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A harsh parenting team? Maternal reports of coparenting and coercive parenting interact in association with children's disruptive behaviour.

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(Words = 6,060)

Background: Parenting and coparenting are both important for children’s adjustment, but their interaction has been little explored. Using a longitudinal design and considering two children per family, we investigated mothers’ and fathers’ perceptions of coparenting as moderators of associations between their coercive parenting and children’s disruptive behaviour. **Methods:** Mothers and fathers from 106 ‘intact’ families were included from the Twins, Family and Behaviour study (TFaB). At Time 1 ($M_{\text{child age}}=3$ years 11 months, $SD_{\text{child age}}=4.44$ months) parents reported on their coercive parenting and children’s disruptive behaviour via questionnaire; at Time 2 ($M_{\text{child age}}=4$ years 8 months, $SD_{\text{child age}}=4.44$ months) perceptions of coparenting and the marital relationship were collected by telephone interview. Questionnaire-based reports of children’s disruptive behaviour were collected at follow-up ($M_{\text{child age}}=5$ years 11 months, $SD_{\text{child age}}=5.52$ months). Multilevel modelling was used to examine child-specific and family-wide effects. **Results:** Conservative multilevel models including both maternal and paternal perceptions demonstrated that maternal perceptions of coparenting and overall coercive parenting interacted in their prediction of parent-reported child disruptive behaviour. Specifically, accounting for perceived marital quality, behavioural stability, and fathers’ perceptions, only in the context of perceived higher quality coparenting was there a positive association between mother-reported overall coercive parenting and children’s disruptive behaviour at follow-up. **Conclusions:** When combined with highly coercive parenting, maternal perceptions of high quality coparenting may be detrimental for children’s adjustment. **Keywords:** Coercive parenting, coparenting, disruptive behaviour, moderation.

Children's disruptive behaviour confers substantial long-term psychosocial risk to the individual as well as potential societal burden, with notable emphasis on preschool onset (see review, Costello & Maughan, 2015). As such, it is vital to understand family processes implicated in the development of these problems. The role of parents has received considerable attention in this regard; in particular, harsh, coercive parenting—a negative discipline strategy characterised by smacking, shouting and scolding—has been consistently associated with increased disruptive behaviour (Gershoff, 2002; Oliver, 2015; Patterson, 1982; Wiggins, Mitchell, Hyde, & Monk, 2015). However, family systems theory conceptualises the family as an organised whole made up of interconnected, interdependent subsystems (Minuchin, 1988) emphasising the importance of the broader family context. Accordingly, the inter-parental (hereon referred to as 'marital') relationship has been a common research focus (e.g., Amato & Keith, 1991; Davies & Cummings, 1994), including in the preschool years (Stover et al., 2016). However, increasingly attention has turned to coparenting.

Coparenting and Children's Adjustment

Coparenting describes the way in which adults work together in their role as parents (Feinberg, 2002). Termed the 'executive subsystem', coparenting is conceptualised as comprising multiple constructs including support, undermining, closeness, conflict, division of labour, child-rearing agreement, and parenting endorsement. These constructs are important individually but may also be considered together as a global measure of coparenting quality (Feinberg, 2003). Thus, high quality coparenting may be evidenced by, for example, expressions of warmth during interactions with the child, shared child-rearing values and actions that support and extend a coparent's parenting efforts. In contrast, lower quality coparenting may involve criticism, or actions that thwart or undermine their parenting

attempts (Van Egeren & Hawkins, 2004). Conceptually, coparenting is considered distinct from both the marital relationship and from parenting *per se*—although related to both. Moreover, because of its greater proximity to the child, coparenting is seen as likely to be more closely associated with children’s development than the marital relationship (Feinberg, 2002).

Researchers commonly consider coparenting in child infancy, viewing the transition to parenthood as a key period. However, the developmental changes characteristic of early childhood—not least the child’s increasing autonomy—bring new challenges for the coparenting team, to which it must adapt and respond (McHale & Irace, 2011). As well as these child influences on coparenting, consistent evidence suggests that coparenting influences children’s adjustment. For example, positive, supportive coparenting has been linked with fewer internalising and externalising behaviour problems in toddlers (Kolak & Vernon-Feagans, 2008), fewer aggressive interactions enacted during pre-schoolers’ doll play (McHale, Johnson, & Sinclair, 1999) and better social skills at age 4 years (Cabrera, Scott, Fagan, Steward-Streng, & Chien, 2012). Conversely, undermining and less supportive coparenting has been associated with decreased inhibition in 3-year-olds (Belsky, Putnam, & Crnic, 1996), and with externalising behaviour problems in preschool children (Schoppe, Mangelsdorf, & Frosch, 2001). Importantly, associations have been demonstrated over and above parenting and marital quality (see review, Teubert & Pinquart, 2010).

Interactive Processes

In line with family systems theory (Minuchin, 1988), the marital relationship and parenting have been considered as interactive processes for child outcomes (e.g., DeBoard-Lucas, Fosco, Raynor, & Grych, 2010), but coparenting has been relatively neglected. Yet, for two-parent families, individual parenting frequently takes place in front of the other

parent (Cox & Paley, 1997) such that parenting may be better understood in the light of its coparenting context.

To our knowledge, only three published studies have examined the interaction between parenting and coparenting in relation to children's adjustment. For example, Stright and Neitzel (2003) demonstrated a buffering role for observed supportive coparenting on the relationship between observed parent rejection of children's problem-solving efforts and subsequent observations and teacher-ratings of classroom adjustment. Compared to children in families where coparenting was observed to be less supportive, in the context of supportive coparenting, children had better classroom adjustment even when parents were critical of their efforts. Similarly, Scrimgeour, Blandon, Stifter, and Buss (2013) reported a 'protective-stabilising' effect of highly cooperative coparenting for preschool children's prosocial behaviour, finding observations of coparenting to buffer the effects of mother-reported low use of inductive reasoning. Finally, in toddlers, Kwon, Jeon, and Elicker (2013) explored associations between maternal and paternal perceptions of coparenting, observed parental guidance and maternal-reports of social-emotional competencies, but found no interaction.

Emerging research, then, suggests that considering parenting within its coparenting context may be important for child adjustment, but findings are mixed and the constructs examined rather narrow, warranting further research. Specifically, relatively little attention has been given to the perceptions of mothers' and fathers' within a family. Historically, there has been some resistance to using parents' reports in family research (e.g., Holden & Edwards, 1989), however, evidence suggests that they may be critical for understanding family processes (e.g., Acitelli, Douvan, & Veroff, 1993; Montoya, Horton, & Kirchner, 2008). Moreover, given the plethora of research on its deleterious role for child adjustment, coercive parenting is a prime candidate for examining in the coparenting context, but remains unstudied.

Current Study

We aimed to examine potential interactive effects of coparenting and coercive parenting on children's disruptive behaviour, seeking to extend the existing literature in three main ways. First, we examined *changes* in children's disruptive behaviour during the transition to school. Early-onset disruptive behaviour is of particular importance for long-term outcomes (Costello & Maughan, 2015). Moreover, school transition is an important period for children's socio-emotional development, during which family influences may be particularly salient (e.g., Olson, Sameroff, Lunkenheimer, & Kerr, 2009; Sher-Censor, Khafi, & Yates, 2016). Second, we investigated both mothers' and fathers' perceptions of coparenting and coercive parenting together. Third, research examining associations between coparenting and children's adjustment—like family research more generally—has typically relied on one child per family; using multilevel modelling (MLM), we considered twin pairs. For the first time, we capitalise on a twin sample to examine child-specific and shared coparenting and parenting effects, as well as their interaction, while naturally controlling for sibling age differences. Twin families represent an important, yet understudied, population for coparenting, since parents report experiencing more parenting stress (Olivennes, Golombok, Ramogida, Rust, & Team, 2005). In line with the—albeit scant—previous research, we anticipated higher quality coparenting to buffer children from coercive parenting, evidenced by lower levels of disruptive behaviour at follow-up.

Method

Sample & Procedure

The Twins, Family and Behaviour (TFaB) study involves families with twins born in England and Wales in 2009-2010 (see AUTHOR CITATION). We included a subsample of

106 ‘intact’, cohabiting families (91.5% married) where both parents were active participants (212 children, 49.5% female; 44 monozygotic and 58 dizygotic twin pairs, 4 pairs zygosity unclassified). Twin zygosity was determined using maternal reports shown to be 95+% accurate when compared to DNA testing (Price et al., 2000). The subsample was well-educated (70.59% of mothers and 61.96% of fathers had an undergraduate degree or higher qualification), and the majority were in part- or full-time employment (93.48% fathers, 77.67% mothers). Families categorised their total household income, endorsing the full range (<£5,000 to >£100,000; “average” category endorsed was £40,000-£49,999, comparable to the UK average of £46,500 (UK Census, 2011)).

Data were used from postal questionnaire (Time 1: $M_{\text{child age}}=3$ years 11 months, $SD_{\text{child age}}=4.44$ months); 40-minute telephone interview (Time 2: $M_{\text{child age}}=4$ years 8 months, $SD_{\text{child age}}=4.44$ months) and follow-up questionnaire (Time 3: $M_{\text{child age}}=5$ years 11 months, $SD_{\text{child age}}=5.52$ months). Informed consent was provided at each study phase. The project was approved by NHS Health Research Authority, National Research Ethics Service committee and the University of Sussex Science & Technology Cross-schools Research Ethics Committee.

Measures

Child disruptive behaviour (Time 1; Time 3) was measured using the Intensity scale of the 36-item Eyberg Child Behaviour Inventory (ECBI; Eyberg & Pincus, 1999). Example items include, ‘acts defiant when asked to do something’ and ‘destroys toys and other objects’. For each child, mothers and fathers reported the frequency of each behaviour on a 7-point scale (‘never’ (coded 1) to ‘always’ (7)) (mothers $\alpha=.89/.94$; fathers $\alpha=.91/.94$). Items were summed for each parent (maternal/paternal $r_{\text{Time 1}}=.48$; $r_{\text{Time 3}}=.57$), and these scores

combined to yield mean ECBI scores at Time 1 and Time 3. The ECBI has demonstrated high reliability and validity across age and SES (Eyberg, Colvin, & Adams, 1999).

Coercive parenting (Time 1) was assessed using the subscale from the Parenting and Family Adjustment Scale (PAFAS; Sanders, Morawska, Haslam, Filus, & Fletcher, 2014), comprising five items (e.g., ‘I shout or get angry with him/her when s/he misbehaves’, and ‘I smack him/her when s/he misbehaves’). Items were rated on a 4-point scale (‘not at all’ (0) to ‘very much/most of the time’ (3)), and summed such that higher total scores indicated more coercive parenting (mothers $\alpha=.71/.72$; fathers $\alpha=.56/.60$). The PAFAS has been validated in a normative sample (Sanders et al., 2014; see *Discussion*).

Family-wide variables were calculated as family averages (across the twins) for maternal and paternal coercive parenting, and child-specific variables created as discrepancies from this average, capturing the amount and direction of differential treatment (Jenkins et al., 2009). For example, in a family where the coercive parenting score is 2 for TwinA and 3 for TwinB, family-wide (‘overall’) coercive parenting would be $(2+3)/2=2.5$ for both children; child-specific (‘differential’) coercive parenting would be $2-2.5=-0.5$ for TwinA, and $3-2.5=0.5$ for TwinB.

Marital quality (Time 2) perceptions were assessed for mothers and fathers using the six-item Quality Marriage Index (Norton, 1983). Items include ‘My relationship with my partner makes me happy’ and ‘My relationship with my partner is very stable’. Responses were given on a 7-point scale (‘disagree strongly’ (1) to ‘agree strongly’ (7)); the final item, ‘Please rate the degree of happiness, everything considered, in your relationship’, used a 10-point scale (1=low-10=high). A higher score indicated higher perceived marital quality (mothers $\alpha=.94$; fathers $\alpha=.89$). This measure has excellent convergent and discriminant validity (Heyman, Sayers, & Bellack, 1994).

Coparenting. Mothers' and fathers' perceptions of coparenting were assessed (Time 2) using a short-form of the Coparenting Relationship Scale. This 14-item Brief Measure of Coparenting (Feinberg, Brown, & Kan, 2012) includes items such as, 'My partner undermines my parenting', and 'My partner and I have different ideas about how to raise [child]', which encompass seven core coparenting constructs (support, undermining, conflict, agreement, closeness, endorsement and division of labour). Responses were given on a 7-point scale ('disagree strongly' (1) to 'agree strongly' (7)). Negative items were reversed, and responses averaged such that a higher score reflected perceptions of higher quality coparenting (mothers $\alpha=.75$; fathers $\alpha=.63$). The Brief Measure of Coparenting has shown good internal reliability, construct and convergent validity (Feinberg et al., 2012).

Missing Data & Statistical Power

At Time 1 and Time 2, never more than 15% (range 2.8% (mothers' coercive parenting, Time 1) - 14.15% (fathers' ECBI, Time 1) missing data were observed. At Time 3, 21.7% of mothers' and 27.4% of fathers' ECBI data were missing. Data were not Missing Completely At Random (Little, 1988) ($\chi^2(156)=211.06, p=.002$). Thus, multilevel multiple imputation was implemented in MPlus, allowing imputation of variables at all levels (Muthén & Muthén, 2012). Fifty datasets were imputed and MLM fitted to the pooled data (Graham, Olchowski, & Gilreath, 2007). For MLM, the sample size at the highest level most strongly influences statistical power (Snijders, 2005). In two-level models, simulation studies have indicated that a sample greater than 50 at the highest level (here, families) provides reliable estimates of coefficients, variances and standard errors (Maas & Hox, 2005).

Analytic Strategy

We used MLM to account for the nested, non-independent nature of our data, and to

enable the simultaneous examination of family-wide factors (contributing to sibling similarity in disruptive behaviour and their differentiation from children in other families), and child-specific factors (contributing to sibling differences). Note that child-specific predictors may explain both within- and between-family variance, whereas family-wide predictors can account only for between-family variance. MLM yields fixed effects much like traditional regression coefficients, and random effects, which refer to the estimates of within- and between-family level variance once predictor variables are accounted for. The use of MLM for family data is detailed elsewhere (Jenkins et al., 2009).

A series of models included both maternal and paternal predictors at different levels (and their interactions) to examine their contribution to variance in child disruptive behaviour. Model 1 estimated within- and between-family variance in children's disruptive behaviour; the intraclass correlation (ICC), calculated as the between-family variance divided by the total variance, indicated the degree of sibling behavioural similarity. Model 2 indexed behavioural stability from Time 1 to Time 3. Model 3 controlled for this stability and perceptions of marital quality, as well as adding coparenting, and child-specific and family-wide coercive parenting predictors. Finally, Model 4 added child-specific (overall coercive parenting*differential coercive parenting, and coparenting*differential coercive parenting) and family-wide (coparenting*overall coercive parenting) interaction terms.

MPlus v.6 (Muthén & Muthén, 2012), was used with Full Maximum Likelihood estimation, chosen over Restricted Likelihood, to examine regression coefficients and variance components at the same time (Bickel, 2007). All variables were residualised standardised scores (controlling for child age and sex).

Results

Preliminary Analyses

Table 1 presents descriptive statistics for all study variables.

---TABLE 1---

Paired-samples *t*-tests revealed no significant mean level differences between twins in a pair. Correlations (Table 2) showed stability in child disruptive behaviour over time, as well as positive associations between coercive parenting and disruptive behaviour. Coercive parenting was not associated with marital quality or coparenting. Correlations between marital quality and coparenting were large for both mothers and fathers, suggesting higher marital quality related to perceptions of higher quality coparenting. Marital quality and mother-reported coparenting did not correlate with child disruptive behaviour, although higher quality father-reported coparenting modestly related to lower levels of child disruptive behaviour at Time 1.

---TABLE 2---

Multilevel Modelling (MLM)

Table 3 presents our MLM results.

---TABLE 3---

Model 1 estimated within- and between-family variance in child disruptive behaviour at Time 3. The ICC, calculated as $0.74/(0.74+0.13)=0.85$, suggested considerable twin similarity indicating that 85% of the variance in disruptive behaviour resided at the between-family level. Model 2 evidenced substantial behavioural stability over time ($\Delta-2LL=114.86$, $df=1$, $p < .005$), explaining 68.92% $((0.74-0.23)/0.74)$ of the between-family variance and 7.69% $((0.13-0.12)/0.13)$ of the within-family variance. Model 3 added child-specific (maternal and paternal differential coercive parenting) and between-family (maternal and paternal

perceptions of marital quality, coercive parenting, and coparenting) predictors, significantly improving model fit ($\Delta-2LL=21.80$, $df=8$, $p<.010$) and explaining an additional 4.05% $((0.23-0.20)/0.74)$ of the between- and 7.69% $((0.12-0.11)/0.13)$ of the within-family variances. However, accounting for behavioural stability, no predictors were found to be significant. In Model 4, significant prediction of behaviour change was demonstrated from the between-family level interaction term, maternal coparenting*overall coercive parenting. Comparing Model 4 with Model 3 shows a significant improvement to the fit of the model ($\Delta-2LL=20.70$, $df=6$, $p<.005$), with an additional 1.35% $(0.20-0.19)/0.74)$ of the between- and 7.69% $((0.11-0.10)/0.13)$ of the within-family variance explained.

---FIGURE 1---

In order to interpret and illustrate the interaction, for simplicity we plotted simple slopes (Figure 1). The slope representing high maternal coparenting quality suggested a positive association ($\beta=0.29$, $t=2.72$, $p=.008$) between family-wide maternal coercive parenting and child disruptive behaviour at follow-up. There was no such association when mothers reported coparenting quality to be average ($\beta =0.14$, $t=1.83$, $p=.071$) or low ($\beta=-0.02$, $t=-0.23$, $p=.820$). We interpret these findings to suggest, contrary to expectation, that maternal perceptions of higher quality coparenting exacerbated the deleterious effects of her overall coercive parenting.

Discussion

The current study examined the interaction between coparenting and coercive parenting in the longitudinal prediction of children's disruptive behaviour. In a UK sample of twins, we used conservative multilevel models to illuminate maternal and paternal child-specific and family-wide predictors.

As expected, during the transition to school we found considerable stability in combined maternal-/paternal-reported child disruptive behaviour (Olson et al., 2009), with the majority of variance residing between families, indicating substantial twin similarity. The main effects for family-wide and child-specific predictors were not significant, however a significant interaction was found for maternal perceptions of coparenting and her overall coercive parenting. We discuss our results, before noting study limitations and future directions.

Coparenting and coercive parenting: Interacting processes

The direction of the interaction we illuminated was striking, and not anticipated. Although a scarce literature, two previous studies (Stright & Neitzel, 2003; Scrimgeour et al., 2013) led us to expect that high quality coparenting would buffer children from coercive parenting in terms of their behavioural outcomes. Instead, we found that mothers' perceptions of high quality coparenting exacerbated the association between her coercive parenting and the development of disruptive behaviour.

We argue that coercive mothers' perceptions of high quality coparenting—that is, having a partner who supports their parenting, makes them feel like a good parent and shares the same child-rearing values—may reflect a tacit family climate in which hostile interpersonal interactions are deemed acceptable. By explicitly—or implicitly—reinforcing, supporting or endorsing his coercive coparent, the father models tolerance of this interpersonal aggression. Moreover, in this climate, repetitive cycles of aversive parent-child interaction may be more likely, contributing to the development of disruptive behaviours (Patterson, 1982). In these ways, perceived 'higher quality' coparenting in the context of maternal coercion may be indicative of a cohesive 'harsh parenting team', the deleterious effects of which for child adjustment are greater than the sum of their parts. In contrast, where the mother reports low quality coparenting, the father may not support her coercive behaviours, indeed he may

explicitly act in a way she perceives to be undermining (e.g., telling her to stop).

Accordingly, this context may provide a buffer for child adjustment, since acceptance of coercive behaviours is not modelled, and may even be highlighted by the father as inappropriate. These interpretations emphasise the importance of the support, endorsement and undermining aspects of coparenting. Beyond the scope of this study using a brief measure of global coparenting quality, we encourage future research to explore interactions between coercive parenting and coparenting subscales to illuminate those most relevant.

Although the current findings are retrospectively intuitive, they were not as we hypothesised on the basis of prior research (Stright & Neitzel, 2003; Scrimgeour et al., 2013). We highlight two primary differences between this work and our own that may be responsible for the distinctive direction of effects we find.

First, both prior studies used independent observations of coparenting. Observation methods are commonly considered the ‘gold-standard’ for family research (Rasbash, Jenkins, O’Connor, Tackett, & Reiss, 2011), whereas the validity of parent report methods has been questioned (Holden & Edwards, 1989). However, for coparenting, these observations assess only visible behaviours, manifested when all relevant family members are present, thus potentially failing to capture aspects of coparenting that may be less explicit, or only exhibited in the absence of the coparent (McHale, Kuersten-Hogan, Lauretti, & Rasmussen, 2000). In contrast, parent-reports of coparenting provide a measure of coparenting across contexts, which may be critical (Blandon, Scrimgeour, Stifter, & Buss, 2014). Further, we posit that coparent support, approval and appreciation of parenting efforts as perceived will likely provide stronger endorsement of one’s parenting than objective ratings can assess. These suppositions are supported by literatures demonstrating a role for perceptions over objective ratings (e.g., Acitelli et al., 1993).

Second, the previous studies examined aspects of parenting—rejection of problem-solving and inductive reasoning—that are distinct from ours. We are the first to investigate the interactive effects of coparenting and coercive parenting, one of the most prominent parenting constructs for children’s adjustment. Of interest, occurring at the family-wide level in our sample, the interaction contributed to sibling behavioural similarity, differentiating them from children in other families. This implies that, even accounting for child-specific parental treatment, mothers’ overall coercive parenting may have broad detrimental effects that are shared by siblings in the family when the coparenting quality is high. In other words, the potential for shared beneficial effects of high quality coparenting for child disruptive behaviour may depend on the overall quality of parenting itself. These findings are reminiscent of those indicating that the beneficial effects of father involvement for child conduct problems are dependent on the quality of parental care (Jaffee, Moffitt, Caspi, & Taylor, 2003).

One important question is why paternal factors were not significant predictors of child disruptive behaviour. Our conservative model includes both parents examining the effect of paternal predictors over and above those of the mother. Although the role of the father is changing (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000), even in two-parent families, fathers typically spend less time with their children compared to mothers (Craig & Powell, 2012; Lamb, 2004). Thus, our findings may reflect the greater salience of mothers’ coercive parenting (compared to fathers’) for children’s adjustment (Besnard et al., 2013; Rothbaum & Weisz, 1994).

The current study capitalised on a twin sample to explore family-wide and child-specific effects of coparenting and coercive parenting. Although twins and singleton children have broadly comparable levels of disruptive behaviour (Moilanen et al., 1999; van den Oord, Koot, Boomsma, Verhulst, & Orlebeke, 1995), there has been no research comparing

coparenting in twin and non-twin families. It is possible that coparenting, and its interaction with parenting, may be different—perhaps particularly important—in twin-families given their experience of greater parenting stress (Olivennes et al., 2005). This interesting question warrants future research.

The current study has a number of strengths, including its longitudinal nature and the inclusion of both parents. However, our internal consistencies (particularly for father-reports) of coercive parenting are a little low. While this scale is adequate for the current hypothesis-driven analysis, similar limitations have been noted elsewhere (Sanders et al., 2014), such that research to augment and replicate our novel work is recommended. Additionally, we were interested in coparenting within families headed by a mother and father; as such, caution is warranted in generalising to other family types, including to families of non-twins. We encourage colleagues to seek replication of our study with more detailed measures, within samples of socio-economic diversity, across family types, and in non-twin and twin-sibling samples.

Conclusion

Utilising a novel sample and methodology, the current study makes an important contribution to understanding children’s disruptive behaviour, in addition to the so-far limited research exploring parenting and coparenting subsystems in the prediction of children’s adjustment. Specifically, for the first time, we highlight that the influence of high quality coparenting, previously assumed to be only beneficial, may be rather more complex. With replication and extension, our results are likely to have key implications for interventions focused on coparenting as a means to improve child adjustment, which have caught the eye of policy makers in recent years (Asmussen & Weizel, 2010), suggesting that they would be well-advised to consider parenting strategies concurrently.

Key points

- Parenting and coparenting are important for children's adjustment, but their interaction has been little explored.
- Previous research has sampled one child per family; we considered two children per family using MLM to simultaneously explore within- and between-family effects of coparenting and coercive parenting and their interaction.
- Mothers' perceptions of coparenting moderated the association between overall coercive parenting and children's disruptive behaviour development during school transition.
- Mothers' perception of high quality coparenting intensified the toxicity of her coercive parenting for children's disruptive behaviour.
- It is important to consider parenting and the coparenting context together, since a high quality coparenting team may not always be ideal for children's adjustment.

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Table 1

Descriptive statistics for all study variables.

	<u>Twin A</u>		<u>Twin B</u>		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Child disruptive behaviour (Time 1)	109.42	22.19	109.89	22.16	-0.35	.726
Child disruptive behaviour (Follow-up)	108.30	26.57	105.83	24.29	1.81	.075
Maternal-reported:						
Marital quality ^a	6.80	0.87				
Coercive parenting	3.92	2.07	3.82	2.02	1.06	.292
Coparenting ^a	6.18	0.59				
Paternal-reported:						
Marital quality ^a	6.94	0.57				
Coercive parenting	3.93	1.81	4.01	1.92	-0.96	.342
Coparenting ^a	6.29	0.43				

Note. ^a Shared variables. Variable anchor ranges; Child disruptive behaviour=36-252; Marital quality=1-7.5 Coercive parenting=0-15;

Coparenting=1-7.

Table 2

Correlations among study variables.

	1	2	3	4	5	6	7	8
Combined:								
1. Child disruptive behaviour (Time 1)	1							
2. Child disruptive behaviour (Follow-up)	.75***	1						
Maternal-reported:								
3. Marital quality	-.14	-.13	1					
4. Coercive parenting	.33**	.25*	-.08	1				
5. Coparenting	-.12	.01	.64***	-.19	1			
Paternal-reported:								
6. Marital quality	-.08	-.03	.53***	.12	.34**	1		
7. Coercive parenting	.44***	.39**	.06	.42***	.09	.09	1	
8. Coparenting	-.22*	-.15	.35***	-.08	.34**	.50***	-.17	1

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Correlations are for one randomly-selected member of the twin pair

Table 3

MLM standardised results.

	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 4</u>
	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>
Fixed effects				
Within-Family Level				
Child disruptive behaviour (Time 1)		0.70*** (0.08)	0.68*** (0.08)	0.66*** (0.08)
Maternal differential coercive parenting			0.02 (0.16)	0.09 (0.15)
Paternal differential coercive parenting			-0.22 (0.15)	-0.29 (0.15)
Maternal overall coercive parenting*differential coercive parenting				-0.11 (0.27)
Paternal overall coercive parenting*differential coercive parenting				0.07 (0.15)
Maternal coparenting*differential coercive parenting				-0.07 (0.14)
Paternal coparenting*differential coercive parenting				-0.24 (0.15)
Between-Family Level				
Maternal marital quality			-0.10 (0.09)	-0.13 (0.09)
Paternal marital quality			0.04 (0.06)	0.07 (0.07)
Maternal overall coercive parenting			0.06 (0.07)	0.07 (0.07)
Paternal overall coercive parenting			0.08 (0.10)	0.04 (0.09)
Maternal coparenting			0.13 (0.09)	0.10 (0.08)
Paternal coparenting			-0.09	-0.10

			(0.08)	(0.07)
Maternal coparenting*overall coercive parenting				0.17*
				(0.07)
Paternal coparenting*overall coercive parenting				0.03
				(0.07)
Random effects				
Within-Family	0.13***	0.12***	0.11***	0.10***
	(0.04)	(0.02)	(0.02)	(0.02)
Between-Family	0.74***	0.23***	0.20***	0.19***
	(0.12)	(0.06)	(0.05)	(0.04)
Model fit				
-2LL	437.88	323.02	301.22	280.52

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

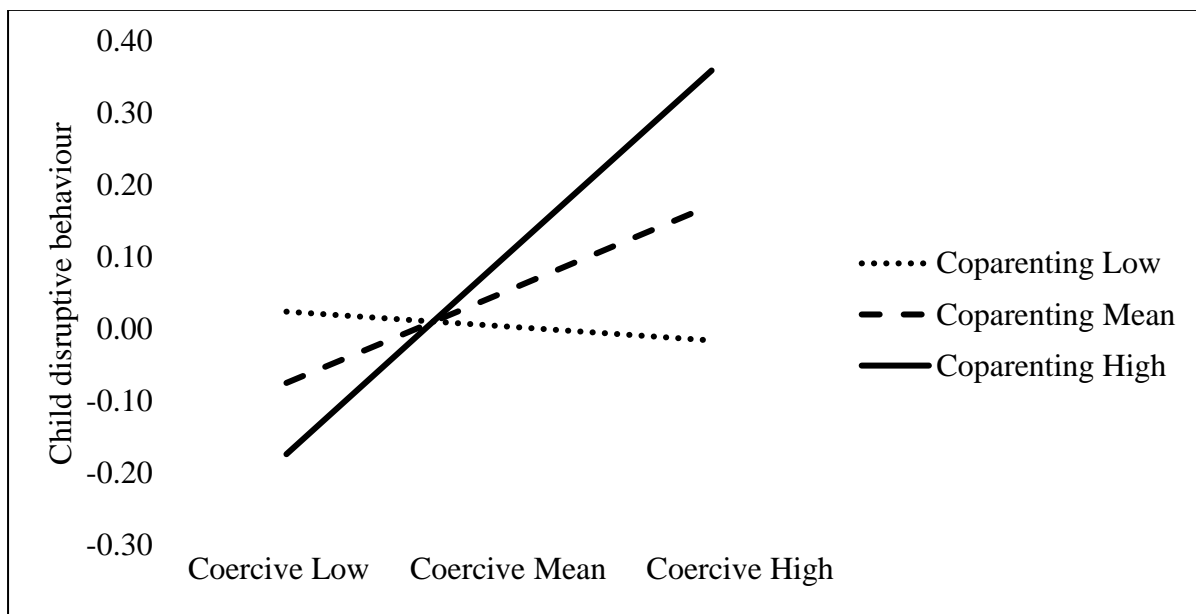


Figure 1. Simple slopes illustration of mothers' coparenting*overall coercive parenting in the prediction of child disruptive behaviour.