-Driven Actor-Effects

Parameter estimates of the final model for the predictors of maternal and paternal adolescent-perceived parenting are presented in Table 2. Given that all actor-effects were similar for mothers and fathers they will be discussed in terms of parental effects. Parental depressive symptoms were significantly related to parents' level of overreactive parenting behavior (β = .10). Two significant actor-effects of parents' personality characteristics on parenting emerged. First, higher parental agreeableness was associated with less overreactive discipline eight years later (β = -.11). Second, higher parental autonomy was associated with more warmth eight years later (β = .08). No actor-effects of parents' psychological resources on autonomy-supportive parenting were found across eight years.

In addition, parents' interparental stress did not directly predict their own warmth (i.e., path b_{AM} and b_{AF}; B = -0.02, SE = .04, p = .658, β = -.02), autonomy-supportive parenting (B = -0.02, SE = .03 p = .297, β = -.04) or overreactive discipline (B = 0.09, SE = .05, p = .103, β = .07). Lastly, although actor-effects of depressive symptoms on interparental stress across the six-year interval were found, no actor-effects of parents' own personality characteristics on interparental stress were found (Table 2).

Mother-Driven Partner-Effects

Additionally, partner-effects of maternal psychological resources and interparental stress on paternal parenting were found (Table 2). Higher maternal extraversion predicted slightly higher levels of adolescent-perceived paternal overreactive discipline (β = .12). No mother-driven partner-effects of psychological resources on paternal warmth and autonomy-supportive parenting were found. Maternal interparental stress affected paternal warmth (i.e., path b_{PM}; B = -0.12, SE = .05, p = .028, β = -.13) and overreactive discipline (B = 0.16, SE = .08, p = .034, β = .13), but not autonomy-supportive parenting (B = -0.07, SE = .04, p = .087, β = -.10). Further, no mother-driven partner-effects of psychological resources on fathers' interparental stress were found (Table 2).

Total Indirect Effects: the Mediating Role of Interparental Stress

One total indirect effect of Model A was found to be significant, showing that maternal depressive symptoms were related to more paternal overreactive discipline, via more maternal *and* paternal interparental stress (B = 0.09, SE = .04, p = .035, β = .05). No other specific or total indirect effects were found.

Table 2. Results of actor-partner-interdependency-model for interparental stress and parenting.

predictors	Interparental Stress		Warmth		Autonomy support		Overreactive discipline	
Mother-driven and father-driven actor-effects								
	paths a_{AM} and a_{AF}		paths c'_{AM} and c'_{AF}		paths c'_{AM} and c'_{AF}		paths c'_{AM} and c'_{AF}	
	B (SE)	β	*B (SE)*	β	*B (SE)*	β	*B (SE)*	β
Depressiveness	0.51*** (.06)	.35	-0.11 (.06)	-.09	-0.03 (.04)	-.04	0.17* (.08)	.10
Extraversion	-0.03 (.03)	-.03	0.02 (.03)	.02	<-0.01 (.02)	<-.01	0.04 (.04)	.04
Agreeableness	-0.02 (.03)	-.03	0.06* (.03)	.08	0.02 (.02)	.03	-0.12** (.04)	-.11
Conscientiousness	-0.03 (.03)	-.03	<-0.01 (.03)	<-.01	<-0.01 (.02)	-.01	0.01 (.04)	.01
Emotional stability	-0.03 (.03)	-.03	-0.04 (.03)	-.05	<-0.01 (.03)	-.01	-0.03 (.05)	-.02
Autonomy	-0.04 (.03)	-.04	0.06* (.03)	.08	0.03 (.02)	.06	< -0.01 (.04)	<-.01
Mother-driven partner-effects (maternal psychological resources -> paternal interparental stress and parenting behavior)								
	path a_{PM}		path c'_{PM}		path c'_{PM}		path c'_{PM}	
	B (SE)	β	*B (SE)*	β	*B (SE)*	β	*B (SE)*	β
Depressiveness	0.07 (.07)	.05	<0.01 (.07)	<.01	-0.03 (.04)	-.04	0.12 (.12)	.07
Extraversion	-0.04 (.04)	-.05	-0.01 (.04)	-.01	-0.01 (.02)	-.01	0.14* (.06)	.12*
Agreeableness	-0.02 (.04)	-.03	0.03 (.04)	.03	0.03 (.03)	.05	-0.02 (.06)	-.02
Conscientiousness	0.01 (.04)	.01	0.02 (.04)	.03	<0.01 (.03)	<.01	0.00 (.06)	<-.01
Emotional stability	<0.01 (.05)	<.01	-0.04 (.05)	-.04	-0.02 (.04)	-.03	0.02 (.07)	.03
Autonomy	-0.05 (.04)	-.05	0.06 (.04)	.07	0.02 (.03)	.03	0.06 (.06)	.05

Note. *p<.05, **p<.01, ***p<.001. Coefficients for paths b_{AM}, $b_{AF,}$ and b_{PM} are discussed in text.

Discussion

Guided by Belsky's process model and family systems theories, the current longitudinal study had the overall aim of enhancing knowledge on predictors of parenting. This study was unique in combining personality characteristics and depressive symptoms in our operationalization of psychological resources related to parenting (McCabe, 2014) and investigating interparental stress as a mediator in these associations. Moreover, adopting a APIM approach and examining both parents' own psychological resources as well as their partner's, and interparental stress experienced by both parents in one model, enabled us to examine to what extent parenting is affected only by an individual's characteristics and experienced interparental stress, or by those characteristics and experiences of the partner as well. Due to these innovations, this study could advise family interventions targeting parenting about what parental psychological resources are important for maternal and paternal parenting, whether interparental stress functions as an explanatory mechanism and whether there is interdependency between parents that should be taken into account.

Actor-Effects: Direct Parental Psychological Resources-Parenting Associations

Following McCabe's (2014) recommendation to integrate the two lines of research focusing on personality or depressive symptoms in relation to parenting, this study provided a first test of the unique or overlapping contribution of these different determinants for three parenting behaviors. Actor-effects were similar for mothers and fathers. First, more agreeable parents were perceived as showing more parental warmth and less overreactive discipline. This indicates that parents who have a larger interpersonal orientation (e.g., more compassion and trust), behave accordingly in their relationship with their adolescents, by reacting more calmly and with greater consideration of the adolescent's needs in disciplinary encounters, than other parents with lower levels of agreeableness. A similar unique role of parental agreeableness is shown previously (De Haan et al., 2012; Prinzie et al., 2019).

Second, more autonomous parents were perceived as showing more parental warmth. Parents who were more flexible in behavior and had more imagination were perceived as more involved and comforting by their adolescents. Adolescence may be more stressful and demanding for parents, due to normative changes in this developmental period (De Haan et al., 2009; Kerr, Stattin, & Burk, 2010; Steinberg & Silk, 2002). More autonomous parents may navigate through this period more easily than other parents, as indicated by more positive parenting (see also De Haan et al., 2012).

A final actor-effect regarding personal resources and parenting behavior was shown for parents' depressive symptoms and their overreactive discipline. Parents who experienced more depressive symptoms were perceived as relatively more overreactive in the disciplinary encounters with their adolescent. This could be explained by the assumption that these parents may have relatively higher levels of negative affect, which is previously shown to be related to negative parent-child interactions because of a spill-over of affect (Clark & Watson, 1988, Lovejoy et al., 2000; Wilson & Durbin, 2009). Overall, specific individual personality characteristics showed to be important for parenting behavior over time, while controlling for interrelations with other personality characteristics and depressive symptoms.

The Mediating Role of Interparental Stress

Regarding the mediating role of interparental stress, one small indirect effect was found showing that more maternal depressive symptoms were indirectly related to more paternal overreactive discipline, via heightened levels of interparental stress experienced by both mothers *and* fathers. Although this finding is a small effect and should be interpreted with caution, it does provide tentative empirical support for the mediational process hypothesized in Belsky's process model. Moreover, this result supports the principle of interdependency between family members as described in classical family systems theories (Cox & Paley, 2003; Minuchin, 1985). Namely, a spill-over process is indicated in which mother's depressive symptoms spill into the interparental subsystem, which then affects the father-child subsystem. This dyadic process should be replicated as it potentially signals the importance of maternal depressive symptoms in the larger family system.

Addressing the first link in the proposed mediational process (i.e., all a paths in Figure 1), the findings of the current study showed that parents' own depressive symptoms were predictive of their level of experienced interparental stress six years later (i.e., actor-effect). This indicates that depressive thoughts, feelings and behaviors contribute to experiences of support and stress in the interparental subsystem, however, only when addressing the depressive parent's own experiences of this relationship. In this study, parents' depressive symptoms did not result in lower relationship stress experienced by the partner across this time period. This finding adds to prior cross-sectional work (Whisman et al., 2004), by showing that links between parents' depressive symptom and subsequent partner experiences of relationship adjustment might not be present across longer periods of time. Finally, in general parents' interparental stress did not appear to be directly linked to parents' own parenting behavior or to function as a consistent mechanism linking parental psychological

resources and perceived parenting in this study. In contrast, other studies have indicated associations for interparental distress and conflict with positive and negative parenting behavior (Buehler, Benson, & Gerard, 2006; Cox et al., 2001; Cui & Conger, 2008). This study, however, suggests that over a period of two years parents' own interparental stress showed no unique association with three parenting behaviors above and beyond effects of one's own personality and depressive symptoms.

Interdependency in Mother-Father Dyads: Mother-Driven Partner-Effects

Regarding the interdependency between parents, this study revealed only mother-driven partner-effects above and beyond actor-effects for both spouses. In general, this is new support for family systems thinking and the *fathering-vulnerability* hypothesis (Cummings et al., 2010), showing that paternal parenting is affected by maternal psychological resources in addition to fathers' own resources. In addition to the aforementioned dyadic mediation process involving the interparental relationship, three mother-driven effects of personality characteristics were found. Adolescents of more extraverted mothers perceived more paternal overreactive discipline, and adolescents of mothers who experienced more interparental stress perceived less paternal warmth and more paternal overreactive discipline. A tentative interpretation of the first mother-driven effect could be that highly extraverted mothers, who have a high (social) activity level, may be out of the house more often, placing relatively higher demands on the father to take care of the child. Alternatively—or additionally—highly extraverted mothers (i.e., mother high in engagement and relational dominance) may simply make more efforts to shape family dynamics, including their spouses' parenting. Such efforts may lead to decreases in fathers' parental sense of competence or increased frustrations, which may spill over in more overreactive disciplinary tactics in interaction with the adolescent.

The second and third mother-driven effects indicate that when mothers experienced greater levels of interparental stress (i.e., less support, more disagreements), fathers were perceived as less warm and more overreactive. This supports the *stress cross-over hypothesis,* which suggests that interparental stress expressed by mothers, crosses over to fathers, undermining the quality of fathers' parenting. Future research should further examine potential mediational pathways explaining this mother-driven effect. Based on prior literature, father's parental sense of competence may play a role in this process (e.g., Van Eldik, Prinzie, Deković, & De Haan, 2017). Besides explanatory processes at the family level, this

association may also be indicative of a certain underlying individual disposition that makes that fathers are perceived as less supportive by both mothers and adolescents.

Limitations and Future Research

This study has some limitations. First, not all constructs were assessed at all (similar) time points, hindering the inclusion of autoregressive pathways (Byrne, 2013). Future research could adopt a developmental approach, as especially changes in one subsystem (e.g., depressive symptoms) could be important for changing another subsystem (i.e., interparental relationship or parenting). In this regard, studying different time-scales (e.g., micro- and meso-level) could illuminate the intervals at which personality-interparental relationship-parenting processes take place (e.g., see Kouros, Papp, Goeke-Morey, & Cummings, 2014). Secondly, interparental stress is an indicator of the multidimensional concept of relationship maladjustment (Fincham & Rogge, 2010). Future research should investigate to what extent other dimensions of the interparental relationship, such as destructive and constructive conflict behavior, function as explanatory mechanisms.

Third, interactions between characteristics of individuals are not part of this study, but could potentially help to further explain ways of interdependency between spouses. For example, a hypothesis could be that greater maternal extraversion leads to more paternal overreactive discipline, in particular or only for fathers who are low in extraversion. Finally, caution should be exercised with generalizing the findings given that our study consisted of predominantly White families from middle-class background. Studying these processes in more at-risk or culturally different samples could potentially lead to different findings and therefore replication is needed before drawing definite conclusions (Henrich, Heine, & Norenzayan, 2010).

Conclusion

In conclusion, the current study was the first to examine to what extent personality dimensions and depressive symptoms of parents and their partner are related to adolescent-perceived parenting behavior directly and indirectly via interparental stress experienced by both parents. Combining these concepts in one longitudinal Actor-Partner-Interdependency Model, we provided a thorough test of the mediational process proposed in Belsky's process model and of potential interdependency between mothers and fathers in this family process (Belsky & Jaffee, 2006; Cox & Paley, 2003). Results revealed that, for both mothers and

fathers, lower agreeableness and more depressive symptoms were uniquely related to their individual use of more overreactive discipline, whereas more agreeableness and autonomy were related to adolescent-perceived warmth. Although no consistent mediational role of interparental stress was found, maternal depressive symptoms affected paternal overreactive discipline, via high levels of interparental stress experienced by *both* mothers and fathers. Finally, maternal parenting was affected by maternal psychological resources only, and not by those of fathers. In contrast, and providing new support for and supporting the idea of interdependency between parents and in particular the fathering vulnerability hypothesis, three mother-driven partner-effects were found, in addition to the effects of fathers' own psychological resources. Adolescents of more extraverted mothers perceived more paternal overreactive discipline, and adolescents of mothers who experienced more interparental stress perceived less paternal warmth and more paternal overreactive discipline. This study informs clinical practice by showing that family interventions aiming to improve parenting should pay attention to specific personality characteristics affecting parents' behavior and adopt a dyadic approach including both parents, especially when targeting paternal parenting.

Supplementary material

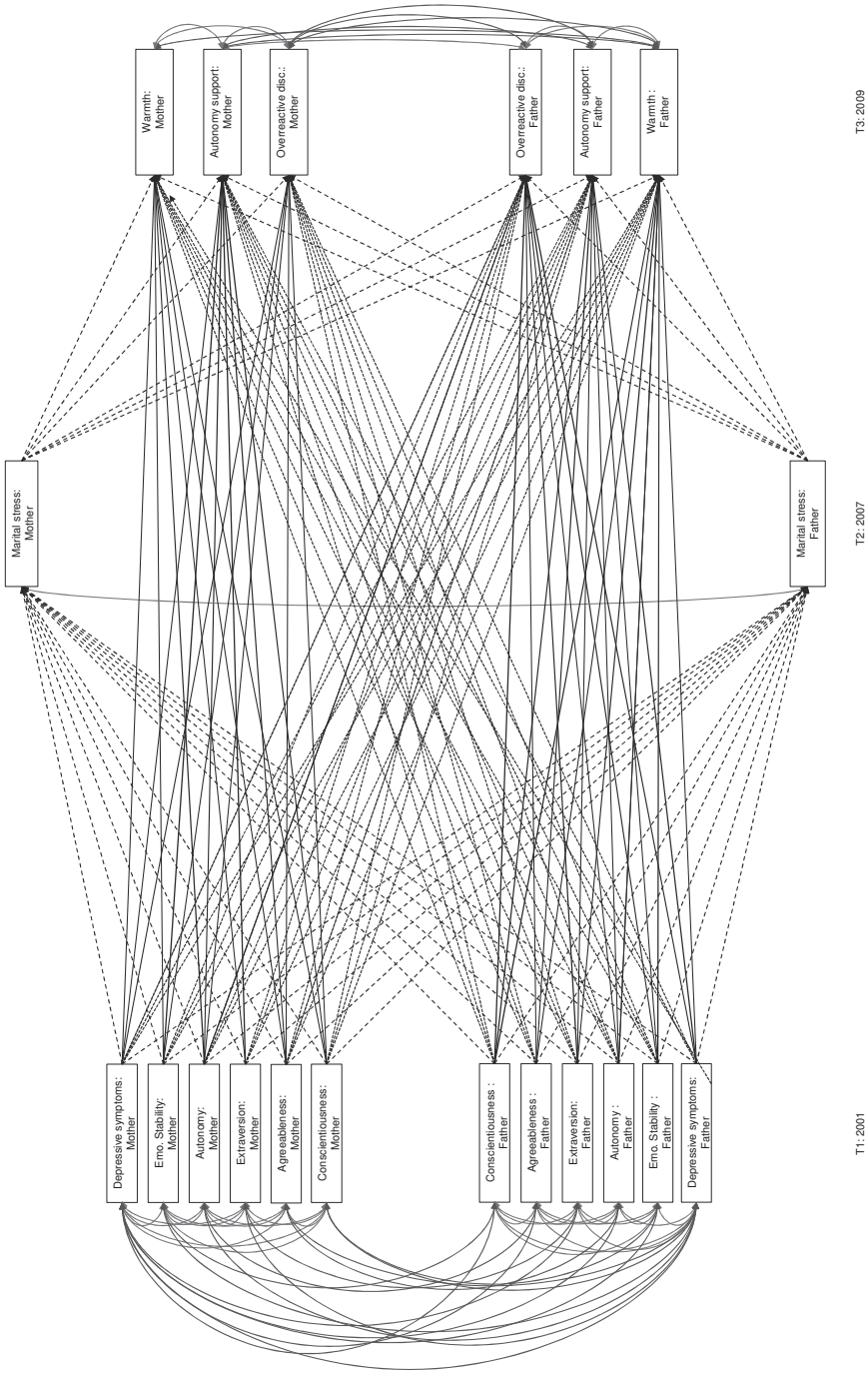

Figure 2. Full statistical model.

Scripts are provided for the actor-partner interdependency models tested in this study. All scripts were run in Mplus version 7.4.

1. BASELINE APIM

INPUT INSTRUCTIONS

```
DATA:
 FILE IS 20160705_paper2_restrictedgroep_imputatie_.dat;
 TYPE = IMPUTATION;

VARIABLE:
 NAMES ARE Imputation_ id DeprM3 DeprV3 FFEXM3 FFAGM3
                FFCOM3 FFESM3 FFAUM3 FFEXV3 FFAGV3 FFCOV3 FFESV3 FFAUV3
                MReM5 MReV5 OvrAM6 WrAM6 AuAM6 OvrAV6 WrAV6 AuAV6 gezsit
                gesl oplV01 OplM01 age_C age_M age_F;

 USEVARIABLES ARE DeprM3 DeprV3 FFEXM3 FFAGM3 FFCOM3
              FFESM3 FFAUM3 FFEXV3 FFAGV3 FFCOV3 FFESV3 FFAUV3 MReM5
              MReV5 OvrAM6 WrAM6 AuAM6 OvrAV6 WrAV6 AuAV6;

        MISSING ARE ALL (9999);


MODEL:
  !!!concurrent intercorrelations; T1
  !!for mothers and fathers
  !depression with personality - mother
     DeprM3 WITH FFEXM3;
     DeprM3 WITH FFAGM3;
     DeprM3 WITH FFCOM3;
     DeprM3 WITH FFESM3;
     DeprM3 WITH FFAUM3;
  !depression with personality - father
     DeprV3 WITH FFEXV3;
     DeprV3 WITH FFAGV3;
     DeprV3 WITH FFCOV3;
     DeprV3 WITH FFESV3;
     DeprV3 WITH FFAUV3;
  !personality - mother
     FFEXM3 WITH FFAGM3;
     FFEXM3 WITH FFCOM3;
     FFEXM3 WITH FFESM3;
     FFEXM3 WITH FFAUM3;
     FFAGM3 WITH FFCOM3;
     FFAGM3 WITH FFESM3;
     FFAGM3 WITH FFAUM3;
     FFCOM3 WITH FFESM3;
     FFCOM3 WITH FFAUM3;
     FFESM3 WITH FFAUM3;
```

```
!personality - father
   FFEXV3 WITH FFAGV3;
   FFEXV3 WITH FFCOV3;
   FFEXV3 WITH FFESV3;
   FFEXV3 WITH FFAUV3;
   FFAGV3 WITH FFCOV3;
   FFAGV3 WITH FFESV3;
   FFAGV3 WITH FFAUV3;
   FFCOV3 WITH FFESV3;
   FFCOV3 WITH FFAUV3;
   FFESV3 WITH FFAUV3;

!!between mothers and fathers
!depression and personality
   DeprM3 WITH FFEXV3;
   DeprM3 WITH FFAGV3;
   DeprM3 WITH FFCOV3;
   DeprM3 WITH FFESV3;
   DeprM3 WITH FFAUV3;

   DeprV3 WITH FFEXM3;
   DeprV3 WITH FFAGM3;
   DeprV3 WITH FFCOM3;
   DeprV3 WITH FFESM3;
   DeprV3 WITH FFAUM3;
!depression with depression
   DeprM3 WITH DeprV3;
!personality with personality
   FFEXV3 WITH FFEXM3;
   FFAGV3 WITH FFAGM3;
   FFCOV3 WITH FFCOM3;
   FFESV3 WITH FFESM3;
   FFAUV3 WITH FFAUM3;

!!!concurrent intercorrelations; T2
!!between mothers and fathers
   MReM5 WITH MReV5;

!!!concurrent intercorrelations; T3
!!for mothers and fathers
!between parenting scales - mother
   OvrAM6 WITH WrAM6;
   OvrAM6 WITH AuAM6;
   WrAM6 WITH AuAM6;
!!!concurrent intercorrelations; T3
!!for mothers and fathers
!between parenting scales - father
   OvrAV6 WITH WrAV6;
   OvrAV6 WITH AuAV6;
   WrAV6 WITH AuAV6;
```

```
!!between mothers and fathers
!between parenting scales
    OvrAM6 WITH OvrAV6;
    OvrAM6 WITH WrAV6;
    OvrAM6 WITH AuAV6;

    WrAM6 WITH WrAV6;
    WrAM6 WITH OvrAV6;
    WrAM6 WITH AuAV6;

    AuAM6 WITH AuAV6;
    AuAM6 WITH WrAV6;
    AuAM6 WITH OvrAV6;

!!!model paden - ACTOR PADEN
  !!moeder: X-Y: opvoeding moeder voorspeld door depressie en persoonlijkheid moeder
    OvrAM6 ON DeprM3;
    OvrAM6 ON FFEXM3;
    OvrAM6 ON FFAGM3;
    OvrAM6 ON FFCOM3;
    OvrAM6 ON FFESM3;
    OvrAM6 ON FFAUM3;

    WrAM6 ON DeprM3;
    WrAM6 ON FFEXM3;
    WrAM6 ON FFAGM3;
    WrAM6 ON FFCOM3;
    WrAM6 ON FFESM3;
    WrAM6 ON FFAUM3;

    AuAM6 ON DeprM3;
    AuAM6 ON FFEXM3;
    AuAM6 ON FFAGM3;
    AuAM6 ON FFCOM3;
    AuAM6 ON FFESM3;
    AuAM6 ON FFAUM3;
  !!moeder: X-M: huwelijksstress moeder voorspeld door depressie en persoonlijkheid
  moeder
    MReM5 ON DeprM3;
    MReM5 ON FFEXM3;
    MReM5 ON FFAGM3;
    MReM5 ON FFCOM3;
    MReM5 ON FFESM3;
    MReM5 ON FFAUM3;
  !!moeder: M-Y: opvoeding moeder voorspeld door huwelijksstress moeder
    OvrAM6 ON MReM5;
    WrAM6 ON MReM5;
    AuAM6 ON MReM5;

!!!model paden - ACTOR PADEN
```

```
!!vader: X-Y: opvoeding vader voorspeld door depressie en persoonlijkheid vader
 OvrAV6 ON DeprV3;
 OvrAV6 ON FFEXV3;
 OvrAV6 ON FFAGV3;
 OvrAV6 ON FFCOV3;
 OvrAV6 ON FFESV3;
 OvrAV6 ON FFAUV3;

 WrAV6 ON DeprV3;
 WrAV6 ON FFEXV3;
 WrAV6 ON FFAGV3;
 WrAV6 ON FFCOV3;
 WrAV6 ON FFESV3;
 WrAV6 ON FFAUV3;

 AuAV6 ON DeprV3;
 AuAV6 ON FFEXV3;
 AuAV6 ON FFAGV3;
 AuAV6 ON FFCOV3;
 AuAV6 ON FFESV3;
 AuAV6 ON FFAUV3;
!!vader: X-M: huwelijksstress vader voorspeld door depressie en persoonlijkheid vader
 MReV5 ON DeprV3;
 MReV5 ON FFEXV3;
 MReV5 ON FFAGV3;
 MReV5 ON FFCOV3;
 MReV5 ON FFESV3;
 MReV5 ON FFAUV3;
!!vader: M-Y: opvoeding vader voorspeld door huwelijksstress vader
 OvrAV6 ON MReV5;
 WrAV6 ON MReV5;
 AuAV6 ON MReV5;


!!!model paden - PARTNER PADEN: MOEDER-->VADER
 !!moeder-->vader: X-Y: opvoeding vader voorspeld door depressie en persoonlijkheid
 moeder
 OvrAV6 ON DeprM3;
 WrAV6 ON DeprM3;
 AuAV6 ON DeprM3;

 OvrAV6 ON FFEXM3;
 OvrAV6 ON FFAGM3;
 OvrAV6 ON FFCOM3;
 OvrAV6 ON FFESM3;
 OvrAV6 ON FFAUM3;

 WrAV6 ON FFEXM3;
 WrAV6 ON FFAGM3;
 WrAV6 ON FFCOM3;
```

```
    WrAV6 ON FFESM3;
    WrAV6 ON FFAUM3;

    AuAV6 ON FFEXM3;
    AuAV6 ON FFAGM3;
    AuAV6 ON FFCOM3;
    AuAV6 ON FFESM3;
    AuAV6 ON FFAUM3;
 !!moeder-->vader: X-M: huwelijksstress vader voorspeld door depressie en persoonlijkheid
    MReV5 ON DeprM3;
    MReV5 ON FFEXM3;
    MReV5 ON FFAGM3;
    MReV5 ON FFCOM3;
    MReV5 ON FFESM3;
    MReV5 ON FFAUM3;
 !!moeder-->vader: M-Y: opvoeding vader voorspeld door huwelijksstress moeder
    OvrAV6 ON MReM5;
    WrAV6 ON MReM5;
    AuAV6 ON MReM5;

 !!!model paden - PARTNER PADEN: VADER-->MOEDER
 !!vader-->moeder: X-Y: opvoeding moeder voorspeld door depressie vader
    OvrAM6 ON DeprV3;
    WrAM6 ON DeprV3;
    AuAM6 ON DeprV3;

    OvrAM6 ON FFEXV3;
    OvrAM6 ON FFAGV3;
    OvrAM6 ON FFCOV3;
    OvrAM6 ON FFESV3;
    OvrAM6 ON FFAUV3;

    WrAM6 ON FFEXV3;
    WrAM6 ON FFAGV3;
    WrAM6 ON FFCOV3;
    WrAM6 ON FFESV3;
    WrAM6 ON FFAUV3;

    AuAM6 ON FFEXV3;
    AuAM6 ON FFAGV3;
    AuAM6 ON FFCOV3;
    AuAM6 ON FFESV3;
    AuAM6 ON FFAUV3;
 !!vader-->moeder: X-M: huwelijksstress moeder voorspeld door depressie en
persoonlijkheid
    MReM5 ON DeprV3;
    MReM5 ON FFEXV3;
    MReM5 ON FFAGV3;
    MReM5 ON FFCOV3;
    MReM5 ON FFESV3;
```

```
   MReM5 ON FFAUV3;
!!vader-->moeder: M-Y: opvoeding moeder voorspeld door huwelijksstress vader
   OvrAM6 ON MReV5;
   WrAM6 ON MReV5;
   AuAM6 ON MReV5;

  Model indirect:
!! indirect effect - actor actor - opvoeding moeder voorspeld door depressie/persoonlijkhe
   OvrAM6 IND MReM5 DeprM3;
   OvrAM6 IND MReM5 FFEXM3;
   OvrAM6 IND MReM5 FFAGM3;
   OvrAM6 IND MReM5 FFCOM3;
   OvrAM6 IND MReM5 FFESM3;
   OvrAM6 IND MReM5 FFAUM3;
!! indirect effect - partner actor - opvoeding moeder voorspeld door depressie/persoonlijk
   OvrAM6 IND MReM5 DeprV3;
   OvrAM6 IND MReM5 FFEXV3;
   OvrAM6 IND MReM5 FFAGV3;
   OvrAM6 IND MReM5 FFCOV3;
   OvrAM6 IND MReM5 FFESV3;
   OvrAM6 IND MReM5 FFAUV3;
!! indirect effect - partner partner - opvoeding moeder voorspeld door depressie/persoonli
   OvrAM6 IND MReV5 DeprV3;
   OvrAM6 IND MReV5 FFEXV3;
   OvrAM6 IND MReV5 FFAGV3;
   OvrAM6 IND MReV5 FFCOV3;
   OvrAM6 IND MReV5 FFESV3;
   OvrAM6 IND MReV5 FFAUV3;
!! indirect effect - actor partner - opvoeding moeder voorspeld door depressie/persoonlijk
   OvrAM6 IND MReV5 DeprM3;
   OvrAM6 IND MReV5 FFEXM3;
   OvrAM6 IND MReV5 FFAGM3;
   OvrAM6 IND MReV5 FFCOM3;
   OvrAM6 IND MReV5 FFESM3;
   OvrAM6 IND MReV5 FFAUM3;

!! indirect effect - actor actor - opvoeding vader voorspeld door depressie/persoonlijkhei
   OvrAV6 IND MReV5 DeprV3;
   OvrAV6 IND MReV5 FFEXV3;
   OvrAV6 IND MReV5 FFAGV3;
   OvrAV6 IND MReV5 FFCOV3;
   OvrAV6 IND MReV5 FFESV3;
   OvrAV6 IND MReV5 FFAUV3;
!! indirect effect - partner partner - opvoeding VADER voorspeld door depressie/persoonlij
   OvrAV6 IND MReM5 DeprM3;
   OvrAV6 IND MReM5 FFEXM3;
   OvrAV6 IND MReM5 FFAGM3;
   OvrAV6 IND MReM5 FFCOM3;
   OvrAV6 IND MReM5 FFESM3;
   OvrAV6 IND MReM5 FFAUM3;
```

```
!! indirect effect - partner actor - opvoeding VADER voorspeld door depressie/persoonlijkh
   OvrAV6 IND MReV5 DeprM3;
   OvrAV6 IND MReV5 FFEXM3;
   OvrAV6 IND MReV5 FFAGM3;
   OvrAV6 IND MReV5 FFCOM3;
   OvrAV6 IND MReV5 FFESM3;
   OvrAV6 IND MReV5 FFAUM3;
!! indirect effect - actor partner - opvoeding VADER voorspeld door depressie/persoonlijkh
   OvrAV6 IND MReM5 DeprV3;
   OvrAV6 IND MReM5 FFEXV3;
   OvrAV6 IND MReM5 FFAGV3;
   OvrAV6 IND MReM5 FFCOV3;
   OvrAV6 IND MReM5 FFESV3;
   OvrAV6 IND MReM5 FFAUV3;

   ANALYSIS:
   bootstrap = 1000;

   OUTPUT:
   sampstat standardized tech1 tech4 MODINDICES(0);
   cinterval(bcbootstrap)[1];
```

[1]Bootstrapping was requested in the script. However, BOOTSTRAP and BCBOOTSTRAP confidence intervals are not allowed with TYPE=IMPUTATION. Request for CINTERVAL is ignored. This is the case for all the scripts.

Table 3. Model fit results for actor-partner interdependency models (using the imputed data).

Model	*χ2*	*df*	*p*	*CFI*	*TLI*	*RMSEA (95%CI)*	*SRMR*	**Model comparison**	$\Delta\chi^2$ (*Δdf*)	*p*	*ΔCFI*
Baseline model	0.000	0	1.000	1.00	1.00	.000 (.094-.105)	.000				
Model A	**33.24**	**27**	**.189**	**0.993**	**0.970**	**.023 (.000-.045)**	**.018**	**vs. Baseline**	**33.24 (27)**	**.189**	**.007**
Model B	71.18	27	<.001	0.954	0.788	.060 (.043-.077)	.031	vs. Baseline	71.18 (27)	<.001	.047
Model C	43.01	27	.026	0.983	0.923	.036 (.013-.056)	.026	vs. Baseline	43.01 (27)	.026	.017
Model D	135.21	27	<.001	0.887	0.479	.094 (.078-.110)	.044	vs. Baseline	135.21 (27)	<.001	.113
Double actor-only	73.97	54	.037	0.979	0.952	.029 (.007-.044)	.035	vs. Model A	40.73 (27)	.044	.014
Mother-driven model	108.78	54	<.001	0.943	0.868	.047 (.034-.060)	.032	vs. Model A	75.54 (27)	<.001	.102
Father affected only	171.51	54	<.001	0.877	0.717	.069 (.058-.081)	.056	vs. Model A	138.24 (27)	<.001	.116
Mother actor only	173.91	81	<.001	0.903	0.851	.050 (.040-.060)	.057	vs. Model A	140.67 (54)	<.001	.090
Mother partner only	243.89	81	<.001	0.829	0.739	.066 (.057-.076)	.065	vs. Model A	210.65 (54)	<.001	.164
Father actor only	193.70	81	<.001	0.882	0.819	.055 (.045-.065)	.057	vs. Model A	160.46 (54)	<.001	.111
No long-term effects	271.11	108	<.001	0.829	0.804	.058 (.049-.066)	.071	vs. Model A	183.87 (81)	<.001	.164

Chapter 7

General Discussion

The overall aim of the current dissertation was to enhance knowledge about how (specific dimensions of) the interparental relationship is related to children's (mal)adjustment and parenting behavior over time, and how the interparental relationship is affected by parental characteristics. To this end, we addressed a number of important theoretical and empirical gaps regarding: (1) *which* dimensions of the interparental relationship can be distinguished and considered most important for children's (mal)adjustment, (2) *how* the interparental relationship and children's (mal)adjustment are reciprocally related over time, (3) *why* the interparental relationship and children's maladjustment are related, (4) for *which children* the interparental relationship matters most, and (5) the importance of the interparental relationship for parental functioning. To study these issues, the following five interrelated research questions were formulated (see Figure 1 for the overall model):

RQ 1: Which dimensions can be distinguished in the concept *the interparental relationship?*

RQ 2: a) Are some dimensions of the interparental relationship more strongly associated with children's (mal)adjustment, and, b) is the interparental relationship (reciprocally) related to children's (mal)adjustment over time?

RQ 3: Do parental self-efficacy (parent-factor) and adolescents' emotional insecurity (child-factor) explain associations between the interparental relationship and children's (mal)adjustment over time (i.e., *mediation*)?

RQ 4: Do children's age, gender, and Big Five personality traits affect the strength of associations between the interparental relationship and children's (mal)adjustment (i.e., *moderation*)?

RQ 5: Does the interparental relationship explain (*mediate*) associations between parental characteristics (Big Five personality traits and depressive symptoms) and parenting behavior (warmth, autonomy-support, overreactive discipline)?

A conceptual review and meta-analysis (Chapter 2) and four longitudinal studies (Chapters 3 to 6) were conducted to answer these research questions. By taking a systematic, transactional and developmental approach to these issues, and by applying advanced statistical techniques, the findings of this dissertation provide further empirical support for *and* challenge some key theoretical assumptions about the interparental relationship and associations with children's (mal)adjustment and parental functioning. In this final chapter, we answer our five research questions (see also Table 1) and discuss the theoretical implications of our findings. Then,

clinical implications, strengths and limitations, directions for future research and concluding remarks are provided.

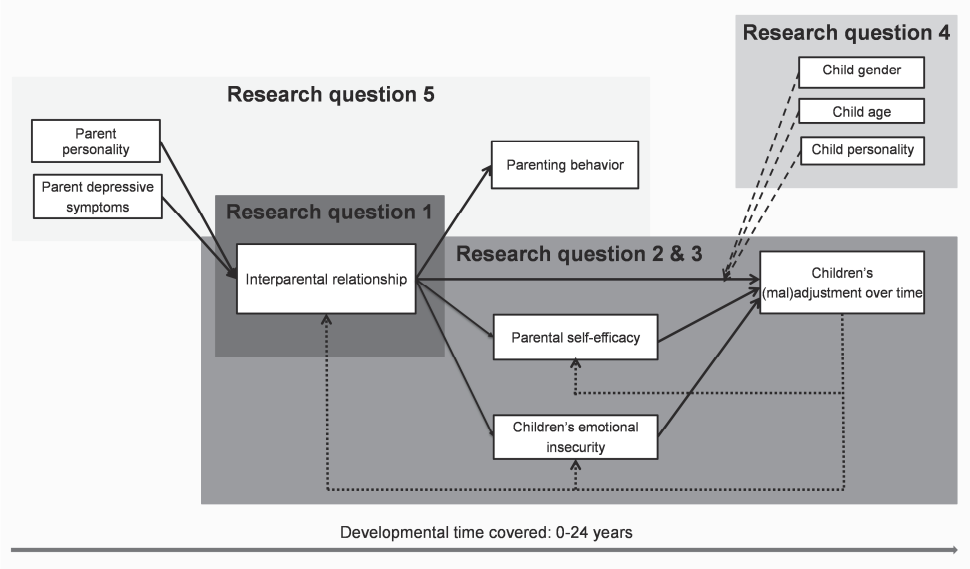

Figure 1. Overall conceptual model guiding this dissertation.

Table 1.
Summary of main findings in this dissertation.

Chapter	RQ	Main Findings
2	1	Overall, eight distinctive dimensions of the IPR could be defined: (1) Omnibus (overall) adjustment, (2) Satisfaction, (3) Negative quality, (4) Conflict frequency, (5) Hostile conflict behavior, (6) Disengaged conflict behavior, (7) Constructive conflict behavior, (8) Child-related conflict.
	2a	For all dimensions of the IPR, except satisfaction, small to moderate associations were found with children's externalizing and internalizing problems. Externalizing behavior was most strongly associated with child-related conflict and equally with overall adjustment and the negative conflict dimensions. For internalizing behavior, associations for all negative conflict dimensions (frequency, hostile behavior, disengaged behavior, and child-related conflict) were equally strong and stronger than overall adjustment. The associations were robust to most family and study characteristics.
	4	In general, associations between the IPR and problem behavior did not depend on children's age or gender. One exception was found: associations between conflict frequency and both externalizing and internalizing behavior were stronger in samples with older children.
3	2b	No support for parent-driven effects of the IPR on children's externalizing behavior was found across two- and six-year intervals. Support for child-driven effects was found across one interval: parents of adolescents with higher levels of externalizing behavior, reported lower levels of relationship adjustment two years later.
	2b	Externalizing problem behavior and relationship adjustment co-developed over time: when externalizing problem behavior changed, interparental relationship adjustment changed in the same direction, and vice versa.
	3	Parental self-efficacy did not mediate bidirectional associations between IPR adjustment and children's externalizing behavior.
4	2b	Analyses that did not distinguish between- and within-family processes, revealed no parent-driven nor child-driven effects. Analyses that distinguished between- and within-family processes provided no support for parent-driven effect, but, partial support for child-driven effects within families. Within-family increases in adolescents' internalizing behavior preceded within-family decreases in parents' hostile conflict behavior.

	3	Adolescents with parents exhibiting high destructive conflict behavior (hostile and disengaged) had, relative to other adolescents, more problem behavior (externalizing and internalizing) and those associations were mediated by adolescents' emotional insecurity. At the *within*-family level, adolescents' emotional insecurity did not mediate associations between IPR destructive conflict behavior and problem behavior. Support for one link between emotional insecurity and (mal)adjustment was found: within-family increases in adolescents' emotional insecurity preceded within-family increases in adolescents' externalizing behavior.
	4	Children's gender did not moderate any associations between IPR destructive conflict behavior (hostile & disengaged), emotional insecurity, and problem behavior (externalizing & internalizing).
5	2	Overall adjustment of the IPR during adolescence was not related to (mal)adaptive functioning in emerging adulthood.
	4	Adolescents who scored high on conscientiousness exhibited more internalizing behavior when exposed to low IPR adjustment (supporting the *diathesis-stress model*). Those adolescents also had a lower self-efficacy when exposed to low IPR adjustment, and higher self-efficacy when exposed to high IPR adjustment (supporting the *differential susceptibility model*).
6	5	Overall, adjustment in the IPR was no consistent mechanism explaining associations between parental characteristics and parenting behavior. One dyadic indirect effect was found: when mothers reported higher levels of depressive symptoms, both parents reported a lower relationship adjustment, and subsequently, fathers showed a higher level of overreactive discipline.

Note. IPR = interparental relationship, RQ = research question.

1. Which dimensions can be distinguished in the concept "the interparental relationship"?

The first sub-aim of this dissertation was to propose a unified conceptualization of the concept the interparental relationship. In Chapter 2, we provided a conceptual review of the wide variety of terminology used to address the interparental relationship. Thereby, we payed specific attention to how the different terms can be categorized and to what extent terminology, definitions, and measurements of the proposed dimensions of the interparental relationship are aligned. In this review, we identified eight distinctive dimensions of the interparental relationship, to which most of the terms, concepts, and measurements in empirical research could be appointed: 1) Omnibus (overall) adjustment, 2) Satisfaction, 3) Negative quality, 4) Conflict frequency, 5) Hostile conflict behavior, 6) Disengaged conflict behavior, 7) Constructive conflict behavior, and 8) Child-related conflict. With respect to the alignment of terminology, definitions and measurements, we identified two main problems. First, most of the measurements do not line up with the concept definition for more than 70%. Second, although considered an important aspect of interparental conflict in theoretical models (e.g., Grych & Fincham, 1990; Harold & Sellers, 2018), *conflict resolution* is not defined or measured in a way that distinguishes this concept from destructive and constructive conflict behavior, or overall relationship adjustment. Therefore, in current literature, conclusions about resolution as a key dimension of interparental conflict for explaining differences in children's (mal)adjustment may be too preliminary.

With our review, we provide an overall framework that can guide researchers to define and examine dimensions of the interparental relationship in a consistent manner. Eventually, this could help to resolve the jingle-jangle fallacy, and therewith foster further theory-building regarding which aspects of interparental functioning are related to children's adjustment and family functioning. Based on the review and meta-analysis, we recommend a focus on overall relationship quality, the frequency of specific problem solving behaviors (i.e., constructive behavior, hostile behavior, and disengaged behavior), as well as child-related conflict in relation to child development. Specific recommendation for future research are to use instruments that (1) consist of items that are specific in assessing one dimension of the interparental relationship, and (2) are aligned with the concepts and hypotheses discussed in the introduction.

2. Are some dimensions of the interparental relationship more strongly associated with children's (mal)adjustment, and, is the interparental relationship (reciprocally) related to children's (mal)adjustment over time?

Regarding the direct association between the interparental relationship and children's (mal)adjustment, we examined (1) whether some key dimensions of the interparental relationship are more strongly associated with children's problem behavior than others differentially associated with, and (2) *how* the interparental relationship and children (mal)adjustment are reciprocally related over time (i.e., direction of effects and co-development). In addition, we investigated (3) to what extent the interparental relationship continues to be important for (mal)adjustment into emerging adulthood.

2.1 Which dimensions of the interparental relationship matter most for children's (mal)adjustment?

The second sub-aim of this dissertation was to empirically integrate research on associations between the interparental relationship and children's (mal)adjustment using meta-analytic techniques. Therefore, in Chapter 2, we conducted a meta-analysis to examine associations between the eight key dimensions that were the identified by our conceptual review and children's (0-18 years old) externalizing and internalizing problem behavior (k = 233, N_{ES} = 1,731). Specifically, we tested the long-existing assumption that interparental conflict is more strongly associated with children's (mal)adjustment than evaluations of overall relationship adjustment. Moreover, we examined whether some dimensions of interparental conflict matter more to children's (mal)adjustment than others.

For both externalizing and internalizing problem behavior, results indicated small to moderate associations with all dimensions of the interparental relationship, except for relationship satisfaction. Importantly, in general these associations were robust for children at all ages, boys and girls, and across a variety of samples (i.e., across different family compositions, families from different socio-economic and cultural backgrounds, and community and help-seeking families). Specifically, the results indicated that overall relationship adjustment was as strongly associated with externalizing problem behavior as the negative conflict dimensions, and, child-related conflict was most strongly related to externalizing behavior. Internalizing problem behavior was less strongly associated with

overall relationship adjustment than negative conflict dimensions, and, associations for all negative conflict dimensions were of similarly strength (i.e., conflict frequency, hostile and disengaged conflict behavior, and child-related conflict). Both externalizing and internalizing behavior showed intermediate associations with constructive conflict behavior.

This means that our findings emphasize that the interparental relationship is a key proximal context for children's development. Children of all ages, both genders, and different backgrounds are at elevated risk for developing behavioral problems when exposed to a low interparental adjustment, as well as more frequent, hostile, disengaged, uncooperative, and child-related conflicts. The small to moderate associations are considered highly relevant, because the exposure to interparental interactions accumulates over a child's lifetime (McCartney & Rosenthal, 2000). Further highlighting the importance of these robust associations, is the fact that they are similar in strength as associations between parenting behavior and children's externalizing and internalizing problems (Bornstein, 2019; McLeod, Wood, & Wei, 2007; Pinquart, 2017), as well as other consistent links in the child and adult psychology literature (e.g., Prinzie et al., 2009; Teubert & Pinquart, 2010). Therefore, the findings emphasize the important link between the interparental relationship and children's development and the need of a consistent integration of this familial subsystem in developmental models (Cicchetti, 2016; Lerner & Lamb, 2015; Slater & Bremner, 2016).

In the current literature, important process-oriented theoretical models focus on explaining how interparental *conflicts* alter children's developmental pathways over time (Davies & Cummings, 1994; Grych & Fincham, 1990). However, our meta-analysis shows that the everyday exposure to overall relationship adjustment of parents might be just as important for certain developmental outcomes, as the characteristics of conflict episodes. This means that the field may be in need of specific process-oriented models explaining how overall, everyday patterns, affection, consensus and satisfaction between parents affect children's adjustment in addition to conflict episodes. Potentially, although less threatening than (aggressive) conflict episodes, children's *accumulating* exposure to the overall adjustment between parents may similarly affect children' sense of family well-being and security in the interparental subsystem as conflicts.

Our meta-analysis is also the first to systematically show the importance of disengagement and constructive conflict behavior in addition to hostile, aggressive conflict behavior between spouses. Thereby, our findings empirically support theoretical hypotheses positing that exposure to disengaged behavior has similar consequences for children's development as exposure to hostile and aggressive parental interactions and that the level of

(un)constructive behavior is also consistently associated with child (mal)adjustment (Davies & Cummings, 1994; Davies et al., 2016).

2.2 Association between interparental relationship and children's (mal) adjustment: parent-driven or child-driven effects?

The third sub-aim of this dissertation was to empirically substantiate the theoretical proposition of reciprocity between the interparental relationship and children's problem behavior (Cox & Paley, 1997, 2003; Sameroff & MacKenzie, 2003). We investigated parent- and child-driven effects in two longitudinal studies (Chapter 3 included 369 Flemish families and Chapter 4 included 279 American families). For both studies, we applied statistical models that can test the direction of effects over time (i.e., cross-lagged panel model; Preacher et al., 2015; Usami, 2019), in which we examined whether when parents had a lower relationship adjustment or used more destructive conflict behavior, children showed more later problem behavior (i.e., relative to other children in the sample), and vice versa. In Chapter 4, we additionally applied analyses that can investigate whether, taking into account that families have a considerably stable level of functioning, changes in interparental functioning and children's (mal)adjustment *within families* were reciprocally related (i.e., random-intercept cross-lagged panel model, RI-CLPM; Hamaker et al., 2015).

In the two independent samples, we found support for child-driven effects, but no support for parent-driven effects. Furthermore, findings indicated that the specific nature of child-driven effects depend on (a) the type of problem behavior exhibited by children and (b) the level of analysis (i.e., rank-order differences *between* families or over time fluctuations at the *within* families). In the Flemish sample, the results revealed a child-driven effect across one of the two intervals studied: when adolescents exhibited more externalizing problem behavior, both mothers and fathers reported a lower relationship adjustment two years later (i.e., compared to families in which adolescents reported lower levels of externalizing behavior) (Chapter 3). In the American sample, at the *within-family* level, when their adolescent exhibited more internalizing problem behavior (i.e., compared to the adolescent's expected level), parents reported lower levels of hostile conflict behavior one year later, (Chapter 4). Adolescents' externalizing behavior did not drive within-family changes in hostile conflict behavior, nor were fluctuations in disengaged conflict behavior driven by either form of adolescents' problem behavior.

Although theoretical models have pointed to the active role children play in shaping their environment, empirical research has had a long tendency to focus on unidirectional

effects from parents to children (Belsky & Jaffee, 2006). Until now, prior research showed that when adolescents' exhibited more depressive symptoms and delinquent behavior, on average, parents argued more about child-related issues over time (Cui et al., 2005; 2007). Our empirical findings across two independent samples showed two new insights into the reciprocity between the interparental relationship and children's (mal)adjustment. First, children's maladjustment can be important for the overall relationship adjustment of parents and their use of specific conflict behaviors, in addition to child-related conflicts specifically. And second, the maladjustment of children and adolescents might not only affect the interparental relationship by the transference of "negative behavior and affect" (i.e., higher levels of (mal)adjustment relates to more negativity in the interparental sphere). Although comparisons between families indicate that parents of adolescents with relatively more problem behavior, tend to have a lower relationship adjustment and more conflicts over time, this general principle cannot be translated to change processes within families. In contrast, *within* families, when their adolescents exhibited more internalizing behaviors than usual, parents showed less subsequent hostile conflict behavior. This implies that theoretical models, such as family systems theory (Cox & Paley, 1997; 2003), should integrate the idea that within families some types of children's (mal)adjustment may lead to positive changes in interparental functioning.

The importance of child-driven effects within the interparental context and conceptualizing the link between the interparental relationship and children's (mal)adjustment as a two-way street, does not stand on its own. Similarly, in Chapter 3 we found child-driven effects on parental self-efficacy. Compared to parents of adolescents with low externalizing behavior, parents of adolescents with high externalizing behavior had a lower parental self-efficacy over time. Also, evidence for child-driven effects on *parenting* is accumulating, across normative and clinical samples and several developmental periods (see e.g., Bornstein, 2019; Dieleman, De Pauw, Soenens, & Prinzie, 2016; Lam, Solmeyer, & McHale, 2012; Nelemans et al., 2019; Roskam & Meunier, 2012). Importantly, these studies also support the idea that *within* families parents are able to change their behavior towards more positive ends when their child shows more adjustment problems.

These studies and our findings lead to new, testable hypotheses about how children affect their familial environment. These new hypotheses should be investigated by comparing families, to draw general principles about differences between families, and *within* families, to elucidate how changes in children's behavior affect their parent's subsequent interactions and relationship over time (see e.g., Zemp et al., 2018). This latter type of research should inform

interventions aiming to *change* family dynamics and children's adjustment. Overall, we believe that our studies indicate that reciprocity between the interparental relationship and children's (mal)adjustment deserves a central place in theoretical models aiming to explain how and why children are affected by interparental interactions.

2.3 Do interparental relationship adjustment and children's (mal)adjustment codevelop over time?

In addition to both having the potential to affect each other over time, both the interparental relationship and children's (mal)adjustment are known to be no static entities and to change over time. The fourth sub-aim of this dissertation was therefore, to test the idea of co-development between the interparental relationship and children's (mal)adjustment as hypothesized by transactional models (Cox & Paley, 1997; 2003; Sameroff & MacKenzie, 2003). Therefore, we evaluated a bivariate latent growth model in which changes over time can be distinguished from initial levels, and importantly, inter-individual differences in change can be modelled (Curran & Bauer, 2011). The findings showed that on the group-level, no mean-level changes were found in mothers' and father's reported relationship adjustment across eight years. Children's externalizing behavior decreased over time.

More importantly, substantial *between-family* differences in these changes over time existed, for both interparental relationship adjustment and externalizing behavior. Regarding these between-family differences, our main finding supports the idea of co-development (Cox & Paley, 1997, 2003; Sameroff & MacKenzie, 2003): in families in which relationship adjustment decreased relatively more, children's externalizing behavior increased relatively more, compared to families in which relationship adjustment decreased less. This finding supports the family systems theory (Cox & Paley, 1997; 2003) and other transactional models (Sameroff & McKenzie, 2003) in their idea of subsystems in the family being subject to change and co-evolving, i.e., mutually affecting each other as they change.

2.4 Does the adjustment of interparental relationship continue to be important for children's (mal)adjustment into emerging adulthood?

The fifth sub-aim of this dissertation was to examine if the interparental relationship continues to be associated with (mal)adjustment across the transition from adolescence into emerging adulthood. Relative to childhood and adolescence, the long-term predictive role of the interparental relationship across this period is less well known. We examined these long-term effects in a prospective study covering six years (Chapter 5, including 475 Flemish families).

In contrast to most research focusing on problem behavior, we examined the long-term effects of interparental relationship adjustment on four important indicators of both maladaptive and adaptive functioning in emerging adulthood (Davila et al., 2016; Li et al., 2017): externalizing and internalizing problem behavior, general self-efficacy, and romantic satisfaction.

In general, the findings showed no long-term main effects of interparental relationship adjustment on (mal)adjustment in emerging adulthood. As will be discussed in section 4.3, however, long-term effects of interparental relationship adjustment on internalizing problem behavior and general self-efficacy were found for a specific subgroup of adolescents. Overall, our findings indicate that long-term influences of the interparental relationship on emerging adult's well-being might be less prominent during this developmental transition. As one other study did show long-term effects into emerging adulthood (Hayatbakhsh, 2013), more empirical research is needed to understand the importance of interparental functioning for developmental outcomes into young adulthood. The relatively weaker long-term associations for emerging adults may be explained by the many transitions young adults go through during this time period that are more proximal and have a (more) profound effect on their well-being, such as academic, work and relationships transitions (Arnett, 2000; Cohen et al., 2003). A question remains, however, whether the exposure to interparental interactions during emerging adulthood still affects their (mal)adjustment (e.g., Keeports & Pittman, 2017).

3. Do parental self-efficacy (parent-factor) and adolescents' emotional insecurity (child-factor) explain associations between the interparental relationship and children's (mal)adjustment over time (i.e., mediation)?

The sixth sub-aim of this dissertation was to move beyond the direct association between the interparental relationship and children's (mal)adjustment, and investigate underlying factors that may explain this association. Theoretically, an important role in family functioning is ascribed to parental self-efficacy (Jones & Prinz, 2005; Schuengel & Oosterman, 2019). Empirically, these parental beliefs about their ability to parent effectively have been related to both the interparental relationship and children's (mal)adjustment (Bornstein, 2019; Kwan et al., 2015; Slagt et al., 2012). However, it remains unknown whether parental self-efficacy *explains* associations between the interparental relationship and children's (mal)adjustment over time. Therefore, we examined whether adjustment in the interparental relationship was related to children's externalizing behavior *via* parental self-efficacy in a longitudinal sample (Chapter 3, including 369 Flemish families). The findings of this study did not support our

hypotheses: parental self-efficacy did not explain the long-term associations between interparental relationship adjustment and children's externalizing behavior. Although not the primary aim of this study, the results showed an interesting bidirectional association for parental self-efficacy and interparental relationship adjustment. The findings indicate that when mothers and fathers reported a lower adjustment in their relationship, they reported lower parental self-efficacy beliefs six years later. Vice versa, when mothers and fathers felt less confident about their parental role, they reported a lower relationship adjustment six years later.

In Chapter 4, we conducted a longitudinal study to examine the mediational role of adolescents' emotional insecurity (including 279 American families). According to the emotional security theory, interparental conflict affects children's long-term development *via* their sense of emotional insecurity within the interparental subsystem. Prior studies indicate that relative to low-conflict families, children in high-conflict families experience higher levels of insecurity and, subsequently, more problem behavior (e.g., Davies et al., 2016). However, the mediational cascades has not been studied *within families* (i.e., are changes in conflict behavior, emotional insecurity and problem behavior related *within* a family). To address this gap, we first examined directions of effects (CLPM) to replicate findings of prior empirical work that does not distinguish between-family differences from within-family changes (e.g., Davies et al., 2016). Then, we examined the mediational role of adolescents' emotional insecurity in *within-family* pathways between two forms of destructive interparental conflict (i.e., hostility and stonewalling) and adolescents' externalizing and internalizing problem behavior (i.e., using the RI-CLPM).

Consistent with previous research (Davies et al., 2016), our results supported the general principle that adolescents in families with relatively higher levels of destructive interparental conflict exhibit higher levels of psychological problems over time (i.e., compared to adolescents in families with relatively lower levels of destructive interparental conflict), and adolescent's emotional insecurity mediated that association. However, results from our investigation of the mediational cascade at the *within-family* level, did no support for the full mediational hypothesis. We found partial support for the link between emotional insecurity and problem behavior. Specifically, although increases in adolescents' emotional insecurity predicted increases in adolescents' externalizing behavior (but not internalizing behavior), increases in hostile behavior or stonewalling did not predict subsequent fluctuations in adolescents' emotional insecurity. Thus, adolescent's emotional insecurity did

not mediate *within* family associations between interparental destructive conflict behavior and adolescents' problem behavior.

Together, our findings in Chapters 3 and 4 provide no consistent answer to the question *why* the interparental relationship and children's (mal)adjustment are associated. Our study revealed, however, a link between the interparental relationship and parental self-efficacy. Integrating this finding with prior research showing that parental self-efficacy was related to children's maladjustment *via* parenting behavior (e.g., Slagt et al., 2012), leads to the testable hypotheses of a four-step process: is the interparental relationship is related to children's maladjustment, via parental self-efficacy and subsequent parenting behavior? As for adolescents' emotional insecurity, our findings imply that although empirical research has been quite consistent supporting the general principle of the emotional security theory, the propositions of this theory cannot be assumed at the *within*-family level. Even more, this disentangling of the within-family level leads to new testable hypotheses, such as: is there more within-family variance in the constructs, stronger associations between interparental destructive conflicts and emotional insecurity during early childhood, compared to the adolescent period? In other words, have adolescents already developed relatively stable and automatic patterns of responding to exposure to interparental destructive behavior, that are less easily changes as a consequence of new conflicts? Future research should further delineate the *within*-family role of children's emotional insecurity across different developmental periods.

4. Do children's age, gender, and Big Five personality traits affect the strength of associations between the interparental relationship and children's (mal)adjustment (i.e., moderation)?

The seventh sub-aim of this dissertation was to investigate for *which children* the interparental relationship matters most, by investigating the moderating role of children's age, gender and personality in a meta-analysis (Chapter 2) and in two longitudinal studies (Chapter 4 and 5).

4.1 The moderating role of children's age

Several contrasting or complementary theoretical hypotheses exist about whether younger *or* older children would be more vulnerable to the interparental relationship (see e.g., Crone & Dahl, 2012; Graber & Brooks-Gunn, 1996; Harold & Sellers, 2018). For example, younger

children are more exposed to interparental interactions because they spend more time at home and have less abilities to (behaviorally) regulate their exposure. Adolescents could be less (directly) exposed to interparental interactions as they spend more time outside the home and are able to regulate their exposure. However, adolescents have more developed social-cognitive and social-affective skills that make them understand the potential impact and consequences of interparental problems (Crone & Dahl, 2012). Also, adolescents might be exposed to interparental problems for longer times, which could either habituated or sensitize them to further negativity (Davies et al, 1999; Harold & Sellers, 2018).

In our meta-analysis (Chapter 2; $k = 233$, $N_{ES} = 1{,}731$) we tested whether children's age moderated associations between the eight specific dimensions of the interparental relationship and both externalizing and internalizing problem behavior. Our findings indicate that most associations did not depend on the children's age. Interparental relationship adjustment dimensions and (most) conflict dimensions were consistently positively associated to externalizing and internalizing behavior for children of all ages (0-18 years). By exception, associations between conflict frequency and children's problem behavior did depend on children's age: the link between how often parents have disagreements and the level of externalizing and internalizing behavior problems (gradually) became stronger in samples with older children. This result empirically supports the idea that increased exposure to conflicts is stronger related to maladjustment for older than younger children. However, this finding does not show insight in the underlying processes (i.e., vulnerable period versus sensitization hypothesis).

Although we could not explicitly tested moderation by child age in our longitudinal studies, we did examine (bidirectional) effects between the interparental relationship and children's (mal)adjustment across multiple developmental periods in these studies (Chapter 3: middle childhood and adolescence, Chapter 4: adolescence, Chapter 5: transition of adolescence into emerging adulthood). Consistent with the results from the meta-analysis, the findings across these studies indicated no developmental differences regarding parent-driven effects on children's (mal)adjustment and child-driven effects on the interparental relationship. Overall, the findings in this dissertation indicate that children of all ages are equally vulnerable for overall relationship adjustment, specific conflict behaviors or child-related conflicts as reflected in their externalizing or internalizing behavior.

4.2 The moderating role of child gender

With regard to children's gender, two different hypotheses exist as to whether boys or girls would be more vulnerable for problems within the interparental relationship. The *male vulnerability hypothesis* posits that boys are overall more affected by problems in the interparental relationship. The *differential reactivity hypothesis* stipulates that boys and girls are to a similar extent affected, but react in different ways (e.g., boys with more externalizing and girls with more internalizing behavior). We systematically tested both hypotheses in our meta-analysis (Chapter 2; $k = 233$, $N_{ES} = 1{,}731$), in light of specific key dimensions of the interparental relationship and the two most prevalent types of problem behavior. None of the associations between specific dimensions of the interparental relationship and both externalizing and internalizing problem behavior depended on children's gender. This means that for both boys and girls, interparental problems are similarly associated with their externalizing and internalizing behavior and we found no support for the male vulnerability or differential reactivity hypotheses.

Additionally, in a longitudinal study (Chapter 4, 279 American families) we examined the moderating role of adolescents' gender in (1) bidirectional effects between interparental destructive conflict behavior and adolescents' problem behavior and, (2) the mediational role of adolescents' emotional insecurity, regarding rank-order differences *between* families and *within*-family fluctuations. Across the analyses, similar reciprocal processes between interparental conflict behavior and adolescents' emotional insecurity and problem behavior were found for boys and girls. In Chapter 5, we tested the moderating role of adolescents' gender in prospective associations between interparental relationship adjustment and (mal)adaptive functioning in emerging adulthood (including 475 Flemish families). All associations between interparental relationship adjustment and the developmental outcomes (i.e., externalizing and internalizing behavior, general self-efficacy, and romantic satisfaction) were *similar* for boys and girls.

Together, the findings in this dissertation show similar concurrent, longitudinal, and reciprocal associations between the interparental relationship and (mal)adjustment for boys and girls.

4.3 The moderating role of child personality

In Chapter 5, we examined the moderating role of adolescents' Big Five personality traits in long-term prospective associations (across 6 years) between the interparental relationship and

(mal)adaptive functioning in emerging adulthood (including 475 Flemish families). We examined the role of personality in light of two contrasting models of individual differences in environmental sensitivity. First, the *diathesis-stress* model stipulates that individual differences (only) make certain individuals more vulnerable for environmental stressors. In contrast, the *differential susceptibility* model posits that individual differences make individuals more vulnerable for environmental stressors *as well as* more susceptible for positive environmental factors. Our findings were supportive of both the differential susceptibility and diathesis-stress model depending on the outcome. Specifically, our study indicated that adolescents who were highly conscientiousness exhibited more internalizing problems *only* when exposed to a low interparental relationship adjustment (i.e., supporting the *diathesis-stress* model). In addition, adolescents who were highly conscientiousness reported relative lower self-efficacy beliefs when exposed to a low interparental relationship adjustment, and, relative higher self-efficacy beliefs when parents reported a high level of adjustment in their relationship (i.e., supporting the *differential susceptibility* model). No other Big Five personality traits were susceptibility factors.

Although the *diathesis stress* and *differential susceptibility* models have received increasing attention in the parenting literature (Hartman & Belsky, 2016; Belsky et al., 2007), they were scarcely tested in 1) the context of the interparental relationship (e.g., Hengtes, Davies, & Ciccetti, 2015; Obradovic, Bush, & Boyce, 2011), and 2) the transition into emerging adulthood. Although replication is necessary, results from this dissertation suggest that adolescents' conscientiousness might be a promising susceptibility factor, important for understanding *which children* are relatively more affected by (positive or negative) interparental functioning.

Further indirect support for the importance of conscientiousness in the context of the interparental relationship, comes from an empirical study examining the moderating role of temperament traits in the context of the interparental relationship. Effortful control, a temperamental trait associated with later conscientiousness, (De Pauw, Mervielde, & Van Leeuwen, 2009; Shiner & DeYoung, 2013), explained *which children* were more vulnerable for interparental hostile conflict behavior (David & Murphy, 2007. Importantly, children high on effortful control were *less* vulnerable for interparental conflict behavior, which is contrary to our findings in Chapter 5, results showed that high levels of conscientiousness made adolescents more susceptible for the adjustment in the interparental relationship. A developmental perspective might help to understand these seemingly contrasting findings. That is, temperament is concerned with more affective and behavioral processes, whereas,

personality traits reflect more consolidated social and cognitive skills, coping styles and values (Chen & Schmidt, 2015). Following this line of reasoning, children with traits that might help them better regulate their emotional, behavioral and attentional responses during young childhood (e.g., effortful control), might develop cognitive and coping skills that make them more susceptible to familial stressors during later developmental periods. Especially for developing more internalized socioemotional problems. Future studies are needed to replicate the findings and test these developmental hypotheses.

Finally, although we did not found consistent moderation effects of personality traits across our analyses and findings should be replicated, our study and prior work (see Belsky & Jaffee, 2016) do indicate the presence of some individual differences in vulnerability and susceptibility for the environment in developmental periods beyond childhood. Also, these individual differences in susceptibility are even evident across a time interval of six years.

5. Does the interparental relationship explain (*mediate*) associations between parental characteristics (big five personality traits and depressive symptoms) and parenting behavior (warmth, autonomy-support, overreactive discipline)?

Within the family system (Cox & Paley, 1997; 2003), the interparental relationship is not only hypothesized to be importantly associated with children's (mal)adjustment, but also with parental functioning. Belsky's process model posits that parental characteristics are indirectly related to parenting behavior, via the interparental relationship (Belsky, 1984; Belsky & Jaffee, 2006; Bornstein, 2016; Taraban & Shaw, 2018). Adding a family systems' perspective, there is the real possibility that parenting behavior is not only affected by individual parents' characteristics and evaluations of the interparental relationship (i.e., intra-individual process), but those of partners as well (i.e., inter-individual process) (Cox & Paley, 2003; Minuchin, 1985). Therefore, our eight sub-aim was to answer the question: is parenting behavior exhibited by mothers and fathers affected by *their own* characteristics and/or *their partner's* characteristics, and, are those associations mediated by *their own* and/or *their partner's* judgement of interparental relationship adjustment? We did this by examining prospective associations (across eight years) between mothers' and father's depressive symptoms *and* personality traits, both parents' judgment of the interparental relationship adjustment, and three adolescent-perceived parenting behaviors exhibited by mothers and fathers, in an actor-partner interdependency model (Chapter 6, including 455 Flemish families). Consequently, within this model, a test of the fathering vulnerability hypothesis

(Cummings et al., 2010) could be provided, which posits that *paternal* behavior is affected by their spouses' characteristics and evaluations of the interparental relationship to a larger extent that *maternal* parenting behavior.

Our findings indicated that, overall, the interparental relationship did not consistently mediate associations between parental characteristics and adolescent-perceived parenting behavior (i.e., with respect to both the *intra*- and *inter*-personal perspective). Only one mediation effect was found: when mothers exhibited a higher level of depressive symptoms, both mothers and fathers reported a lower relationship adjustment, and subsequently, fathers were perceived as using overreactive discipline in interactions with their adolescent. This result highlights a dyadic process, combining *intra*- and *inter*-personal processes, in which the level of depressive symptoms of mothers is related to father's parenting behavior via the interparental subsystem.

In addition to this test of the mediational process proposed by Belsky's model, three additional main findings should be highlighted : (1) taking into account the overlap between personality and psychopathology, only depressive symptoms were directly related to parents' judgement of the relationship adjustment (i.e., *intra*-personal perspective). Both mother and fathers who experienced relatively more depressive symptoms, reported a relative lower adjustment of their relationship six years later (i.e., compared to parents with lower levels of depressive symptoms). (2) Specific personality traits and depressive symptoms are uniquely related to parenting behavior across a time period of eight years (i.e., *intra*-personal perspective). Both mothers and fathers, who were less agreeable and experienced more depressive symptoms were perceived as using more overreactive discipline, whereas mothers and fathers who were more agreeable and autonomous were perceived as exhibiting more parental warmth. (3) *Paternal* parenting behavior is affected by *maternal* characteristics and evaluations of the interparental relationship, over and beyond the effects of fathers' own characteristics and evaluations of the interparental relationship (i.e., *inter*-personal perspective). This provides empirical evidence for the fathering vulnerability hypothesis, as no such partner effects were found for maternal parenting. Specifically, adolescents of more extraverted mothers perceived more paternal overreactive discipline, and adolescents of mothers who experienced a lower level of adjustment in their spousal relationship perceived less paternal warmth and more paternal overreactive discipline.

Our findings imply that Belsky's process model (Belsky & Jaffee, 2006; Bornstein, 2016; Taraban & Shaw, 2018), and other models that describe the link between personal characteristics and relationships (e.g., the Vulnerability-Stress-Adaptation model, VSA;

Karney & Bradbury, 1995), should incorporate the idea that processes between personal characteristics, the interparental relationship, and parenting are different for and *between* mothers and fathers. Regarding the link between the interparental relationship and parenting, our findings supported an *inter*personal process for fathers only. Although fathers' parenting behavior was not affected by their own evaluations of the interparental adjustment, they were more likely to engage in overreactive discipline and exhibit less warmth to their adolescent when their partner was less happy with them and their relationship. This is a so-called *stress cross-over* process (Nelson et al., 2009). Additionally, fathers were likely to engage in more overreactive discipline when their partner was relatively more extravert. Together, these findings are supportive of the fathering vulnerability hypothesis as they show that maternal characteristics and happiness within the spousal relationship have implications for fathers' parenting behavior, and not vice versa.

Also, parents were less satisfied with their partner and relationship, when (only) they themselves experienced more depressive symptoms only. This finding could further refine the VSA model in two ways. First, over longer periods of time, parents' mental health may be more important for interparental functioning than parents' personality traits. Second, only parents *own* parental depressive symptoms seem to have enduring effects on their evaluation of the interparental relationship. This means that both mothers and fathers evaluations of their spousal relationship were not longitudinally affected by the characteristics of their partner. Thus, although current reviews evidence for both intra- and interpersonal processes (Mund et al., 2016; Weidmann et al., 2016), our longitudinal examination provided only support for the VSA model from an *intra*-individual perspective.

Clinical implications

Remarkably, there is an evident gap between the scientific knowledge about the importance for the interparental relationship and children's (mal)adjustment and family functioning, and the lack of (preventive) interventions including a couple-focused approach. Still, most interventions are directed at children's behavior and parenting. The current dissertation and prior studies (Harold & Sellers, 2018), show that it could be highly relevant to pay attention to the interparental subsystem in interventions targeting children's psychological problems and (paternal) parenting behavior. As the association between interparental functioning and (mal)adjustment is shown from early infancy onwards, these efforts should focus on psycho-education about the importance of the interparental relationship for children and family

functioning. Incorporating the multi-dimensionality of the interparental relationship, these efforts should focus on the stimulation of positive interaction patterns (e.g., cohesion and expression of affection and intimacy), decreasing destructive conflict patterns involving hostile *and* disengaged behavior, and increasing constructive conflict behavior. Here, elements for relational therapy developed by Gottman and colleagues could be a useful foundation (Gottman & Gottman, 2008). Moreover, findings in this dissertation show that such efforts should include an acknowledgement of both the interdependency between spouses (i.e., inter-personal processes, especially when targeting fathers) and the interdependency (reciprocity) between parents and the child (i.e., child-driven effects). In addition, certain children might be more at susceptible based on temperamental and personality traits. Importantly, these children might also benefit more from (preventive) interventions (i.e., individually-tailored programs; see also Stoltz et al., 2012).

These efforts could take the form of preventive psycho-educational programs (e.g., Miller-Graff et al., 2015), which in international health care settings could be integrated in the *CenteringParenting* program that is currently enrolled and mainly focusing on the mother-infant bond (Bloomfield & Rising, 2014; Rijndes, Detmar, & Herschderfer, 2016). As separate programs (e.g., Feinberg et al., 2016), they can be offered in primary health care settings as well (e.g., see Leslie et al., 2016). In addition to prevention programs, a focus on the interparental relationship merits attention in the dominantly *parenting*-focused family interventions aiming to reduce children's problem behavior. Popular parenting-focused intervention programs, such as *Incredible Years* (Webster-Stratton, 2001; Webster-Stratton & Bywater, 2019), or *HomeStart* (Hermanns, Asscher, Zijlstra, Hoffenaar, & Deković, 2013; Meulen & Smit, 2017) aim to change children's psychopathology by promoting parent competencies and positive parenting. Often these programs do attend the importance of social network, but remarkably, disregard the interparental relationship as the most proximal source of social support (e.g., an exception is the Partner Support module of Enhanced Triple P; Reyno & McGrath, 2006). We believe that an alternative or additional focus on the interparental relationship as resource to strengthen family functioning is an important direction for future interventions (see e.g., Casey et al., 2017; Cowan & Cowan, 2019).

Strengths, Limitations, and Future Directions

The present dissertation is characterized by several strengths. First, we provided a conceptual contribution to the investigation of the interparental relationship, by confronting the large

variety in terminology, proposing a unified categorization, and revealing the most important problems in alignment between concept definitions and measurements. Second, we applied a systematic, transactional and developmental approach to studying the interparental relationship in relation to children's (mal)adjustment and parental functioning, by (1) studying long-term associations, across different developmental phases, (2) including mothers and fathers, and incorporating the interdependency between both parents, and (3) capturing the reciprocal nature of family processes, examining differences *between* families and change processes *within* families (i.e., different levels of analyses). Moreover, we explicitly acknowledged (and empirically tested) questions of mediation (i.e., *why*) and moderation (i.e., for *whom*). Finally, we were able to test certain hypotheses in multiple samples, originating from different countries (i.e., USA and Belgium).

Despite these strengths, the present dissertation also has some limitations. Here, we address these limitations and address some key priorities for future research. First, given that the interparental relationship is a multidimensional construct, an important limitation of this study is that most research questions are only examined for *relationship adjustment* as measured by the relationship subscale of the Parental Stress Index (Abidin et al., 1992; Holly et al., 2019). This was the only measure of the interparental relationship available in the Flemish Study on Parenting, Personality, and Development. This restriction did not allow to consistently focus on hostile, destructive and constructive problem solving behavior and child-related conflict in addition to relationship adjustment in all our research questions. Now several interesting questions remain unanswered, such as, does interparental conflict behavior (hostile, disengaged, constructive) mediate associations between parental characteristics and parenting behavior? Specifically, a focus on the potential positive side of exposure to constructive conflict behavior and positive developmental outcomes merits attention in future research (McCoy et al., 2013; Seligman & Csikzentmihalyi, 2014).

Second, we strongly recommend future research to focus on different ways to assess reciprocity between the interparental relationship and children's (mal)adjustment (and potential mediating variables). A crucial question is: across what time intervals do interparental and children's functioning affect each other *within* families? Despite the fact that we contributed to existing knowledge by studying reciprocal, transactional associations between the interparental relationship and children's (mal)adjustment over time, we were limited in our reliance on discrete time points and relatively large time intervals (i.e., a relatively static approach), and investigated most processes as identifying differences *between families* (Chapter 2, 3, 5 and 6). Therefore, future studies could apply intensive repeated

measures (e.g., experience sampling methods) to further delineate parent- and child-driven effects at the *within*-family level and in a more continuous "real-life" manner (Bolger & Laurenceau, 2013; Repetti et al., 2015). An integration of micro-level, within-family changes across hours, days and weeks (see e.g., Fosco & Lydon-Staley, 2019; Merrilees et al., 2018), and meso-level processes across months and years could help to understand the nature of family processes over time. Similarly, future research on links between parental characteristics, the interparental relationship, and parenting could benefit from such daily or continuous measurement methods (e.g., Sears et al., 2016).

Third, in the current dissertation we were also limited regarding the variables we could examine as potential mediators of associations between the interparental relationship and children's (mal)adjustment. Although parental self-efficacy did not mediate longitudinal associations between interparental relationship adjustment and children's externalizing behavior in our study, the link between parental self-efficacy and multiple aspects in the family found in other studies cannot be ignored (Bornstein, 2019). Therefore, future research could investigate (within-family) associations between interparental functioning, parental self-efficacy, parenting, and children's (mal)adjustment. Other mediating mechanisms in the family that would have been interesting and merit attention in future research are parenting behavior (e.g., Coln et al., 2013; Sturge-Apple et al. 2016), the co-parental system (Zemp et al., 2018), the parent-child relationship (Mastrotheodoros et al., 2019), and whole-family functioning (Kerig, 2019).

Fourth, although we applied longitudinal models in which the temporal order in variables was preserved, no inferences about causality can be made. In the cross-lagged panel models as well as latent-growth models, both time-invariant and time-varying confounding variables (e.g., parental mental health, socio-economic stressors) could have biased the results. Moreover, although the random-intercept cross-lagged panel model does capture reciprocal relations at the level where they operate in daily life (i.e., within-families) and control for omitted time-invariant variables, it does not control for omitted time-*varying* third variables. Therefore, even with this model a causal interpretation is not justified (Usami et al., 2019).

Fifth, another important limitation of the present dissertation is the lack of diversity in participants' socio-economic backgrounds. Most of the participants in our longitudinal studies were White, middle-class, and two-parent families, which largely limits the generalizability of our findings to other samples. Although our meta-analysis shows robust concurrent associations between the interparental relationship and children's (mal)adjustment,

longitudinal and reciprocal associations might take different forms across culturally and socio-economically different groups (e.g., Bradford et al., 2008; Chung et al., 2009; Krishnakumar et al., 2003). This will show whether theories about direction of effects and longitudinal processes can be generalized across different groups of families and inform more culturally-tailored or culturally–sensitive interventions.

Concluding Remarks

Moving beyond the general importance of the interparental relationship for children's development, this dissertation aimed to answer critical questions about *how* and *why* the interparental relationship and children's maladjustment are related. Addressing the multi-dimensionality of the interparental relationship, our findings highlight the importance of both the overall quality of the relationship between parents, as well as the frequency, form, and content of interparental conflicts. From infancy to adolescence, boys and girls, growing up in varying family compositions, and from varying socioeconomic and ethnic backgrounds exhibit higher levels of externalizing and internalizing behavior when exposed to different forms of problems in the interparental relationship. Moreover, our findings provide empirical evidence for an active role of children in their own development. Adolescents' externalizing behavior can be a source of stress undermining the quality of the interparental relationship, whereas, adolescents' internalizing symptoms can change interparental interactions in a positive way. Regarding the question *why* the interparental relationship and children's maladjustment are related, adolescents' emotional insecurity as explanation for *between* families differences, could not be replicated as mediating mechanism for *within* family changes. Thus, a critical question remains *why* changes in interparental interactions are related to subsequent changes in children's adjustment. Finally, we found preliminary evidence that children's personality traits may be a potentially promising focus for future empirical research aiming to identify children that are more susceptibility to interparental disturbances. Overall, this dissertation indicates that prevention and intervention programs focusing on children's and adolescents' problem behavior, may benefit from an additional focus on the interparental relationship.

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Samenvatting

(Summary in Dutch)

Het doel van deze dissertatie was onderzoeken hoe en waarom de ouderlijke partnerrelatie gerelateerd is aan het functioneren van kinderen, ouderlijke kenmerken en opvoedgedrag. De volgende vijf onderzoeksvragen stonden centraal: (1) Welke dimensies van de ouderlijke partnerrelatie kunnen in de wetenschappelijke literatuur onderscheiden worden (Hoofdstuk 2)? (2) Zijn alle dimensies van de ouderlijke partnerrelatie in gelijke mate gerelateerd aan het (mal)adaptief functioneren van kinderen, en, is de ouderlijke partnerrelatie langdurig (en wederkerig) gerelateerd aan het functioneren van kinderen (Hoofdstukken 2, 3, 4, en 5)? (3) Kunnen de ouderlijke competentiebeleving en het gevoel van emotionele onveiligheid bij adolescenten de associatie tussen de ouderlijke partnerrelatie en het functioneren van kind verklaren (i.e., *mediatie*; Hoofdstukken 3 en 4)? (4) Is de sterkte van de associatie tussen de ouderlijke partnerrelatie en het functioneren van kinderen afhankelijk van de leeftijd, het geslacht, of de vijf persoonlijkheidsfactoren van kinderen (i.e., *moderatie*; Hoofdstukken 2, 4 en 5)? (5) Verklaart de kwaliteit van ouderlijke partnerrelatie associaties tussen ouderlijke kenmerken (persoonlijkheid en depressieve symptomen) en opvoedgedrag (warmte, autonomie-ondersteuning, overreactieve discipline) (Hoofdstuk 6)?

Om deze vragen te onderzoeken hebben we een conceptuele review en meta-analyse uitgevoerd (Hoofdstuk 2) en hebben we gebruik gemaakt van twee grootschalige, longitudinale studies. In drie hoofdstukken zijn de data van de *Vlaamse Studie naar Opvoeding, Persoonlijkheid, en Ontwikkeling* gebruikt (Hoofdstuk 3, Hoofdstuk 5, en Hoofdstuk 6). Voor deze studie is in 1999 een representatieve steekproef van Vlaamse twee-ouder gezinnen met een kind tussen de 4 en 7 jaar oud geworven. Deze gezinnen zijn gevolgd voor een periode van 20 jaar waarbij kinderen, moeders en vaders vragenlijsten hebben ingevuld ($N = 475$). In deze dissertatie gebruiken we data uit 2001, 2007, 2009, en 2015. In het Hoofdstuk 4 is gebruik gemaakt van data van het *Me and My Family Project*. Dit is een onderzoek waarbij Amerikaanse families met een adolescent drie jaar lang zijn gevolgd ($N = 279$), en waarbij adolescenten, moeders en vaders jaarlijks vragenlijsten hebben ingevuld. Hieronder worden per onderzoeksvraag de belangrijkste bevindingen en implicaties besproken.

Onderzoeksvraag 1: Welke dimensies kunnen we onderscheiden in het concept ‘de ouderlijke partnerrelatie’?

Binnen het onderzoeksveld van de ouderlijke partnerrelatie bestaat een grote variëteit aan termen om de ouderlijke partnerrelatie te duiden. Om goed te kunnen begrijpen hoe de

ouderlijke partnerrelatie gerelateerd is aan de ontwikkeling van kinderen, is het essentieel om een duidelijk en concreet beeld te hebben van wat bedoeld wordt met de ouderlijke partnerrelatie en welke specifieke dimensies hierbinnen onderscheiden kunnen worden. Om dit te onderzoeken hebben we in Hoofdstuk 2 een conceptuele review uitgevoerd, waarbij op systematische wijze alle empirische studies over dit onderwerp zijn opgezocht en geanalyseerd. De resultaten lieten zien dat in de grote variëteit aan termen die gebruikt wordt om de ouderlijke partnerrelatie aan te duiden, de volgende acht dimensies te onderscheiden zijn: 1) Algemene kwaliteit van de relatie, 2) Tevredenheid, 3) Negatieve kwaliteit, 4) Frequentie van conflicten, 5) Agressief conflictgedrag, 6) Teruggetrokken conflictgedrag, 7) Constructief conflictgedrag, en 8) Kind-gerelateerde conflicten. Zie Tabel 1 voor de definities en veelgebruikte vragenlijsten die deze dimensies meten.

Tabel 1. Definities van de dimensies van de ouderlijke partnerrelatie en veelgebruikte vragenlijsten.

Dimensie	Definitie
Algemene kwaliteit	Een multidimensionaal construct dat de algemene kwaliteit van de relatie representeert. Onderdelen zijn (1) *Tevredenheid* (bijv. Over het algemeen, hoe vaak denk jij dat het goed gaat met jouw relatie?), (2) *Cohesie* (bijv. Ondernemen jij en je partner gezamenlijke activiteiten buitenshuis?), (3) *Affectie* (bijv. Geef aan of en hoe vaak jullie onenigheden hebben over het uiten van affectie) en (4) *Overeenstemming* over belangrijke thema's (bijv. Geef aan of en in welke mate jullie onenigheden hebben over normen en waarden, financiën, carrière, etc.)
Tevredenheid	Individuele, subjectieve beleving van tevredenheid met de partnerrelatie (bijv. Hoe tevreden/gelukkig ben jij met jouw relatie/partner).
Negatieve kwaliteit	Negatieve gevoelens jegens de partner of de relatie (bijv. Denk aan de negatieve gevoelens die je hebt jegens je relatie, en negeer je positieve gevoelens ten aanzien van je relatie: hoe negatief zijn deze gevoelens?) .
Conflict frequentie	De frequentie waarmee ouders kleine of grote meningsverschillen of conflicten hebben (bijv. Hoe vaak hebben jullie gemiddeld genomen kleine en grote conflicten in een jaar?).

Agressief conflictgedrag	Non-verbale, verbale, en fysieke uitingen van boosheid en agressie tussen partners (bijv. Hoe vaak laat jij de volgende gedragingen zien richting je partner: met de ogen rollen, schreeuwen, bekritiseren van de ander, de ander slaan of duwen).
Teruggetrokken conflictgedrag	Gedrag dat niet helpt het meningsverschil op te lossen en dat passief van aard is (bijv. Hoe vaak laat jij de volgende gedragingen zien, bij een meningsverschil met je partner: weglopen, de ander vermijden, zwijgen, de ander de "*cold-shoulder*" geven).
Constructief conflictgedrag	Gedrag dat bijdraagt aan het oplossen van een meningsverschil (bijv. Hoe vaak laat jij de volgende gedragingen zien, bij een meningsverschil met je partner: naar de ander luisteren, rustig discussiëren, uitingen van steun en affectie, en de ander proberen te begrijpen, of oplossingen aandragen).
Kind-gerelateerde conflicten	Conflicten die over kind-gerelateerde zaken gaan, zoals het welzijn of gedrag van het kind, of opvoedingsstrategieën (bijv. Hoe vaak zijn jullie het oneens over de opvoeding van jullie kind?).

Onderzoeksvraag 2: Hoe hangen de verschillende dimensies van de ouderlijke partnerrelatie samen met het (mal)adaptief functioneren van kinderen?

Om te onderzoeken of de acht dimensies van de ouderlijke partnerrelatie, zoals ze uit onze review naar voren kwamen, in gelijke mate gerelateerd zijn aan het probleemgedrag van kinderen hebben we een meta-analyse uitgevoerd. De resultaten lieten zien dat alle dimensies van de ouderlijke partnerrelatie, behalve *tevredenheid*, in zwakke tot gemiddelde mate (variërend tussen de .11 en .26) gerelateerd waren aan externaliserend en internaliserend probleemgedragingen van kinderen en jongeren (0-18 jaar). Deze associaties waren niet afhankelijk van gezinskenmerken (bijv. gezinssamenstelling, sociaaleconomische of etnische achtergrond) of kenmerken van de empirische studies (bijv. informanten, methoden). Externaliserend probleemgedrag was even sterk gerelateerd aan de algemene relatiekwaliteit van de ouderlijke partnerrelatie als aan de negatieve conflictdimensies (frequentie, agressief en teruggetrokken gedrag, en kind-gerelateerde conflicten). Dit is opvallend, omdat in de literatuur de gedachte heerst dat conflicten tussen ouders meer invloed hebben op het

ontwikkelende kind dan de algemene kwaliteit van de ouderlijke partnerrelatie. Deze hypothese werd overigens wel bevestigd voor internaliserend probleemgedrag. Deze vorm van probleemgedrag hing relatief sterker samen met de negatieve conflictdimensies dan de algemene kwaliteit van de ouderlijke partnerrelatie.

Een tweede belangrijk resultaat van de meta-analyse was de bevestiging van het idee dat naast agressief conflictgedrag, ook meer teruggetrokken en niet-constructief conflictgedrag in belangrijke mate positief samenhingen met zowel externaliserend als internaliserend probleemgedrag van kinderen. Ten derde, bleken kind-gerelateerde conflicten het sterkst gerelateerd aan externaliserend probleemgedrag. Samengenomen, bevestigen de robuuste associaties in onze meta-analyse dat de ouderlijke partnerrelatie een vaste plek verdient in theoretische modellen die proberen te verklaren waarom sommige kinderen sociaal-emotionele problemen ontwikkelen (Cicchetti, 2016; Lerner & Lamb, 2015; Slater & Bremner, 2016).

Om te onderzoeken hoe de ouderlijke partnerrelatie en het functioneren van kinderen over de tijd aan elkaar gerelateerd zijn, hebben we de richting van effecten (Hoofdstukken 3 en 4) en co-ontwikkeling onderzocht (Hoofdstuk 3). Onze bevindingen lieten meer empirisch bewijs zien voor kind-gedreven effecten, dan voor ouder-gedreven effecten. Dat betekent dat het probleemgedrag van kinderen gerelateerd was aan *latere* ouderlijke interacties, terwijl problemen in de ouderlijke partnerrelatie niet gerelateerd waren aan het *latere* functioneren van kinderen. Specifieke kind-effecten hingen af van het soort probleemgedrag waarnaar gekeken werd (externaliserend of internaliserend) en het niveau van analyses (of verschillen *tussen* families vergeleken werden, of wanneer veranderingen *binnen* families onderzocht werden). Tussen families, bleken ouders van adolescenten die relatief meer externaliserend probleemgedrag lieten zien, later een lagere relatiekwaliteit te ervaren dan ouders van adolescenten die relatief minder externaliserend probleemgedrag lieten zien. Binnen gezinnen echter, bleek dat wanneer adolescenten relatief meer internaliserende problematiek hadden (en niet externaliserend), ouders later in de tijd *minder* agressief conflictgedrag lieten zien. Dit betekent dat het probleemgedrag van kinderen niet alleen een stress-veroorzakende factor kan zijn binnen het gezin, maar ook gerelateerd kan zijn aan positieve veranderingen in interacties tussen ouders. Dit nieuwe inzicht zou geïntegreerd moeten worden in bestaande familiesysteem theorieën (Cox & Paley, 1997; 2003), die zich nu nog voornamelijk richten op de overdracht van negatieve stressoren in het gezin.

Er zijn in het huidige proefschrift geen longitudinale effecten gevonden van de ouderlijke partnerrelatie (relatiekwaliteit en destructief conflictgedrag) op het latere

functioneren van kinderen tijdens de kindertijd of adolescentie. Tijdens de transitie naar de vroege volwassenheid werd ouder-gedreven effect alleen voor een specifieke groep adolescenten gevonden (Hoofdstuk 6). Deze laatste bevinding zal verder besproken worden bij de vierde onderzoeksvraag.

In Hoofdstuk 3 hebben we onderzocht in hoeverre de algemene kwaliteit van de ouderlijke partnerrelatie en het externaliserend gedrag van kinderen veranderen over acht jaar tijd, en, of deze veranderingen aan elkaar gerelateerd zijn (i.e., co-ontwikkeling). De resultaten bevestigden het idee van co-ontwikkeling en lieten zien dat, wanneer de relatiekwaliteit relatief sterker afnam gedurende acht jaar, het externaliserend probleemgedrag van kinderen relatief sterker toenam, en andersom. Dit resultaat biedt empirische evidentie voor een belangrijk parallel proces waarbij de ouderlijke partnerrelatie en het kind zich gezamenlijk ontwikkelen over de tijd.

Onderzoeksvraag 3: Welke mechanismen kunne de associatie tussen de ouderlijke partnerrelatie en het functioneren van kinderen verklaren (i.e., mediatie)?

Het aantonen van de relaties tussen de ouderlijke partnerrelatie en de ontwikkeling van kinderen is een eerste belangrijke stap. Een belangrijke volgende stap is inzichtelijk maken welke factoren kunnen verklaren *waarom* de ouderlijke partnerrelatie en het functioneren van kinderen aan elkaar gerelateerd zijn. Ten aanzien van dit doel, hebben we in deze dissertatie de rol van de ouderlijke competentiebeleving (Hoofdstuk 3) en het gevoel van emotionele onveiligheid van adolescenten onderzocht (Hoofdstuk 4). Onze resultaten toonden aan dat associaties tussen de kwaliteit van de ouderlijke partnerrelatie en het externaliserend probleemgedrag tijdens de late kindertijd en adolescentie niet konden worden verklaar door de mate waarin vaders en moeders zich competent voelen in hun ouderlijke rol. Wel liet deze studie een samenhang zien tussen de kwaliteit in de ouderlijke partnerrelatie en de ouderlijke competentiebeleving over langere tijd. Moeders en vaders die een hogere relatiekwaliteit ervaarden, zich later in de tijd meer competent voelden in hun ouderrol. Andersom bleek dat ouders die zich meer competent voelden in hun ouderrol, later een hogere relatiekwaliteit rapporteerden.

In Hoofdstuk 4 hebben we gefocust op veranderingen *binnen* families. In deze studie kon niet aangetoond worden dat emotionele onveiligheid van adolescenten, de verbanden tussen ouderlijk destructief conflictgedrag (agressief en teruggetrokken) en probleemgedrag

van adolescenten (externaliserend en internaliserend) kon verklaren. Al vonden we geen bewijs voor het gehele mediatieproces, wel vonden we bewijs voor een deel van onze hypothese: wanneer adolescenten zich emotioneel onveiliger voelden, lieten zij meer externaliserend probleemgedrag zien een jaar later. Voor internaliserend probleemgedrag werd dit niet gevonden.

Onderzoeksvraag 4: Spelem de leeftijd,sekse, en persoonlijkheidfactoren van kinderen een rol in de de samenhang tussen de ouderlijke partnerrelatie en het (mal)adaptief functioneren van kinderen (i.e. moderatie)?

Een belangrijke vervolgstap in het begrijpen van de samenhang tussen de ouderlijke partnerrelatie en het functioneren van kinderen, is onderzoeken of bepaalde kind kenmerken ervoor zorgen dat sommige kinderen meer of minder gevoelig zijn voor de kwaliteit van en conflicten binnen de ouderlijke partnerrelatie. Deze informatie kan uiteindelijke gebruikt worden om specifieke kwetsbare groepen te identificeren en interventies te informeren. In deze dissertatie hebben we onderzocht of de samenhang tussen de ouderlijke partnerrelatie en het functioneren van kinderen afhankelijk is van de leeftijd, sekse, en persoonlijkheidstrekken van kinderen.

Leeftijd en sekse van kinderen

In onze meta-analyse (Hoofdstuk 2) bleek dat, over het algemeen, de sterkte van de associaties tussen de acht dimensies van de ouderlijke partnerrelatie en het probleemgedrag van kinderen (externaliserend en internaliserend) niet afhankelijk was van de leeftijd van kinderen en jongeren (0 – 18 jaar). De enige uitzondering was dat de associatie tussen frequentie van conflicten tussen de ouders en het externaliserend en internaliserend probleemgedrag sterker was voor oudere kinderen. Dit zou verklaard kunnen worden doordat oudere kinderen al gedurende een langere tijd blootgesteld worden aan conflicten tussen ouders, en hun reactie daarop steeds sterker wordt. Er zijn ook alternatieve verklaringen mogelijk, zoals de sociaal-cognitieve ontwikkeling van adolescenten die hen gevoeliger maakt voor het begrijpen van de impact van ouderlijke conflicten (zie bijv. Crone & Dahl, 2012). Onze studie geeft echter geen inzicht in eventuele onderliggende verklaringen voor deze bevinding.

Hoewel de rol van leeftijd niet specifiek onderzocht is in de andere hoofdstukken van deze dissertatie (3, 4 en 5), zijn in de verschillende hoofdstukken wel associaties tussen de ouderlijke partnerrelatie - kwaliteit en conflictgedrag – en de ontwikkeling van het kind getoetst tijdens verschillende ontwikkelingsperiodes. In overeenstemming met de meeste resultaten van de meta-analyse, lieten deze hoofdstukken geen verschillen in de samenhang tussen de ouderlijke partnerrelatie en het functioneren van kinderen tussen de verschillende ontwikkelingsperioden. Concluderend laat deze dissertatie zien dat, over het algemeen, kinderen van alle leeftijden in gelijke mate gevoelig zijn voor de algemene relatiekwaliteit, conflict gedragingen, en kind-gerelateerde conflicten.

In Hoofdstuk 2 bleek verder dat de sterkte van de associaties tussen de acht dimensies van de ouderlijke partnerrelatie en het probleemgedrag van kinderen (externaliserend en internaliserend) niet verschilde voor jongens en meisjes. In Hoofdstukken 4 en 5 werden geen sekseverschillen gevonden in de langdurige effecten van de relatiekwaliteit en destructief conflictgedrag op het (mal)adaptief functioneren van kinderen, en in de kind-gedreven effecten van probleemgedrag op de ouderlijke partnerrelatie. Dit betekent dat er geen bewijs gevonden werd voor de hypothese dat jongens gevoeliger zijn voor problemen in de ouderlijke partnerrelatie dan meisjes (i.e., *male vulnerability hypothesis;* Davies & Lindsay, 2001*)* of dat jongens en meisjes in dezelfde mate maar op een andere manier reageren (i.e., *gender differential reactivity hypothesis*; Davies & Lindsay, 2001). Hiermee laten onze resultaten zien dat de associatie tussen de ouderlijke partnerrelatie en het probleemgedrag van kinderen gelijk is voor jongens en meisjes.

Persoonlijkheid van kinderen

Het diathese stress model beschrijft dat sommige kinderen kwetsbaarder zijn voor stressoren in de omgeving, op basis van individuele verschillen in bijvoorbeeld de persoonlijkheid (Zuckerman, 1999). Het *differential susceptibility model*, voegt hieraan toe dat deze kinderen wellicht niet alleen kwetsbaarder zijn voor negatieve omgevingsfactoren, maar ook meer profijt hebben van het opgroeien in een positieve omgeving (Belsky et al., 2007). Het Vijf Factoren model van persoonlijkheid beschrijft consistente verschillen tussen individuen in de manier waarop ze over het algemeen denken, voelen en gedragen. Deze vijf persoonlijkheidsfactoren zijn: (1) Extraversie, (2) Vriendelijkheid (Welwillendheid), (3) Consciëntieusheid, (4) Emotionele Stabiliteit (versus neuroticisme), en (5) Vindingrijkheid (openheid voor ervaringen) (Caspi & Shiner, 2003). In Hoofdstuk 5 onderzochten we of de kwaliteit van de ouderlijke partnerrelatie, bij adolescenten, gerelateerd was aan mal-adaptief

en adaptief functioneren zes jaar later in de vroege volwassenheid, en of deze associaties afhankelijk waren van de persoonlijkheid van de adolescenten (i.e., moderatie). Externaliserend en internaliserend probleemgedrag waren onderzocht als indicatoren van maladatief functioneren, en zelfeffectiviteit (i.e., *general self-efficacy)* en tevredenheid met romantische ervaringen als indicatoren van adaptief functioneren.

Uit de resultaten bleek dat de kwaliteit van de ouderlijke partnerrelatie alleen aan internaliserend probleemgedrag en zelfeffectiviteit gerelateerd was voor een specifieke groep adolescenten. Hierbij bleek consciëntieusheid een belangrijke rol te spelen. Consciëntieusheid representeert de mate waarin adolescenten planmatig en geordend zijn en zelfcontrole beheersen. Adolescenten met een hoge mate van consciëntieusheid waren kwetsbaarder voor het ontwikkelen van internaliserende problemen, wanneer zij opgroeiden in een context van een lage relatiekwaliteit tussen ouders (i.e., empirisch bewijs voor het diathese stress model). Bovendien, bleken dezelfde adolescenten een lagere zelfeffectiviteit te hebben in de context van een lage relatiekwaliteit tussen ouders, maar ook, een relatief hogere zelfeffectiviteit dan andere adolescenten te hebben wanneer zij opgroeiden in de context van ouders met een hoge relatiekwaliteit (i.e., empirisch bewijs voor het *differential susceptibility model).* Geen van de andere vijf persoonlijkheidsfactoren bleek individuele verschillen in de associatie tussen ouderlijke relatiekwaliteit en (mal)adaptief functioneren te beïnvloeden.

Onderzoeksvraag 5: Verklaart de kwaliteit van de ouderlijke partnerrelatie de samenhang tussen ouderlijke kenmerken en opvoedgedrag?

Belsky's proces model naar de determinanten van opvoeding plaatst de ouderlijke partnerrelatie op een belangrijke plaats in het familiesysteem (Belsky & Jaffee, 2006). Eén van de hypotheses van dit model is dat ouderlijke kenmerken opvoedgedrag beïnvloeden, via de ouderlijke partnerrelatie. In Hoofdstuk 6 onderzochten we dit mediatieproces over de tijd, voor twee belangrijke ouderkenmerken (depressieve symptomen en de vijf persoonlijkheidsfactoren) en drie door adolescenten gerapporteerde opvoedgedragingen (warmte, autonomie-ondersteuning, en overreactieve discipline). Bovendien namen we hierbij de wisselwerking tussen moeders en vaders mee, door te onderzoeken of kenmerken van vaders gerelateerd waren aan de ervaren relatie kwaliteit en het opvoedgedrag van moeders en andersom. Onze resultaten lieten zien dat de kwaliteit van de ouderlijke partnerrelatie, zoals ervaren door moeders en vaders, geen consistente verklaring vormde voor associaties tussen de ouderlijke kenmerken en hun opvoedgedragingen. Als uitzondering werd één dyadisch

mediatieproces gevonden: wanneer *moeders* relatief meer depressieve symptomen ervaarden, werden *vaders* als meer overreactief ervaren door hun adolescenten, maar alleen wanneer *beide ouders* een lagere kwaliteit in hun relatie ervaarden. Deze bevinding duidt op een *stress cross-over* proces, waarbij een bron van stress bij moeders (verhoogde depressieve symptomen) een negatief effect heeft op andere subsystemen (ouderlijke relatie en vader-kind relatie) in het familiesysteem.

Klinische implicaties

Op basis van de bevindingen in deze dissertatie kunnen een aantal implicaties voor de praktijk geformuleerd worden. De meta-analyse toonde dat kinderen tussen de nul en 18 jaar die opgroeien in gezinnen met een lagere kwaliteit in de ouderlijke partnerrelatie of meer conflicten tussen ouders relatief meer externaliserend en internaliserend probleemgedrag laten zien. Dit betekent dat het zeer relevant kan zijn meer aandacht aan de ouderlijke partnerrelatie te besteden in preventieve programma's en gezinsinterventies die het doel nastreven de ontwikkeling van kinderen positief te beïnvloeden.

Omdat de associatie tussen de ouderlijke partnerrelatie en het functioneren van kinderen al vroeg zichtbaar is (Hoofdstuk 2), zou psycho-educatie over het belang van ouderlijke interacties voor kinderen bijvoorbeeld een plek kunnen krijgen in preventieve programma's. Psycho-educatie zou geïntegreerd kunnen worden in al bestaande programma's, zoals het *CenteringParenting* programma (Bloomfield & Rising, 2014; Rijndes, Detmar, & Herschderfer, 2016). Ook zou psycho-educatie als een opzichzelfstaand preventie programma aangeboden kunnen worden (bijv. Feinberg et al., 2016; Leslie et al., 2016). De meeste gezinsinterventies die het doel hebben probleemgedrag van kinderen en jongeren te verminderen, richten zich nu voornamelijk op het veranderen van ouder-kind interacties en opvoeding om dit doel te bewerkstelligen (bijv. *Incredible Years*, *HomeStart*; Hermanns et al., 2013; Webster-Stratton & Bywater, 2019). Deze interventies besteden vaak wel aandacht aan het sociale netwerk van ouders, maar opvallend genoeg, vergeten ze de ouderlijke partnerrelatie als belangrijke bron van sociale steun of stress in het familiesysteem. Een uitzondering hierop is niveau 5 van het Triple P programma, waarbij een aanvullende module gericht op ouderlijke interacties en steun ingezet kan worden (Reyno & McGrath, 2006).

Omdat de ouderlijke partnerrelatie multidimensionaal is, moet in preventieve programma's of gezinsinterventies specifiek aandacht worden besteed aan zowel het vergroten van de algemene kwaliteit van de relatie (bijv. cohesie, affectie), als aan het afleren

van agressieve *en* teruggetrokken conflictgedrag en het aanleren van constructief probleemoplossend gedrag (zie bijv. de *Gottman method*; Gottman & Gottman, 2008*)*. Ook zou in deze programma's aandacht besteedt moeten worden aan de invloed die kinderen kunnen hebben op de ouderlijke partnerrelatie (zowel negatief als positief) en de wisselwerking tussen ouders (bijv. voornamelijk het effect dat de ouderlijke partnerrelatie op het opvoedgedrag van vaders kan hebben). Zeker gezien de robuustheid van associaties die gevonden zijn in de meta-analyse, moet de samenhang tussen een lage relatiekwaliteit en conflicten tussen ouders en negatieve ontwikkelingsuitkomsten van kinderen niet onderschat worden.

Conclusie

Concluderend, blijken kinderen van alle leeftijden, jongens en meisjes, opgroeiend in verschillende gezinssamenstellingen en socio-economische achtergronden, relatief meer probleemgedrag te laten zien wanneer ze aan verschillende problemen in de ouderlijke relatie worden blootgesteld. Bovendien blijken kinderen ook een actieve rol in hun eigen ontwikkeling te spelen. Externaliserend probleemgedrag van adolescenten kan de kwaliteit van de ouderlijke partnerrelatie ondermijnen, terwijl hun internaliserende symptomen ouderlijk conflictgedrag ten positieve kunnen veranderen. Verder blijkt het niet mogelijk kennis over verklaringen voor verschillen *tussen* families (emotionele onveiligheid) te vertalen naar kennis over veranderingsprocessen *binnen* gezinnen. Waarom veranderingen in de ouderlijke partnerrelatie gerelateerd zijn aan veranderingen in het welzijn van kinderen blijft een belangrijke vraag voor vervolgonderzoek. Tot slot, hebben we voorzichtig bewijs gevonden dat de gevoeligheid van kinderen voor de ouderlijke partnerrelatie af lijkt te hangen van hun mate van consciëntieusheid (persoonlijkheidsfactor).

Curriculum Vitae

Willemijn van Eldik was born on April 10th 1991, in Gouda. She grew up in Waddinxveen and graduated from high school in 2008 (Athenaeum, *De Goudse Waarden* in Gouda). In 2008, she started her studies in Developmental Psychology (bachelor) at the Utrecht University. She participated in the Von Humboldt interdisciplinary honors program and finished her bachelor program in August 2012. During this time, Willemijn participated in several student committees. Following her interest in both research and clinical youth work, she started the research master Development and Socialization in Childhood and Adolescence at the Utrecht University, which she finished in May 2014 (cum laude). Then, in September 2014 she started her clinical master in Child Psychology. As the main part of the curriculum, she did a nine-month internship at the child and family department of a GGZ institution specialized in intercultural psychiatry (I-Psy) in Utrecht. During this year, Willemijn also started working as a research assistant at the research group Clinical Child and Family Studies at the Erasmus University Rotterdam. She graduated from her clinical master (cum laude) in August 2015 and worked as a clinical child psychologist at I-Psy, before starting her PhD on November 15th 2015. During her PhD, Willemijn presented her research at various national and international conferences and gained teaching experience in supervising bachelor and master's theses and internships, *NVO diagnostiek certificates,* and by teaching and coordinating several bachelor and courses and a clinical practical. In 2019, Willemijn spent three months at the University of Rochester with Prof. Patrick Davies, for which she received the Fulbright Scholarship as well as funding from the Dutch *Prins Bernard Cultuurfonds*.

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Don Ward