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## Review

# A meta-analysis on interparental conflict, parenting, and child adjustment in divorced families: Examining mediation using meta-analytic structural equation models



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## HIGHLIGHTS

- Direct and indirect links between interparental conflict, parenting, and child adjustment after divorce were meta-analyzed
- Using three-level modeling, most direct associations consistently showed small, significant correlations
- The MASEM results showed that most parenting behaviors mediate the link between interparental conflict and child adjustment
- Different patterns emerged for specific post-divorce parenting dimensions
- Negative parenting behaviors related to post-divorce child adjustment more strongly than positive parenting behaviors

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## ABSTRACT

Every year, parental divorce becomes the reality of many families. The aim of this meta-analysis was to identify post-divorce family processes to explain child functioning. Both direct and indirect associations between interparental conflict, parenting, and child adjustment were examined. After a systematic search for articles published before October 2019, we coded 2257 correlations in 115 samples of  $N = 24,854$  divorced families. Analyses consisted of: (1) Performing multiple three-level meta-analyses to calculate the bivariate correlations between interparental conflict, parenting (i.e., support, hostility, structuring, intrusiveness, parent-child relationship quality, parent-child conflict, and role diffusion) and child psychosocial adjustment. (2) Testing four meta-analytic structural equation models in which parenting dimensions were examined as potential mediators. First, results showed that correlations between interparental conflict, parenting, and child adjustment were mostly significant, in the expected direction, and of small effect size. Second, parental support, hostility, structuring, intrusiveness, and role diffusion indeed served as mediating mechanisms underlying the persistent link between interparental conflict and children's internalizing and externalizing problems. This was not true for dyadic parent-child processes. Third, our findings hinted towards a stronger impact of negative versus positive parenting behaviors, and parental role diffusion was considered a particular risk in the context of post-divorce interparental conflict.

## 1. Introduction

Every year, numerous children are confronted with the divorce or separation of their parents. Children from divorced families are prone to develop adjustment problems that may persist well into adulthood (Lansford et al., 2006; Van der Valk, Spruijt, De Goede, Maas, & Meeus, 2005). Compared to children from intact families, they are found to experience more internalizing problems (Størksen, Røysamb, Holmen, & Tambs, 2006; Sun, 2001), show higher levels of externalizing

problems (Weaver & Schofield, 2015), have more difficulties in their social relationships (Cavanagh, Crissey, & Raley, 2008) and in their academic performance (Frisco, Muller, & Frank, 2007), and show lower levels of self-esteem (Hetherington, 2003; Størksen et al., 2006). Despite a generally higher risk for psychosocial problems, large inter-individual variability in the adjustment of children from divorced families is acknowledged as well (Amato & Anthony, 2014; Lansford, 2009). In fact, it has been argued that the divorce itself does not necessarily put children at risk, but rather stressful circumstances

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surrounding it are important (Amato, 2010).

A considerable body of literature suggests that children's adjustment following divorce is shaped by three key factors: (1) The relationship between ex-spouses, (2) post-divorce parenting and the parent-child relationship quality, (3) and the availability of economic resources (see Amato, 2010; Kelly & Emery, 2003; Lansford, 2009 for reviews). All of these factors are threatened in the context of divorce. That is, a divorce likely puts a strain on the interparental relationship, poses a risk for parent-child dynamics, and can confront families with financial struggles, moving houses and/or neighborhoods, and the need to change schools. In the current meta-analysis, we adopted a family systems approach (Cox & Paley, 1997), which emphasizes the interplay between the interparental system and the parent-child system, two of these three key factors. Therefore, our aim was to examine links between interparental conflict, parenting, and child adjustment in divorced families.

Children are thought to be especially hindered by divorce in case of negative, conflictual, and dysfunctional family processes (Amato, 2010; Hetherington, Bridges, & Insabella, 1998). Particularly, more frequent and intense interparental conflict (Amato, 2010; Lansford, 2009), as well as a low quality of post-divorce parenting (Hetherington, 2006), have been identified as important risk factors for child adjustment. The exact role of these post-divorce family processes has yet to be examined. Do interparental conflicts and parenting both relate directly to adverse child outcomes after divorce, or does parenting function as mediating mechanism underlying the association between interparental conflicts and child adjustment? Which aspects of parenting are most vulnerable to interparental conflicts, and most strongly linked to child adjustment? In the current meta-analysis, we addressed these questions, and extended our knowledge on post-divorce family processes by integrating available data that have emerged from empirical studies thus far. A more detailed understanding of the family processes that are most prominent in explaining child adjustment in divorced families could provide new building blocks for future research and benefit (preventive) intervention programs.

### 1.1. Post-divorce parenting as underlying mechanism

The parental subsystem is considered as most salient in determining the quality of family life (Erel & Burman, 1995). Accordingly, interparental conflict is one of the most empirically studied and important predictors of post-divorce child adjustment (e.g., Kelly & Emery, 2003). Likewise, post-divorce parenting quality is also a key factor in explaining child outcomes (Sigal, Sandler, Wolchik, & Braver, 2011). Instead of isolating interparental conflict and parenting quality as two separate constructs predicting post-divorce child adjustment, a family systems approach explains associations between interparental conflict and children's post-divorce adjustment by processes within the parent-child system (Cox & Paley, 1997). Through so called "spillover" (Repetti, 1987), processes within the parental system are likely to affect the parent-child system, ultimately influencing the child (Enger, 1988). Hence, it is probable that the associations between interparental conflict and children's post-divorce adjustment could, at least partly, be explained by processes within the parent-child system. Both positive and negative parenting behaviors are thought to act as potential underlying, hence mediating, mechanisms.

More specifically, deficiencies in positive parenting are thought to explain the association between interparental conflict and child adjustment. Interparental conflict could leave parents to be emotionally drained, resulting in a lack of energy to act warm and responsive to their children's emotional needs (Emde & Easterbrooks, 1985; Katz & Gottman, 1996; Margolin, Gordis, & John, 2001). Likewise, monitoring a child and providing them structure are more challenging tasks when a parent's energy is compromised due to conflict with an ex-spouse. Since positive parenting behaviors are found to be key in child adjustment following divorce (Elam, Sandler, Wolchik, Tein, & Rogers, 2019; Falci, 2006; Sandler, Miles, Cookston, & Braver, 2008; Weaver & Schofield,

2015), less positive parenting likely explains the associations between interparental conflict and child adjustment.

In addition to compromising positive parenting behaviors, interparental conflicts could also evoke irritability, anger, and frustration in parents (Bolger, DeLongis, Kessler, & Schilling, 1989; Sears, Repetti, Reynolds, Robles, & Krull, 2016). Their negative mood could then result in more hostile and harsh parenting strategies, as well as more parent-child conflicts. Parents who are more verbally and physically aggressive to each other, tend to use similar behaviors towards their children (Almeida, Wethington, & Chandler, 1999). Interparental conflict might also elicit a certain sense of frustration or lack of control, which parents could displace by overcontrolling or intrusive strategies towards their child, comparable to a scapegoating mechanism (Vogel & Bell, 1960). Multiple negative post-divorce parenting behaviors have been identified as risk factors for healthy child adjustment (e.g., DeGarmo, 2010; Hakvoort, Bos, Van Balen, & Hermanns, 2011; Stadelmann, Perren, Groeben, & von Klitzing, 2010). Hence, more negative parenting behaviors might explain why interparental conflict and child adjustment following divorce are related.

Despite the theoretical grounds for identifying post-divorce parenting as an important link between interparental conflict and child adjustment, evidence for such mediation processes mainly comes from research on intact families (e.g., Buehler, Benson, & Gerard, 2006; O'Donnell, Moreau, Cardemil, & Pollastri, 2010; Siffert, Schwarz, & Stutz, 2012). The limited number of studies on divorced families thus far offer similar support. That is, associations between interparental conflict and children's adjustment were found to be partly mediated by higher levels of parental psychological control, rejection, and laxness following divorce (Faubert, Forehand, Thomas, & Wiersen, 1990), as well as negative changes in the father-child relationship and less paternal involvement (Pruett, Williams, Insabella, & Little, 2003). Father-child relationship quality was also found to mediate the association between interparental conflict and children's physical health after divorce (Fabricius & Luecken, 2007). Yet, the information on indirect associations that could explain why children are negatively affected by post-divorce interparental conflict seems scarce. Hence, despite the extensive literature on post-divorce family processes, more research is needed on mediating mechanisms that may underly the association between interparental conflict and child adjustment in divorced families. A meta-analysis is especially beneficial, as it combines a large body of data and synthesizes previous knowledge.

### 1.2. Previous meta-analyses

Previous meta-analyses offer some support for the (direct) associations between interparental conflict, parenting, and child adjustment, but these studies merely examined some pieces of the mediation puzzle and are often outdated. First, interparental conflict and post-divorce child adjustment have been examined in several meta-analyses (e.g., Amato, 2001; Buehler et al., 1997; Teubert & Pinquart, 2010). Second, a meta-analysis by Krishnakumar and Buehler (2000) showed links between interparental conflict and harsh discipline, parental laxness, support, and general parenting quality in divorced families. Third, in their meta-analysis, Amato and Gilbreth (1999) report a negative association between closeness with the non-resident father and children's internalizing and externalizing problems.

To date, one meta-analysis has included aspects of interparental conflict, parenting, and child adjustment altogether, and found that post-divorce interparental conflict was related to lower father-child relationship quality and less maternal warmth, and maternal warmth and father-child relationship quality were negatively related to more total problem behaviors and internalizing problems, respectively (Whiteside & Becker, 2000). However, only a limited number of parenting behaviors were included and mediation (i.e., indirect) effects were not tested. We extend previous work by meta-analyzing both the direct and indirect effects between interparental conflict, parenting,

and post-divorce child adjustment. Because previous research suggests a differential impact of parenting behaviors on child outcomes following divorce (Stallman & Ohan, 2016), a distinction between four parenting domains was made: Parental acceptance, parental control, parent-child relationship, and role diffusion.

### 1.3. Parenting domains

#### 1.3.1. Parental acceptance: support versus hostility

The parental acceptance-rejection theory (Rohner, 1986/1999) states that humans have a biologically based desire for positive responses from people that are most important to them. Especially in childhood this refers to the need of parental affection, care, comfort, and support. As noted by Epkins and Harper (2016), parental acceptance was initially considered a unidimensional construct, with support and hostility being on either end of a continuum. More recently, acceptance is assumed to consist of two distinct constructs, since a non-supportive parent does not necessarily show hostility towards his/her child (Sentse, Lindenberg, Omvlee, Ormel, & Veenstra, 2010).

#### 1.3.2. Parental control: structure versus intrusiveness

Parental control is defined as parents' behaviors or strategies to manage, regulate, and control their children's behavior. A distinction can be made between parental structuring and intrusive parenting (Grolnick & Pomerantz, 2009). Parental structuring refers to parental behaviors that are directive or guiding, that provide structure by setting appropriate rules and limits, that monitor children's behavior and are used consistently, as opposed to parental laxness and inconsistent parenting. Intrusive parenting entails invasive parental behaviors to control or discipline children (Barber & Harmon, 2002). These parents use intrusive and dominant strategies such as threatening, psychological control, guilt inducing behaviors, but also physical intervention (i.e., disciplinary spanking) in order to force children to meet their demands.

#### 1.3.3. Parent-child relationship: relationship quality versus conflict

In addition to parenting behaviors, in which a parent is considered the main actor, the parent-child relationship has a more dyadic character. In the current meta-analysis, we differentiate between parent-child affective quality on one hand and parent-child conflicts on the other hand. High parent-child relationship quality is marked by feelings of closeness to one another, a secure attachment, positive parent-child communication, and relationship satisfaction. In contrast, parent-child conflicts refer to conflictual behaviors between a parent and child, hence, how often they have arguments or fights, whether they get angry at each other, or quarrel.

#### 1.3.4. Role diffusion: parentification and triangulation

The parenting domain 'role diffusion' refers to behaviors like parentification, in which parents put children in a parental role, either for practical or emotional support, and triangulation, in which parents involve children in their parental disputes. The latter is done by using children as a messenger, pressuring them to take sides, or disclosing negative information about the other parent (Peris & Emery, 2005). Although role diffusion is not restricted to divorced families (e.g., Fosco & Grych, 2010; Peris, Goeke-Morey, Cummings, & Emery, 2008), it is more likely to occur in the context of divorce (Gagné, Drapeau, Melançon, Saint-jacques, & Lépine, 2007). Both practitioners and researchers consider this type of parenting as an important risk for healthy child development after divorce (Afifi, McManus, Hutchinson, & Baker, 2007; Amato & Afifi, 2006; Baker & Brassard, 2013; Fosco & Grych, 2010; Kerig & Swanson, 2010).

### 1.4. Current meta-analysis

The aim of the current meta-analysis was to examine both the direct

and indirect associations between interparental conflict, parenting, and child adjustment in divorced families. First, we examined the direct associations between interparental conflict, parenting dimensions and child adjustment. Based on previous meta-analyses, we hypothesized to find small but significant overall effect sizes for the direct associations between interparental conflict and post-divorce parenting (Krishnakumar & Buehler, 2000; Whiteside & Becker, 2000), as well as for interparental conflict and children's post-divorce adjustment (Amato, 2001; Buehler et al., 1997; Teubert & Pinquart, 2010).

Second, based on family systems theory (Cox & Paley, 1997), we expected parenting behaviors to serve as underlying, hence mediating, mechanisms in the associations between interparental conflict and child adjustment following divorce. We proposed that interparental conflicts predict several parenting behaviors (i.e., acceptance, control, parent-child relationship quality, and role diffusion), which in turn relate to multiple child adjustment domains (i.e., internalizing problems, externalizing problems, social adjustment, and self-esteem). Therefore, four mediation models, in which we differentiated between positive and negative parenting behaviors, were tested. Following the notion that "bad is stronger than good" (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001) and that especially negative and conflictual family relationships seem to explain the differences in children's adjustment following divorce (Amato, 2010; Hetherington et al., 1998), we expected that negative parenting and relational processes (i.e., hostility, intrusiveness, parent-child conflict, and role diffusion) would be more strongly related to child adjustment than positive parenting and relational processes (i.e., support, structuring, and parent-child relationship quality).

## 2. Method

### 2.1. Sample of studies

For the selection of studies, we searched the electronic databases PsychINFO, Web of Science, and the Educational Resources Information Centre (ERIC). The literature search included all studies published before October 2019 that were written in English. In our search we included studies available in peer-reviewed journals, non-peer-reviewed journals, and electronic collections. We excluded all books, encyclopedia, and dissertation abstracts. Primarily, all studies had to include children or adolescents from separated families, which required keywords such as: *divorc\**, *marital dissolution*, *parent\* separat\**, *parent\* break\**. We used a different search string for each mediation path. Hence, for path A) we searched for studies containing keywords that refer to interparental conflict (*parent\* conflict\**, *interparental conflict\**, *parent\* argu\**, *parent\* fight\**, etc.), as well as parenting behaviors/parent-child relationship quality (i.e., domain broad: *parenting*, *parent\* style\**, *parent skill\**, *parent\* practice\**, *child rearing*, *mothering*, *fathering*, *mother-child*, *father-child*, etc. and domain specific: *parent\* warmth*, *parent\* support*, *parent\* affect\**, *control\**, *harsh discipline\**, *intrusive\**, *monitor\**, *structur\**, *communicat\**, *disciplin\**, etc.). For path B) we included keywords that refer to both parenting behaviors/parent-child relationship quality and child adjustment (*child\* adjust\**, *adolescen\* psychopatholog\**, *teen\* wellbeing*, *toddler\* problem behav\**, *infant\* develop\**, etc.). Last, for path C) we included keywords referring to both interparental conflict and child adjustment. We searched for these keywords in studies by including their title, abstract and keywords. The actual search strings that were used can be found in the Supplementary Material S1.

### 2.2. Selecting the studies

The process of selecting the studies is schematically depicted in Fig. 1. First, the duplicates were removed from our search. Second, articles were scanned based on title and abstract. A subset of 15% of the studies was scanned by two coders, who showed an interrater

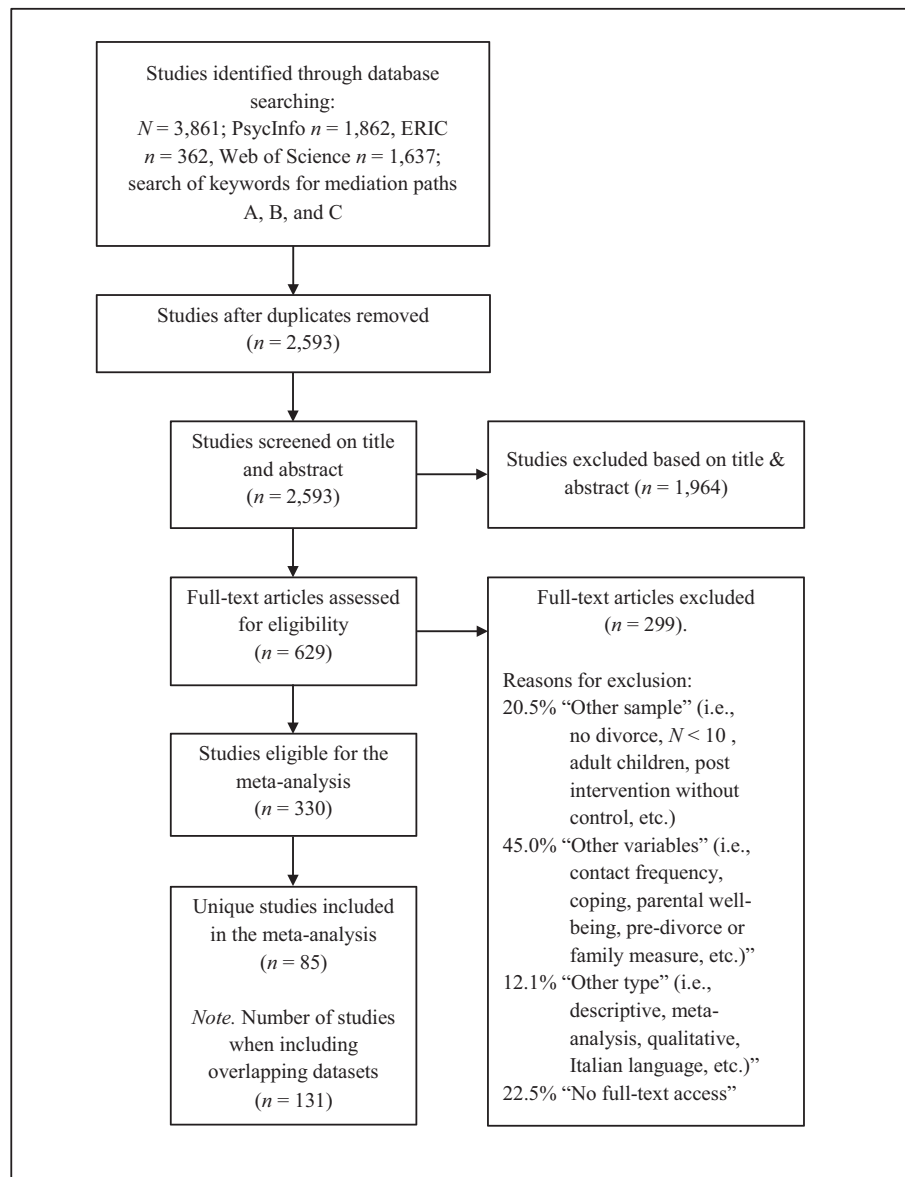


Fig. 1. Schematic representation of selecting the studies.

agreement rate of 90.7%, with a substantial Cohen's  $\kappa = 0.72$  (Cohen, 1988). Third, full-text articles were assessed for eligibility based on their sample, concepts that were measured, and the provided statistics.

Studies could be either cross-sectional or longitudinal and were included if they met the following criteria: (1) They involved parents or children from divorced or separated families. (2) They included measurements of at least two of the three conceptual categories that were of interest in our study (i.e., interparental conflict, parenting/parent-child relationship, and child adjustment). (3) They included concepts that were measured when children were between 0 and 18 years old. If the sample included adult children from divorced families, the concepts of interest had to be measured retrospectively in order to be included in the study. (4) Studies with a clinical sample or intervention studies were also included. In case of the latter, only measurements at baseline were used for the intervention group, but if a control group was used (i.e., waiting list), we also included longitudinal relations for the control group. In addition, we excluded: (a) Studies that examined conflict resolution styles rather than the frequency and intensity of interparental conflicts. However, if a negative conflict resolution style was researched, we checked how this was measured and whether it could fit

our interpretation of interparental conflict frequency/intensity; (b) As the present meta-analysis focused on parental behaviors in interaction with the child (e.g., parenting) and the quality of the parent-child relationship, studies including measures that were not parenting (e.g., custody arrangements, parenting stress, parent-child contact frequency), measures on relationships other than the interparental or parent-child relationship (e.g., the step- or grandparent relationship), and measures of parenting styles that were not deductible to either one of our parenting dimensions (e.g., authoritative parenting which entails aspects of both support and control); (c) Studies examining children's coping skills or overall life satisfaction as indicators of child adjustment, as they did not fit any of our more specific child adjustment categories; (d) Studies with a sample size of  $N < 10$ , due to power issues. There was no restriction on the year of publication.

Our assessment resulted in a substantial number of studies of which we had to email the author(s) for (additional) information. This was mainly because studies often included both intact families as divorced families and correlations were reported for the whole sample, or because correlations were not reported at all. Also, many studies used total problem scores or general parenting measures (e.g., positive

**Table 1**  
Studies included in the meta-analysis and some of their characteristics.

Study	Sample	N	Age Range		% of boys	Number of correlations
Affi et al., 2007		118	12.00	18.00	52.0	4
Altenhofen, Sutherland, & Biringen, 2010		21	1.00	6.08	54.0	1
Amato, Kane, & James, 2011		944	7.00	19.00	49.0	3
Arditti & Bickley, 1997		212	NA		NA	1
Baker & Brassard, 2013		31	13.00	16.00	100.0	9
Bank, Forgatch, Patterson, & Fetrow, 1993	1	103	8.00	13.00	100.0	2
	2	78	5.00	9.00	100.0	1
Bastais, Ponnet, & Mortelmans, 2014		363	10.00	18.00	51.2	4
Beckmeyer, Coleman, & Ganong, 2014		270	3.00	18.00	48.5	6
Berger & McLanahan, 2015	1	52	$M = 5.39$		52.0	5
	2	165	$M = 5.39$		46.0	5
Bornoalova, Blazei, Malone, McGue, & Iacono, 2013		156	11.00	21.00	48.2	12
Bornoalova et al., 2014		64	11.00	21.00	34.4	8
Braver, Sandler, Cohen Hita, & Wheeler, 2016		102	8.00	18.00	55.4	66
Bray & Berger, 1990	1	15	8.50	11.50	0.0	9
	2	18	8.50	11.50	100.0	9
Bretherton et al., 2013		71	4.50	5.00	57.8	2
Brière, Archambault, & Janosz, 2013		1120	12.00	13.00	46.0	30
Broberg, 2012		561	3.00	8.00	NA	1
Brody & Forehand, 1990	1	36	11.08	15.08	100.0	3
	2	24	11.08	15.08	0.0	2
Bronstein, Stoll, Clauson, Abrams, & Briones, 1994		26	9.00	12.00	43.0	5
Brown, Wolchik, Tein, & Sandler, 2007		89	9.00	12.00	55.0	32
Buchanan, Maccoby, & Dornbusch, 1991		522	10.50	18.00	51.0	17
Buehler & Trotter, 1990	1	68	3.00	18.00	52.8	1
	2	125	3.00	18.00	52.8	1
Cashmore, Parkinson, & Taylor, 2008	1	33	12.00	19.00	100.0	12
	2	27	12.00	19.00	0.0	12
	3	60	12.00	19.00	55.0	12
Cookston & Fung, 2011		61	4.00	17.00	49.0	13
DeGarmo, 2010		150	3.99	12.00	53.0	26
Di Manno, Macdonald, Youssef, Little, & Olsson, 2018	1	54	17.00	18.00	42.0	45
	2	119	17.00	18.00	51.0	45
	3	116	17.00	18.00	50.0	13
Donahue et al., 2010		82	13.00	18.00	40.2	3
Dreman & Shemi, 2004		191	6.00	18.00	49.0	2
Dunlop, Burns, & Bermingham, 2001	1	29	16.00	19.00	54.0	4
	2	39	13.00	16.00	51.3	4
Dunn, Davies, O'Connor, & Sturgess, 2001		49	7.00	17.00	53.2	18
Elam et al., 2019	1	472	3.00	18.00	52.1	9
	2	353	3.00	18.00	52.1	9
Fabricius & Luecken, 2007		218	16.00	36.00	47.0	1
Falci, 2006	1	242	9.67	18.33	51.1	2
	2	260	9.83	18.25	54.5	2
Fauber et al., 1990		51	11.00	14.92	47.0	10
Finzi-Dottan & Cohen, 2017	1	218	$M = 13.61$		36.2	5
	2	101	$M = 13.61$		36.2	5
Forehand, Wierson, McCombs, Brody, & Fauber, 1989		62	11.50	15.50	56.5	4
Forgatch & DeGarmo, 1997		138	9.00	18.00	100.0	6
Forgatch, Patterson, Degarmo, & Beldavs, 2009	1	65	$M = 7.93$		100.0	275
	2	153	$M = 7.65$		100.0	27
Furstenberg, Morgan, & Allison, 1987		227	11.00	16.00	NA	12
Gunnoe & Braver, 2001		74	$M = 7.70$		43.0	150
Gunnoe & Hetherington, 2004	1	143	$M = 14.70$		55.0	8
	2	56	$M = 14.70$		55.0	8
Hakvoort et al., 2011	1	50	$M = 10.90$		46.0	47
	2	37	$M = 10.90$		38.0	47
Healy Jr, Malley, & Stewart, 1990		121	5.00	12.00	52.0	4
Heckel, Clarke, Barry, McCarthy, & Selikowitz, 2013		86	6.00	18.00	59.3	43
Hetherington & Clingempeel, 1992		49	9.00	13.00	50.0	3
Johnston, González, & Campbell, 1987		52	4.00	12.00	50.0	20
Kalmijn, 2016	1	289	$M = 14.00$		100.0	5
	2	343	$M = 14.00$		0.0	5
Kim, Hetherington, & Reiss, 1999	1	188	$M = 14.80$		0.0	8
	2	188	$M = 14.80$		100.0	8
Kline, Tschann, Johnston, & Wallerstein, 1989		93	4.00	15.00	54.0	3
Koerner, Wallace, Jacobs Lehman, Lee, & Escalante, 2004		194	11.17	17.92	45.4	30
Kruse & Walper, 2008		204	9.50	19.20	48.3	49
Kurdek, 1988		20	6.00	17.00	40.0	3
Lamela et al., 2016		314	4.00	16.00	NA	7
Lanz, Iafrate, Rosnati, & Scabini, 1999	1	79	11.00	18.00	100.0	2
	2	66	11.00	18.00	0.0	2
Lau, 2006	1	13	$M = 11.70$		49.2	4
	2	52	$M = 11.70$		49.2	4

(continued on next page)



Table 1 (continued)

Study	Sample	N	Age Range	% of boys	Number of correlations
Lau, 2017	1	81	$M = 10.58$	51.4	96
	2	17	$M = 10.58$	51.4	83
Lazar, Guttman, & Abas, 2009		56	10.00 14.00	46.4	1
Lee, 2002		59	6.00 12.00	47.5	1
Lengua, Wolchik, Sandler, & West, 2000		231	9.00 12.00	49.8	12
Lindsey, Colwell, Frabutt, & MacKinnon-Lewis, 2006		59	7.00 9.00	100.0	3
Macie & Stolberg, 2003		68	10.00 17.00	50.0	72
Martínez-Pampliega et al., 2015		34	2.00 23.00	44.6	6
McClain et al., 2010		233	9.00 12.00	51.0	76
Nicholson, Fergusson, & Horwood, 1999	1	120	$M = 6.00$	41.0	44
	2	101	$M = 11.00$	52.7	33
	3	71	$M = 16.00$	54.7	24
Pelleboer-Gunnink, Van der Valk, Branje, Van Doorn, & Deković, 2015	1	80	7.00 13.00	46.3	9
	2	76	7.00 13.00	53.9	90
Pisinger, Bloomfield, & Tolstrup, 2016		3117	12.00 18.00	NA	11
Poortman, 2018		3693	4.00 17.00	52.0	18
Pruett et al., 2003	1	102	0.00 6.00	59.0	9
	2	110	0.00 6.00	59.0	9
Radovanovic, 1993		46	7.00 12.00	48.1	5
Reiter, Hjørleifsson, Bredablik, & Meland, 2013	1	590	15.00 18.00	47.6	9
	2	150	15.00 18.00	43.0	9
Rettig & Leichtentritt, 2001		123	11.00 19.00	56.0	2
Sandler et al., 2008		182	5.00 12.00	42.8	9
Sanford & Rivers, 2017	1	329	$M = 8.00$	45.5	2
	2	314	$M = 8.00$	45.5	5
Shaw & Emery, 1987		40	5.00 12.00	47.5	3
Shek, 2007	1	35	$M = 12.65$	60.5	86
	2	127	$M = 12.65$	44.0	86
Simons, Whitbeck, Beaman, & Conger, 1994	1	54	$M = 15.30$	100.0	22
	2	67	$M = 15.30$	0.0	21
Stadelmann et al., 2010		29	$M = 5.28$	53.0	13
Stallman & Ohan, 2016		109	4.00 17.00	62.0	9
Thomas & Forehand, 1993		58	11.0 15.00	NA	4
Tschann, Johnston, Kline, & Wallerstein, 1989		178	2.00 18.00	51.0	16
Vanassche, Sodermans, Matthijs, & Swicegood, 2013	1	508	11.00 23.00	100.0	3
	2	706	11.00 23.00	0.0	3
Van der Valk et al., 2005		278	12.00 24.00	44.3	2
Webster-Stratton, 1989		13	3.00 7.00	71.8	19
Wolchik, Tein, Sandler, & Doyle, 2002		228	8.00 12.00	56.0	44
Wolchik, Wilcox, Tein, & Sandler, 2000		678	8.00 15.00	52.0	9
Xu et al., 2016		30	14.00 18.00	52.8	4

Note. If the sample size differed for correlations within studies, we used the mean sample size to report the total  $N$ . If the age range was unknown, we reported the mean age. We did not display studies with overlap in datasets that were also identified in our systematic search.

parenting), whereas we were interested in different parenting dimensions as well as multiple adjustment domains. If contact information was available, we contacted the first, second, and last author simultaneously. In total, we contacted the authors of  $n = 311$  articles (i.e., including studies overlapping in datasets). Of those, 18.6% were able to provide us with (some of) the correlations, 47.9% replied, but no longer had access to the data, responded that data were no longer available, or could not meet our request due to its extent or the proposed deadline, 21.9% did not reply to our email or reminder, and for 11.6% we were unable to find the correct contact information or the author(s) had passed away.

### 2.3. Coding the data

The studies included in our meta-analysis are listed in Table 1, together with some study characteristics. Effect sizes were coded by two independent coders. In addition to coding study characteristics, the specific categories of the correlations (i.e., conflict & support or conflict & hostility, etc.) were especially of interest. Regarding these categories, interrater reliability was substantial, as Cohen's  $\kappa = 0.72$  (Cohen, 1988), based on a subset of 14.1% of the correlations.

#### 2.3.1. Interparental conflict

Interparental conflict referred to conflictual behaviors between the ex-partners, including measures of having arguments, disagreement,

and quarrels. Both the frequency and intensity of physical and verbal aggression within the parental dyad were included. If available, we coded whether the measure of conflict entailed frequency, intensity, or both aspects of interparental conflict.

#### 2.3.2. Parenting dimensions

Parenting was coded as belonging to either one of the seven parenting dimensions, that in turn could be categorized into (1) the parental acceptance domain, (2) the parental control domain, (3) the parent-child relationship domain, and (4) the role reversal domain. The seven parenting dimensions were then coded as follows: (1a) *Parental support*: including measures of warmth, nurturance, responsiveness, positive affect, sensitivity, caregiving, parental involvement, affection, love, appreciation, kindness, autonomy support, cognitive stimulation, skill encouragement, and neglect [R] and (1b) *Parental hostility*: including measures of rejection, negative affect, aversive parenting, irritability, explosiveness, criticism, disapproval, aggression, harshness, and angry parenting. That is, these measures were included in this category if these behaviors were not explicitly used in order to control or discipline a child, then we included them in the 'intrusive parenting' dimension. (2a) *Parental structuring*: including measures of monitoring, parental structure, limit setting, consistency of parenting, inconsistent parenting [R], laxness [R], and permissiveness [R]. (2b) *Intrusiveness parenting*: including measures of adverse or coercive discipline, psychological control, over-reactivity, guilt inducing behaviors,

threatening and physical punishment. (3a) *Parent-child relationship quality*: including measures of parent-child communication, attachment, feelings of closeness, and satisfaction with the parent-child relation. This category is different from the 'support' category because of its dyadic character, whereas in case of parental support the parent is considered the main actor. (3b) *Parent-child conflict*: including measures of having arguments, disagreement, quarrels and conflicts within the parent-child relationship. (4) *Parental role diffusion*: including measures of parentification and triangulation processes, such as (inappropriate) parental disclosure, relying on a child either for practical or emotional support, using a child as a messenger, pressure a child to take sides, or talking badly about the ex-spouse to a child.

### 2.3.3. Child adjustment

Four adjustment domains were used: (1) *Internalizing problems*, which included anxiety, depressive feelings, self-harm, suicidal thoughts, loneliness, and children's feelings of self-blame and guilt. (2) *Externalizing problems*, including delinquent behaviors, aggression, drug and alcohol use, attention/hyperactivity problems, and antisocial/disruptive behaviors. This also included these types of behavior in an academic context. (3) *Social adjustment*, which included prosocial behavior, social competence, the quality of peer relations, siblings and romantic relationships. (4) *Self-esteem* and the perception or evaluation of the self.<sup>1</sup>

### 2.3.4. Effect size information

Pearson's bivariate correlation coefficient ( $r$ ) was chosen as the effect size, which represents the association between two continuous variables. In case of a continuous and dichotomous variable, we used the point-biserial correlation. If standardized regression coefficients ( $\beta$ ) were reported, we first tried to contact the author(s) of the study to provide us with the correlations. If they did not respond to our emails or could not provide us with the correlations, we converted the  $\beta$ 's into correlations ( $r$ ) using the formula  $r = \beta + .05\lambda$ . Here,  $\lambda$  denoted an indicator variable that equals 1 when  $\beta$  is positive and 0 when  $\beta$  is negative (Peterson & Brown, 2005). When a study did not report an exact effect size due to a non-significant association, we assigned an effect size of 0. If a study reported analyses for separate groups (i.e., boys and girls), those were treated as different samples within that study. Additionally, we only coded correlations between the different parenting dimensions that were needed for the structural equation models (i.e., support & hostility, structuring & intrusiveness, parent-child relationship quality & parent-child conflict). For the longitudinal data, we used the temporal sequence as suggested in our mediation models. Hence, we only included longitudinal correlations of the mediational paths (i.e., interparental conflict  $\rightarrow$  child adjustment, interparental conflict  $\rightarrow$  parenting, and parenting  $\rightarrow$  child adjustment). For associations between the different parenting dimensions and between the different adjustment domains, we included concurrent data.

## 2.4. Analyses

The analyses for this meta-analysis consisted of two parts that were performed in the software environment R (version 3.6.1; R Core Team, 2019). The first part involved multiple three-level meta-analyses to examine the overall effect sizes between interparental conflict, parenting dimensions, and child outcomes with the *metafor* package (Viechtbauer, 2015). In the second part we used meta-analytic structural equation modeling (MASEM; Jak, 2015) to identify parenting dimensions that might underlie the association between interparental

conflict and child adjustment. The second part of the analyses was performed using the *metaSEM* package (Cheung, 2015) based on the *OpenMx* package (Boker et al., 2011).

### 2.4.1. Part 1: bivariate meta-analyses

In order to conduct meta-analyses for each of the different paths, we used three-level random effects models as described by Assink and Wibbelink (2016), using Maximum Likelihood estimation. A three-level approach extends the traditional two-level approach by adding an intermediate level (Cheung, 2014), allowing to estimate three different types of variance: (1) Sampling variance on the first level, (2) within-study variance at the second level, and (3) between-study variance at the third level. We used the sample as the unit of analysis at the second level, accounting for dependency of effect sizes in the same sample due to multiple timepoints (e.g., concurrent and longitudinal), multiple informants, or different ways of measuring the same construct. Previous meta-analytic methods such as randomly selecting one effect size for each study, averaging multiple effect sizes into one, or ignoring the within-study dependency, have potential short-comings that could bias the results (Cheung & Chan, 2008). By performing three-level meta-analyses, we could control for within-study dependency, without reducing the amount of effect sizes available in the literature. Hence, we were able to obtain maximum use of the available data.

### 2.4.2. Part 2: MASEM

We tested four different mediation models for the four different parenting domains (i.e., parental acceptance model, parental control model, parent-child relationship model, and role diffusion model) using MASEM. By doing so, we could integrate data from studies examining only parts of the models. As model complexity did not allow for using a three-level approach, effect sizes for specific paths of the models from the same sample were aggregated (i.e., one effect size per sample) to account for within-study variance. The correlations were weighted based on sample size. For the MASEM analyses we conducted a two-step approach for each of the models that were tested.

First, a pooled correlation matrix was obtained for each model separately, based on the correlations that were gathered from the different studies. To account for heterogeneity of correlations across studies, we used random effects modeling for pooling the correlation matrices using Maximum Likelihood estimation and diagonal matrices in estimating the variance components (Cheung, 2013). Second, a structural equation model was fitted on these pooled correlation matrices to test for possible indirect effects. Weighted least squares (WLS) estimation was used for this second step of the MASEM analyses (Cheung, 2014; Jak, 2015).

Next, we examined the fit indices of the direct and indirect model, followed by fitting the (saturated) model including both the direct and indirect effects to examine the parameter estimates. Likelihood based 95% confidence intervals (CI's) were calculated to evaluate the significance of the direct and indirect path coefficients (Jak, 2015). The strength of associations within models were compared by examining the potential overlap in 95% CI's of the different paths for positive versus negative parenting behaviors. Next, statistical differences between the strengths of associations were examined by constraining the paths from positive and negative parenting dimensions to child outcomes, and compare the constrained models with the saturated models through performing Likelihood-ratio difference tests. Throughout the analyses, an  $\alpha$ -level of 0.05 was used.

## 3. Results

### 3.1. Descriptive statistics

In total, we were able to obtain and code 2257 correlations, based on 115 samples of  $N = 24,854^2$  divorced families. On average, children were almost 12 years old ( $M = 11.57$ ,  $SD = 3.23$ ), and 52.9% were

<sup>1</sup> Despite our initial interest in academic functioning of children, there were too few correlates between interparental conflict, parenting dimensions, and children's academic functioning after divorce (i.e., 24 correlations of 5 studies). Therefore, we omitted this outcome from our meta-analyses.

**Table 2**

Bivariate correlations between interparental conflict, parenting, and child outcomes for divorced families.

	1. Interp. Conflict	2. Parent Support	3. Parent Hostility	4. Parent Structure	5. Parent Intrusive	6. P-C Quality	7. P-C Conflict	8. Role diffusion	9. Child Intern.	10. Child Extern.	11. Child Social	12. Child Self-Est.
1. Interparental Conflict	–											
2. Parental Support	–0.117*** 75/23	–										
3. Parent Hostility	0.174** 14/4	–0.316* 30/9	–									
4. Parent Structure	0.197*** 31/15	OM	OM	–								
5. Parent Intrusive	0.110*** 13/6	OM	OM	–0.285* 57/6	–							
6. Parent-child Quality	–0.139*** 86/23	OM	OM	OM	OM	–						
7. Parent-child Conflict	0.120* 10/5	OM	OM	OM	OM	–0.349*** 7/2	–					
8. Role Diffusion	0.313*** 19/12	OM	OM	OM	OM	OM	OM	–				
9. Child Internalizing	0.188*** 86/42	–0.139*** 137/31	0.261*** 31/10	–0.183*** 85/18	0.165*** 57/14	–0.167*** 125/32	0.227*** 16/6	0.219*** 42/13	–			
10. Child Externalizing	0.148*** 92/35	–0.175*** 244/31	0.291*** 45/12	–0.258*** 152/22	0.207*** 124/17	–0.246*** 74/20	0.199*** 27/7	0.141*** 54/10	0.388*** 139/38	–		
11. Child Social	–0.120*** 32/16	0.130** 40/12	NA	0.156*** 16/6	–0.271 2/2	0.177* 22/6	–0.144 8/2	0.037 8/3	–0.244** 24/8	–0.253*** 55/13	–	
12. Child Self-esteem	–0.093 16/12	0.253*** 34/13	0.601*** 1/1	0.150* 41/5	–0.256*** 19/5	0.095 25/12	–0.459 4/2	–0.127 5/4	–0.340** 14/8	–0.085 11/5	0.349** 8/5	–

Note. \*\*\* $p < .001$  \*\* $p < .01$  \* $p < .05$ . The first numeral below the correlation value represents the number of correlations that were analyzed, the second numeral is the number of samples the correlations were pulled from. OM = Omitted; NA = Not Available; Interp. Conflict = Interparental Conflict; P-C = Parent-child; Child Intern. = Child Internalizing Problems; Child Ext. = Child Externalizing Problems; Child Social = Child Social Adjustment; Child Self-est. = Child Self-Esteem. The correlation between interparental conflict and parent-child conflict was estimated with a different optimizer (i.e., “optim”) than the other correlations (i.e., “nlminb”), due to convergence problems.

boys. Parents were separated or divorced on average about 4 years ago ( $M = 4.53$  years,  $SD = 3.17$ ). Regarding the parenting dimensions, mostly maternal parenting was assessed (52.8%) as compared to paternal parenting (25.6%). In 21.6% parenting was measured of both mother and father, or this information was unknown.

Most information was based on questionnaires (84.9%), of which 30 to 49% across different constructs (i.e., parental conflict, parenting, and child adjustment) was reported on by children, 11.2 to 21.9% only by mother, 6.7 to 12.8% only by father, and 7.7 to 24.5% by both parents. Other measures included observations (5.8%), or measures such as interviews, vignettes, skill tests, or the combination of multiple types of measures (9.3%). Moreover, 73.5% of the correlations were cross-sectional and 26.5% of the correlations were longitudinal. Of the longitudinal data, the average time between the measures was  $M = 2.66$  years ( $SD = 2.42$ ), ranging from 2 months to 12 years.

### 3.2. Part 1: bivariate meta-analyses

To compute the overall correlations for the different paths of interest, we used separate meta-analyses for each path. The explained variances on the within-study-level had an average of 36.2% and varied between 0% and 96.4% for the different paths. Hence, heterogeneity within studies on average could be classified as low, but ranged from no within-study variance to high within-study variance (Higgins, Thompson, Deeks, & Altman, 2003), justifying our three-level approach. The overall effect sizes, in which we controlled for within-study dependency, are presented in Table 2. Bivariate correlations between interparental conflict and parenting, between interparental conflict and child outcomes, between parenting and child outcomes, and between the different child outcomes are displayed.

As expected, more interparental conflict was related to higher levels

of parental hostility, intrusive parenting, parent-child conflict, and role diffusion, and to lower levels of parental support, parental structuring, and parent-child relationship quality. All effect sizes were small, except for the correlation between interparental conflict and parental role diffusion, which was of moderate effect size (Cohen, 1988). In addition, small overall effect sizes were found for the associations between interparental conflict and children's post-divorce adjustment. That is, higher levels of interparental conflict significantly correlated with more internalizing and externalizing problems, as well as with lower levels of social adjustment and self-esteem. Most parenting dimensions were significantly associated with child adjustment, showing small effect sizes. However, role diffusion and parent-child conflict were not significantly correlated with social adjustment or self-esteem in children. Likewise, parent-child relationship quality and self-esteem, as well as intrusive parenting and social adjustment were not significantly correlated. This may be due to the small number of correlations that were available for these links. The small number of correlations could also explain the counterintuitive positive association between hostility and self-esteem, which was based on a single correlation in a sample of  $N = 17$  Asian fathers.

Contrasting parenting dimensions (i.e., support vs. hostility; positive vs. negative control; and parent-child relationship quality vs. parent-child conflict), were significantly and negatively correlated, showing small to moderate effects. Correlations between the different outcome domains were also significant and of small to moderate size, except for the statistically insignificant correlation between externalizing problems and self-esteem.

### 3.3. Part 2: MASEM

After aggregating correlations for the same associations within studies, correlation matrices were made for every study and for four models separately (i.e., parental acceptance model, parental control model, parent-child relationship model, and role diffusion model). The matrices included several missing correlations because many studies

<sup>2</sup> The number of participants is an approximation, as the number of participants could vary per correlation within the same study.



**Table 3**  
Goodness-of-fit indices for the separate mediation models.

Model	$\chi^2$	N	df	p-value	CFI	RMSEA	95% CI RMSEA
Parental Acceptance	39.83	20,644	2	< 0.001	0.954	0.030	[0.023, 0.039]
Parental Control	51.46	16,115	2	< 0.001	0.924	0.039	[0.030, 0.049]
P-C relationship	33.16	20,202	2	< 0.001	0.960	0.028	[0.020, 0.036]
Parental Role diffusion	28.83	15,691	2	< 0.001	0.949	0.029	[0.020, 0.039]

Note. Although the  $\chi^2$ -value is relatively large and significant for each of the models (i.e., indicating poor model fit), we consider the models to fit the data adequately based on the other fit indices, as the  $\chi^2$ -value and its significance are highly sensitive to sample size (e.g., Vandenberg, 2006).

did not include all the correlations to fill the entire matrix. Too many missing correlations can pose a problem for fitting the structural equation models (Jak, 2015). We therefore restricted our outcome measures to internalizing and externalizing problems and omitted social adjustment and self-esteem in our MASEM analyses, for which there were too many missings.

In the first step of the MASEM analyses, we obtained the pooled correlation matrices for every model using random effects modeling. The Q-statistics were significant for all models and the average percentage of total variance that could be explained by between-study effects was 38.1%, ranging from 0.0 to 92.8% for the different paths within the models. This indicates that random-effects models were indeed preferred over fixed-effects models (Cheung, 2013). If the between-study variance was very small (i.e., often due to a small number of studies), we fixed these variances to be 0 to overcome problems with convergence. In the second step, the pooled correlation matrices based on the random-effects models were used to fit our four SEM-models. The goodness-of-fit indices are displayed in Table 3 and were considered adequate (Jak, 2015; Schermelleh-Engel, Moosbrugger, & Müller, 2003). The parameter estimates for the paths of the saturated models (i.e., both direct and indirect effects) are discussed for each model separately. The direct effects are shown in Fig. 2.

### 3.3.1. Parental acceptance model

All direct effects of the parental acceptance model were significant and in the expected direction. Differences between paths were

**Table 4**

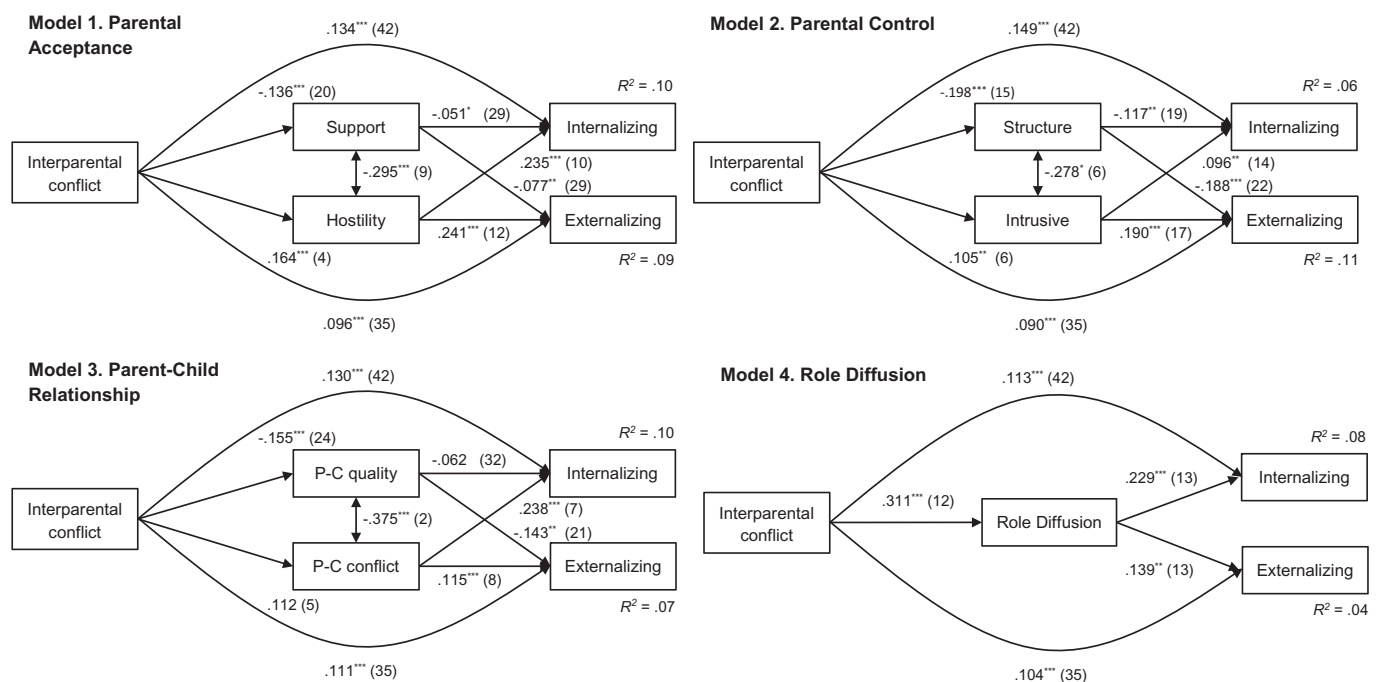
Likelihood-ratio test statistics for the different models.

Model	$\Delta\chi^2$	df	p-value
Parental acceptance			
Constraint A: Support & hostility > Int.	13.57	1	< 0.001
Constraint B: Support & hostility > Ext.	11.24	1	< 0.001
Parental Control			
Constraint A: Structuring & intrusiveness > Int.	0.10	1	0.747
Constraint B: Structuring & intrusiveness > Ext.	0.01	1	0.977
P-C relationship			
Constraint A: P-C quality & P-C conflict > Int.	8.67	1	0.003
Constraint B: P-C quality & P-C conflict > Ext.	0.15	1	0.703

Note. Int. = Internalizing problems; Ext. = Externalizing problems; P-C = Parent-child.

identified, as suggested by the Likelihood-ratio difference tests (as displayed in Table 4) and because there was no overlap between 95% CI's of the paths. More specifically, parental hostility showed stronger associations with child internalizing ( $\beta = 0.235$ , 95% CI [0.165, 0.306]) and externalizing problems ( $\beta = 0.241$ , 95% CI [0.180, 0.301]), when compared to parental support and child internalizing ( $\beta = -0.051$ , 95% CI [-0.089, -0.007]) and externalizing problems ( $\beta = -0.077$ , 95% CI [-0.127, -0.023]).

As for the indirect effects, results indicate that the relation between interparental conflict and internalizing problems was partly mediated



**Fig. 2.** Four mediation models with different parenting behaviors as mediators. Note.  $***p < .001$   $**p < .01$   $*p < .05$ . Correlations between children's internalizing and externalizing problems varied from  $r = 0.321$  to  $0.358$  in the different models. Values between the brackets represent the number of effect sizes that were available for that path after aggregating similar associations from the same sample.

both by parental support ( $\beta = 0.007$ , 95% CI [0.001, 0.013]) and parental hostility ( $\beta = 0.039$ , 95% CI [0.019, 0.063]). For externalizing problems, the effect of interparental conflict was also partly mediated by both parental support ( $\beta = 0.010$ , 95% CI [0.003, 0.020]) and parental hostility ( $\beta = 0.039$ , 95% CI [0.019, 0.064]). When comparing the 95% CI's, parental hostility statistically appeared to be a stronger mediator than parental support for both internalizing and externalizing problems in children.

### 3.3.2. Parental control model

The parameter estimates for the *direct effects* of the parental control model were all significant and in the expected direction. The Likelihood-ratio difference tests showed no significant differences between the impact of parental structuring or intrusive parenting on either internalizing or externalizing problems, which corresponds with the overlapping 95% CI's of the different paths.

Results for the *indirect effects* indicated that the relation between interparental conflict and child internalizing problems was partly mediated by both parental structure ( $\beta = 0.023$ , 95% CI [0.006, 0.041]) and intrusive parenting ( $\beta = 0.010$ , 95% CI [0.002, 0.021]). Similarly, parental structuring ( $\beta = 0.037$ , 95% CI [0.020, 0.056]) and intrusive parenting ( $\beta = 0.020$ , 95% CI [0.006, 0.038]) significantly mediated the relation between interparental conflict and child externalizing problems.

### 3.3.3. Parent-child relationship model

For the parent-child relationship model, most *direct effects* were significant and in the expected direction. However, the association between interparental conflict and parent-child conflict was not significant. In addition, the link between parent-child relationship quality and child internalizing problems was insignificant as well. Based on the Likelihood-ratio difference tests, as well as comparison of the 95% CI's, results showed that parent-child conflict was more strongly related to internalizing problems ( $\beta = 0.238$ , 95% CI [0.170, 0.308]) when compared to parent-child relationship quality ( $\beta = -0.062$ , 95% CI [0.002, -0.123]).

Regarding the *indirect effects*, parent-child conflict did not mediate the association between interparental conflict and internalizing problems ( $\beta = 0.026$ , 95% CI [-0.007, 0.060]) or interparental conflict and externalizing problems ( $\beta = 0.013$ , 95% CI [-0.004, 0.032]). Parent-child relationship quality also did not mediate the relation between interparental conflict and internalizing problems ( $\beta = 0.010$ , 95% CI [-0.000, 0.020]), but it did mediate the relation between interparental conflict and externalizing problems ( $\beta = 0.022$ , 95% CI [0.008, 0.039]).

### 3.3.4. Role diffusion model

Last, all *direct effects* were significant and in the expected direction for the role diffusion model. Additionally, the *indirect effects* indicated that role diffusion significantly mediated the association between interparental conflict and internalizing problems ( $\beta = 0.071$ , 95% CI [0.041, 0.108]), as well as the association between interparental conflict and externalizing problems ( $\beta = 0.043$ , 95% CI [0.020, 0.070]).

## 4. Discussion

The aim of the current meta-analysis was to gain a better understanding of the importance of post-divorce family processes in predicting child adjustment. We examined both direct and indirect associations between interparental conflict, parenting, and child adjustment in divorced families based on combining and synthesizing correlations of previous empirical studies. Guided by family systems theory (Cox & Paley, 1997) and through means of advanced statistical methods (i.e., three-level models and MASEM), we were among the first to examine post-divorce parenting behaviors as potential mediating mechanisms underlying the persistent link between interparental conflict and

children's wellbeing. As we included various positive and negative parenting dimensions, the meta-analysis identified those family processes that are potentially most prominent in explaining child adjustment in divorced families.

### 4.1. Post-divorce interparental conflict, parenting, and child outcomes: direct associations

As was expected based on previous meta-analyses (Amato, 2001; Buehler et al., 1997; Krishnakumar & Buehler, 2000; Teubert & Pinquart, 2010; Whiteside & Becker, 2000), our meta-analytic integration of the direct associations between interparental conflict, parenting, and child adjustment mainly showed small, significant correlations. Specifically, more frequent and intense interparental conflicts were associated with lower levels of parental support, parental structuring, and parent-child relationship quality, and higher levels of parental hostility, intrusive parenting, parent-child conflicts, and role diffusion. In contrast to the overall small effect sizes, the correlation between interparental conflict and parental role diffusion was moderate. This suggests that processes of triangulation, parentification, and parental disclosure are particularly a heightened risk when ex-spouses continue to have frequent and intense conflicts following divorce. This agrees with previous warnings for such family processes by the fields of both research and practice (Afifi et al., 2007; Amato & Afifi, 2006; Fosco & Grych, 2010; Kerig & Swanson, 2010).

In addition to inept parenting, interparental conflict was significantly related to more internalizing and externalizing problems, as well as to lower levels of social adjustment and self-esteem in children after divorce. As for the different parenting dimensions, most were significantly associated with child adjustment domains, again showing small effects. A few of the parenting dimensions (i.e., parent-child relationship quality, parent-child conflict, and role diffusion) did not significantly relate to children's social adjustment or self-esteem, but this was probably due to the small number of available correlations for these specific associations. Additionally, substantial information was lacking for the associations between parental hostility and children's social adjustment and self-esteem, and for the relation between intrusive parenting and social adjustment of children, so based on this meta-analysis we cannot draw conclusions about the strength of these associations.

Since internalizing and externalizing problems can have long-lasting consequences for children (Clark, Rodgers, Caldwell, Power, & Stansfeld, 2007; Najman et al., 2008), it is not surprising that most of the research on post-divorce child adjustment has focused on these two domains. Yet, poor social competence and low self-esteem during childhood and adolescence have been found to predict poor social relationships later in life, but also pose an increased risk for developing psychopathology (Burt, Obradović, Long, & Masten, 2008; Trzesniewski et al., 2006). Therefore, future research in the field of divorce should examine the impact of post-divorce family processes on these important developmental domains more extensively.

### 4.2. Post-divorce interparental conflict, parenting, and child outcomes: indirect associations

Overall, the results of our mediation analyses support the idea that parenting partly explains why interparental conflict between ex-spouses might be detrimental for post-divorce child adjustment. More specifically, lower levels of parental support and parental structuring, as well as increased levels of parental hostility, intrusive parenting, and role diffusion processes mediated the link between interparental conflict and child adjustment. This was true for both internalizing and externalizing symptoms in children. These results are in line with previous work on spillover processes in intact (Buehler et al., 2006; O'Donnell et al., 2010; Siffert et al., 2012), and divorced families (Faubert et al., 1990; Pruett et al., 2003).

In contrast, parent-child relationship quality only mediated the association between interparental conflict and internalizing problems, and parent-child conflict did not act as an mediating mechanism for internalizing nor externalizing problems, as there was no direct effect from interparental conflict to parent-child conflict. This could suggest that interparental conflict predominantly affects the behavior of the involved dyad members and not so much that of other family members. That is, parenting behaviors in which parents are the main actor might be more at risk in the context of frequent and intense conflicts between ex-spouses when compared to dyadic processes within the parent-child system. Another possibility would be that dyadic parent-child processes are most salient and vulnerable for interparental conflict at specific ages, such as during adolescence (Branje, 2018), when the parent-child relationship and its dynamics become more horizontal.

#### 4.3. Positive versus negative parenting and relational processes

The results from the mediation models, in which multiple parenting dimensions were included simultaneously, do offer some support for our hypothesis that negative parenting and relational processes would be more strongly related to post-divorce child adjustment than positive parenting and relational processes. Particularly, hostile parenting related more strongly to internalizing and externalizing problems than parental support, and mediation effects of parental hostility were also more prominent. In addition, parent-child conflicts were more strongly associated with internalizing problems than parent-child relationship quality. Yet, no differences were found between the strength of associations with parental structuring versus intrusive parenting as dimensions of parental control.

These findings suggest that irritability and anger in parents due to the conflicts with their ex-spouse might increase the risk for negative post-divorce parenting (Bolger et al., 1989; Sears et al., 2016), which is associated with child adjustment. These findings are in line with the idea that especially conflictual and dysfunctional family processes are harmful for children (Amato, 2010; Hetherington et al., 1998). Nevertheless, deficits in positive parenting also pose a threat to children's psychological and behavioral functioning after divorce. This supports the idea that interparental conflict would leave parents emotionally drained and therefore less attentive to their children (Emde & Easterbrooks, 1985; Katz & Gottman, 1996; Margolin et al., 2001).

#### 4.4. Alternative explanations for the link between interparental conflict and child adjustment

The finding that post-divorce parenting behaviors only partly mediated the link between interparental conflict and internalizing and externalizing problems in children, and direct association between interparental conflict and post-divorce child adjustment were evident as well, suggests that other processes also explain the association between interparental conflict and child adjustment. In addition to inept parenting, intrapersonal processes within the child, co-parenting quality by ex-spouses, and parental wellbeing might offer further explanations for the persistent link between interparental conflict and child adjustment after divorce.

First, children may be affected by the conflictual behaviors between their parents through intrapersonal processes. In addition to direct emotional (Crockenberg & Langrock, 2001) and physical arousal (Katz, 2001), it has been proposed that chronic parental conflicts affect children's feelings of emotional security, and as such interfere with their effective coping (Davies & Cummings, 1994). Additionally, cognitive appraisals associated with parental conflicts, such as perceived threat and children's feelings of self-blame, could cause stress in children and explain potential difficulties in their adjustment (Fosco & Feinberg, 2015; Grych & Fincham, 1990). Previous research on intact families indeed support these perspectives (Cummings, Schermerhorn, Davies, Goeke-Morey, & Cummings, 2006; Gerard, Buehler, Franck, &

Anderson, 2005), but this has yet to be examined in divorced families.

Second, in the current meta-analysis we focused on parenting behaviors of individual parents, whilst so called coparenting may play an important role as well. Although conflict is often considered as a marker for coparenting quality, the degree to which parents cooperate in parenting and respect and support each other also define coparenting. Positive coparenting has been identified as a protective factor for child adjustment (Lamela, Figueiredo, Bastos, & Feinberg, 2016; Teubert & Pinquart, 2010), but can be compromised by interparental conflict. Hence, future research should examine the plausible role of coparenting quality in the link between interparental conflict and child adjustment following divorce.

Third, the mental health of parents due to conflicts with their ex-partner could also explain the direct link between interparental conflict and child adjustment, as children seem to be affected by the psychological distress of their parents above and beyond parental divorce itself (Størksen et al., 2006). Although parental psychological stress caused by interparental conflict might account for deficiencies in post-divorce parenting (Roustit, Campoy, Chaix, & Chauvin, 2010), as suggested by our results, other processes may be at play as well. For example, parental stress has been related to more stress and self-blame in their children (Ashman, Dawson, Panagiotides, Yamada, & Wilkinson, 2002; Fear et al., 2009). Hence, in addition to examining (single) parenting behaviors in explaining the association between interparental conflict and child adjustment, future research should also focus on children's intrapersonal processes, coparenting quality, and parental psychological distress after divorce.

#### 4.5. Limitations

Although providing relevant information about post-divorce family processes, the findings of this meta-analysis should be considered in light of the following limitations. First, examining potential moderators was beyond the scope of this study. Due to power issues and correlation matrices with missing values, we were unable to assess moderated mediation effects in the current study (Cheung & Hong, 2017). We specifically focused on *how* interparental conflict might relate to child adjustment following divorce, but the question for whom and under what circumstances associations between post-divorce interparental conflict, parenting, and child adjustment are more prominent remains to be examined. In addition to the family factors examined in this meta-analysis, economic factors such as financial struggles, moving houses and/or neighborhoods, and changing schools, are thought to play an important role in the context of divorce as well (e.g., Strohschein, 2012). More (meta-analytical) research is needed on the interplay between familial and economic resources in relation to child adjustment following divorce. Moreover, research on intact families points towards possible gender and age differences in vulnerability to interparental conflict (e.g., Buehler et al., 1997; Davies & Lindsey, 2001; Rhoades, 2008). This is in line with evidence that divorce effects differentiate based on gender, age, and time since the divorce (Amato, 2010; Kalmijn, 2016; Lansford, 2009). However, authors also identify inconsistencies regarding these moderators, emphasizing the urgency of meta-analyzing these aspects. Similarly, due to power issues we did not discriminate between maternal and paternal parenting after divorce as a possible moderator, whilst differences in impact have been reported for fathers' and mothers' parenting behaviors (e.g., Kalmijn, 2010). Future meta-analytic research should examine these possible differences.

Second, we only focused on parents and children that formed a family system before the divorce, yet potential new partners and their children might contribute to family functioning after divorce as well (e.g., Berger & McLanahan, 2015). In Dunn (2002) already stressed the importance of examining the role of different (step)family constellations in contributing to child adjustment after divorce. Likewise, we were unable to include possible effects of pre-marital status, as this was

mostly not reported in articles.

Third, in conceptualizing interparental conflict we included studies that measured frequency as well as intensity of the conflicts, but we did not distinguish other aspects of conflicts such as content, duration, or resolution styles. In a recent meta-analysis, it is advocated to discriminate between six different interparental conflict dimensions, that showed unique associations with child internalizing and externalizing problems (Van Eldik et al., 2019). Although interparental conflict was examined as a unidimensional construct in the present study, we did differentiate between several parenting dimensions, adding to the specificity of our knowledge on the role of post-divorce parenting. On the downside of examining parenting in such detail, some of the between-study variances in the MASEM analyses were small due to the limited number of correlations for a specific path and we should interpret these results somewhat cautiously.

Lastly, some issues regarding the data that were used warrant attention. Despite our efforts to gather as many correlations as possible, we received data of merely 18,6% of the articles of which we needed to contact the authors. Especially from the point of view of researchers conducting a meta-analysis, this calls for more open science practices that allow data to be more accessible and for longer periods of time in the future. In addition, most of our results were based on concurrent instead of longitudinal data. Since our mediation models suggest a temporal sequence, these effects should be interpreted with caution as we cannot rule out bidirectional effects and it is not certain that post-divorce parenting leads to changes in child adjustment. Hence, we should be careful with drawing causal conclusions solely based on this study. This also emphasizes the need for more longitudinal studies on post-divorce family processes.

#### 4.6. Conclusions and practical implications

In conclusion, our work on post-divorce family processes can be considered a steppingstone for future research and practice. First, although the mechanisms linking interparental conflict with parenting and child adjustment might not be unique to divorced families, our findings suggest that both interparental conflict and parenting are important family processes to consider when post-divorce child adjustment is of interest. The impact of conflictual behavior of ex-spouses on the wellbeing of children was partly explained by the quality of post-divorce parenting. This emphasizes that even though the family system changes considerably when parents get divorced or separate, spillover processes from the parental system into the parent-child system and eventually into the child system still seem to be at work. Second, our findings suggest that higher levels of negative parenting after divorce might have a bigger impact on healthy child adjustment when compared to deficiencies in positive parenting, hinting towards the notion that bad is indeed stronger than good (Baumeister et al., 2001). Nevertheless, deficits in positive parenting behaviors also threaten children's psychological and behavioral adjustment in divorced families. Third, processes in which children are involved in their parents' disputes (triangulation) or put in an adult role (parentification), either practically or emotionally, are specifically of concern when ex-spouses continue to have frequent and intense conflicts (Afifi et al., 2007; Amato & Afifi, 2006; Fosco & Grych, 2010; Kerig & Swanson, 2010). These conclusions could benefit practitioners with divorced families as well as divorced parents themselves.

Despite the fact that most of our findings showed small effects, it seems only logical that practitioners and divorcing parents should be educated on the interdependency of family processes within the different subsystems, the diverse patterns for negative and positive parenting, as well as the unique association between interparental conflict and role diffusion following divorce. Currently, many parent-based interventions aimed at divorced families seem to focus on just one particular subsystem within the family, either the parental system or the parent-child system. Both types of parenting programs seem effective in

their aims to either reduce interparental conflict (e.g., divorce mediation; McIntosh, Wells, Smyth, & Long, 2008), or to increase post-divorce parenting quality (e.g., New Beginnings Program; Sandler et al., 2018; Wolchik et al., 2013; Family Transitions Triple P; Stallman & Sanders, 2014). Although psychoeducation programs (e.g., EgoKitz; Martínez-Pampliega et al., 2015) often educate on post-divorce conflict and parenting, there seem to be no evidence-based intervention programs that specifically target to change both aspects in divorced families. The findings of this meta-analysis suggest that (preventive) intervention programs may particularly benefit from combining the aspects of preventing and reducing conflicts between ex-spouses, in addition to improving their post-divorce parenting behaviors more explicitly.

#### Contributors

R. van Dijk, I.E. van der Valk, M. Deković, and S. Branje were involved in formulating the research questions and designing the study. R. van Dijk conducted literature searches, selected eligible studies, contacted authors for (additional) information, coded the studies, and conducted the statistical analysis. All steps were undertaken with the input of all authors. Rianne van Dijk wrote the first draft of the manuscript and all authors contributed to and have approved the final manuscript.

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#### Declaration of Competing Interest

There are no conflicts of interest by any of the authors.

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#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.cpr.2020.101861>.

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**Update**

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## Corrigendum



# Corrigendum to “A meta-analysis on interparental conflict, parenting, and child adjustment in divorced families: Examining mediation using meta-analytic structural equation models” [Clinical Psychology Review 79 (2020) 101861]

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The authors regret that the published version of the above article (van Dijk et al., 2020) contained some minor errors in the Results section due to an error in aggregating the correlations of the same study samples for the meta-analytic structural equation models (MASEM). The error mostly concerned very small rounding differences in the third number after the decimal for some of the fit indices, path estimations, and confidence intervals (i.e., in Tables 3 and 4, Fig. 2, and Sections 3.3.1 and 3.3.3). These numbers have been adjusted in the corrected document stored at [https://www.researchgate.net/publication/341207943\\_A\\_meta-analysis\\_on\\_interparental\\_conflict\\_parenting\\_and\\_child\\_adjustment\\_in\\_divorced\\_families\\_Examining\\_mediation\\_using\\_meta-analytic\\_structural\\_equation\\_models](https://www.researchgate.net/publication/341207943_A_meta-analysis_on_interparental_conflict_parenting_and_child_adjustment_in_divorced_families_Examining_mediation_using_meta-analytic_structural_equation_models)

All previously stated conclusions still held, with one exception: For the indirect effect of parent-child relationship quality we reported no significant mediation with a confidence interval just containing zero [95% CI −0.0004, 0.020], but after rectification the interval did not contain zero anymore [95% CI 0.003, 0.022] and, hence, was statistically significant. Therefore, the following corrections need to be made to the texts referring to the mediating role of parent-child relationship quality:

1. In the abstract, the statement: “Second, parental support, hostility, structuring, intrusiveness, and role diffusion indeed served as mediating mechanisms underlying the persistent link between interparental conflict and children’s internalizing and externalizing problems. This was not true for dyadic parent-child processes.” should be replaced with: “Second, parental support, hostility, structuring, intrusiveness, parent-child relationship quality, and role diffusion indeed served as mediating mechanisms underlying the persistent link between interparental conflict and children’s internalizing and externalizing problems. This was not true for parent-child conflict.”

2. In Section 3.3.3, the statement: “Parent-child relationship quality also did not mediate the relation between interparental conflict and internalizing problems ( $\beta = 0.010$ , 95% CI [−0.000, 0.020]), but it did mediate the relation between interparental conflict and externalizing problems ( $\beta = 0.022$ , 95% CI [0.008, 0.039]).” should read: “..., whereas parent-child relationship quality mediated the relation both between interparental conflict and internalizing problems ( $\beta = 0.012$ , 95% CI [0.003, 0.022]), and between interparental conflict and externalizing problems ( $\beta = 0.022$ , 95% CI [0.008, 0.039]).”
3. Also in Section 3.3.3, the statement: “In addition, the link between parent-child relationship quality and child internalizing problems was insignificant as well.” should be deleted.
4. In Section 4.2, the statement: “More specifically, lower levels of parental support and parental structuring, as well as increased levels of parental hostility, intrusive parenting, and role diffusion processes mediated the link between interparental conflict and child adjustment.” should be replaced with: “More specifically, lower levels of parental support, parental structuring, and parent-child relationship quality as well as increased levels of parental hostility, intrusive parenting, and role diffusion processes, mediated the link between interparental conflict and child adjustment.”
5. Also in Section 4.2, the statement: “In contrast, parent-child relationship quality only mediated the association between interparental conflict and internalizing problems, and parent-child conflict did not act as an mediating mechanism for internalizing nor externalizing problems, as there was no direct effect from interparental conflict to parent-child conflict.” should be replaced with: “In contrast, parent-child conflict did not act as an mediating mechanism for internalizing nor externalizing problems, as there was no direct effect from interparental conflict to parent-child conflict.”
6. The slightly changed values in some of the textual results, Tables, and Figures, are depicted below.

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In Section 3.3.1, the numbers should be: “More specifically, parental hostility showed stronger associations with child internalizing ( $\beta = 0.235$ , 95% CI [0.164, 0.306]) and externalizing problems ( $\beta = 0.241$ , 95% CI [0.180, 0.302]), when compared to parental support and child internalizing ( $\beta = -0.051$ , 95% CI [-0.091, -0.011]) and externalizing problems ( $\beta = -0.074$ , 95% CI [-0.125, -0.024]). As for the indirect effects, results indicate that the relation between interparental conflict and internalizing problems was partly mediated both by parental support ( $\beta = 0.007$ , 95% CI [0.001, 0.012]) and parental hostility ( $\beta = 0.038$ , 95% CI [0.018, 0.063]). For externalizing problems, the effect of interparental conflict was also partly mediated by both parental support

( $\beta = 0.010$ , 95% CI [0.003, 0.018]) and parental hostility ( $\beta = 0.039$ , 95% CI [0.019, 0.064]).”

In Section 3.3.3, the numbers should be: “Based on the Likelihood-ratio difference tests, as well as comparison of the 95% CI's, results showed that parent-child conflict was more strongly related to internalizing problems ( $\beta = 0.231$ , 95% CI [0.162, 0.300]) when compared to parent-child relationship quality ( $\beta = -0.078$ , 95% CI [-0.135, -0.021]).” And: “... whereas parent-child relationship quality mediated the relation both between interparental conflict and internalizing problems ( $\beta = 0.012$ , 95% CI [0.003, 0.022]), ...”.

**Table 3**

Goodness-of-fit indices for the separate mediation models.

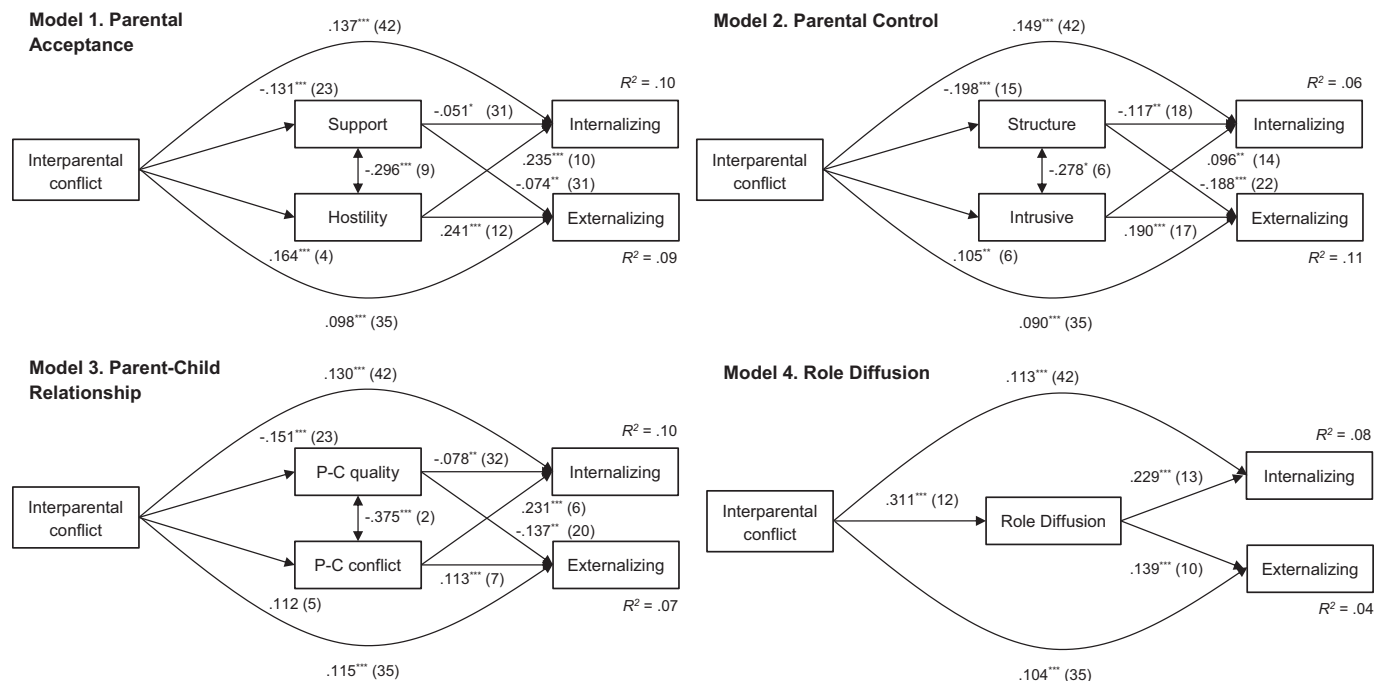
	$\chi^2$	N	df	p-value	CFI	RMSEA	95% CI for RMSEA
Model							
Acceptance	42.13	20,644	2	<0.001	0.953	0.031	[0.023, 0.040]
Control	51.47	16,115	2	<0.001	0.924	0.039	[0.030, 0.049]
P-C relationship	33.52	20,202	2	<0.001	0.959	0.028	[0.020, 0.037]
Role diffusion	28.82	15,691	2	<0.001	0.949	0.029	[0.020, 0.039]

Note. Although the  $\chi^2$ -value is relatively large and significant for each of the models (i.e., indicating poor model fit), we consider the models to fit the data adequately based on the other fit indices, as the  $\chi^2$ -value and its significance are highly sensitive to sample size (e.g., Vandenberg, 2006).

**Table 4**

Likelihood-ratio test statistics for the different models.

Model	$\Delta\chi^2$	$\Delta df$	p-value
Acceptance			
Constraint A: Support & hostility > Int.	13.56	1	<0.001
Constraint B: Support & hostility > Ext.	11.79	1	<0.001
Control			
Constraint A: Structuring & intrusiveness > Int.	0.10	1	0.747
Constraint B: Structuring & intrusiveness > Ext.	0.01	1	0.977
P-C relationship model			
Constraint A: P-C quality & P-C conflict > Int.	6.53	1	0.011
Constraint B: P-C quality & P-C conflict > Ext.	0.10	1	0.747

**Fig. 2.** Four mediation models with different parenting behaviors as mediators.

Notes. \*\*\* $p < .001$  \*\* $p < .01$  \* $p < .05$ . Correlations between children's internalizing and externalizing problems varied from  $r = 0.318$  to  $0.358$  in the different models. Values between the brackets represent the number of effect sizes that were available for that path after aggregating similar associations from the same sample.