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Mothers' and Fathers' Perceptions of the Family Context and  
Children's Adjustment: Coparenting Young Twins

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University of Sussex

Thesis submitted for the degree of Doctor of Philosophy

February 2017

## Declaration

This thesis conforms to an ‘article format’ in which chapters three, four and five contain discrete articles written in a style that is appropriate for publication in peer-reviewed journals. The first, second and final chapters present synthetic overviews and discussions of the field and the research undertaken.

- Chapter 4 (Paper 2) has been invited to be revised and resubmitted to the *Journal of Family Psychology* as:

Latham, R. M., Mark, K. M., & Oliver, B. R. (2016). Coparenting and children's disruptive behavior: interacting processes for parenting sense of competence.

- Chapter 5 (Paper 3) is published in the *Journal of Child Psychology and Psychiatry* as:

Latham, R. M., Mark, K. M., & Oliver, B. R. (2017). A harsh parenting team? Maternal reports of coparenting and coercive parenting interact in association with children's disruptive behaviour. *Journal of Child Psychology and Psychiatry*, 58, 603-611. doi: 10.1111/jcpp.12665

The author contributions for both of these articles are as follows: Rachel Latham and Katharine Mark were together responsible for all aspects of data collection including participant recruitment; Rachel Latham was responsible for conception of the research questions, data analyses and writing the manuscripts; Bonamy Oliver provided support and feedback on the study designs, analyses and the manuscript drafts.

I hereby declare that this thesis has not been, and will not be, submitted in whole or in part to another university for the award of any other degree.

.....

Rachel M. Latham

24<sup>th</sup> February 2017

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UNIVERSITY OF SUSSEX

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**Mothers' and Fathers' Perceptions of the Family Context and Children's  
Adjustment: Coparenting Young Twins**

**Summary**

Mothers' and fathers' perceptions of the quality of coparenting – the way in which they work together in their role as parents – forms the focus of three papers that comprise this thesis. Using a novel sample of 'intact' families with young twins, this research extends the existing coparenting literature beyond its typical focus on first-born children, to include more complex families. Participants were families who were part of the Twins, Family and Behaviour (TFaB) Study, a longitudinal, multimethod study of UK families with twins born in 2009/10 conducted by myself and my colleague over a two-year period.

Paper 1 examines bidirectional associations between coparenting and the marital relationship during the transition-to-school period. Controlling for cross-sectional associations and temporal stability, parents' perceptions of higher quality coparenting were associated with their subsequent report of a higher quality marital relationship. Reciprocal associations between the marital relationship and subsequent coparenting, however, were not evidenced. These findings highlight the salience of coparenting for

the marital relationship, and suggest that interventions seeking to improve the couples' marital relationship should pay close attention to their coparenting.

Paper 2 focuses on parenting sense of competence (PSOC), examining the role of children's disruptive behaviour, coparenting, and their interaction. For both mothers and fathers there was a significant interaction between their perceptions of coparenting and children's disruptive behaviour such that high quality coparenting may protect the PSOC of parents dealing with high levels of children's disruptive behaviour. These findings imply that practitioners and interventions concerned with promoting PSOC should pay due attention to the quality of coparenting as an important family context.

Paper 3 examines family-wide and child-specific effects of coparenting and coercive parenting on the development of children's disruptive behaviour. Mothers' perceptions of coparenting interacted with maternal overall coercive parenting such that high quality coparenting intensified the toxicity of maternal coercive parenting for children's disruptive behaviour. This novel – and unexpected – finding indicates that the influence of high quality coparenting is not necessarily always positive. Coparenting interventions aiming to improve child outcomes would therefore be well-advised to also consider parenting strategies.

Further research is encouraged to explore these research questions within samples of socioeconomic diversity and across family types, as well as studies designed to examine twin and non-twin family differences.



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**List of Abbreviations**

DZ	Dizygotic (non-identical/fraternal) twins
ECBI	Eyberg Child Behaviour Index
ICC	Intra-class correlation
MLM	Multilevel modelling
MZ	Monozygotic (identical) twins
ONS	Office for National Statistics
PAFAS	Parent and Family Adjustment Scale
PSOC	Parenting Sense of Competence
QMI	Quality of Marriage Index
SES	Socio-Economic Status
TAMBA	Twins and Multiple Births Association
TFaB	Twins, Family and Behaviour Study



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## **Chapter 1**

### **General Introduction**

## **General Introduction**

The role of the family – and of parents in particular – has long been of interest to those concerned with children’s wellbeing. Historically, the concept of the mother as the ‘primary caregiver’ and the importance of the mother-child relationship have dominated theory and research within developmental psychology such that the role of fathers and influence of the wider family context have been relatively neglected. Indeed, as Patricia Minuchin noted in her seminal paper, “Psychological researchers created the single-parent family long before it was characteristic of [American] society” (P. Minuchin, 1985, p. 296). In a direct challenge to this traditional way of thinking, Minuchin highlighted the relevance of systems theory – which underpinned family therapy – and urged a reformulation of concept and method in studying children’s development, to consider the child as being a part of an organised family system. In the decades that have followed her provocation, developmental research has indeed widened its lens to include not only mothers, but fathers as well, and to consider the influence of broader family contexts. This thesis focuses on one such context, that is, the way in which parents work together in their role as parents, termed ‘coparenting’ (Feinberg, 2002).

The overarching goal of this thesis is to examine determinants and consequences of mothers’ and fathers’ perceptions of coparenting using a sample of married and/or cohabiting (hereon referred to as ‘intact’) families with young twins. In particular, the research aims to extend the coparenting literature in three main ways: first, to go beyond its typical focus on the transition to parenthood and infancy into childhood; second, to extend focus away from one child per family to include families of twins; and third, to

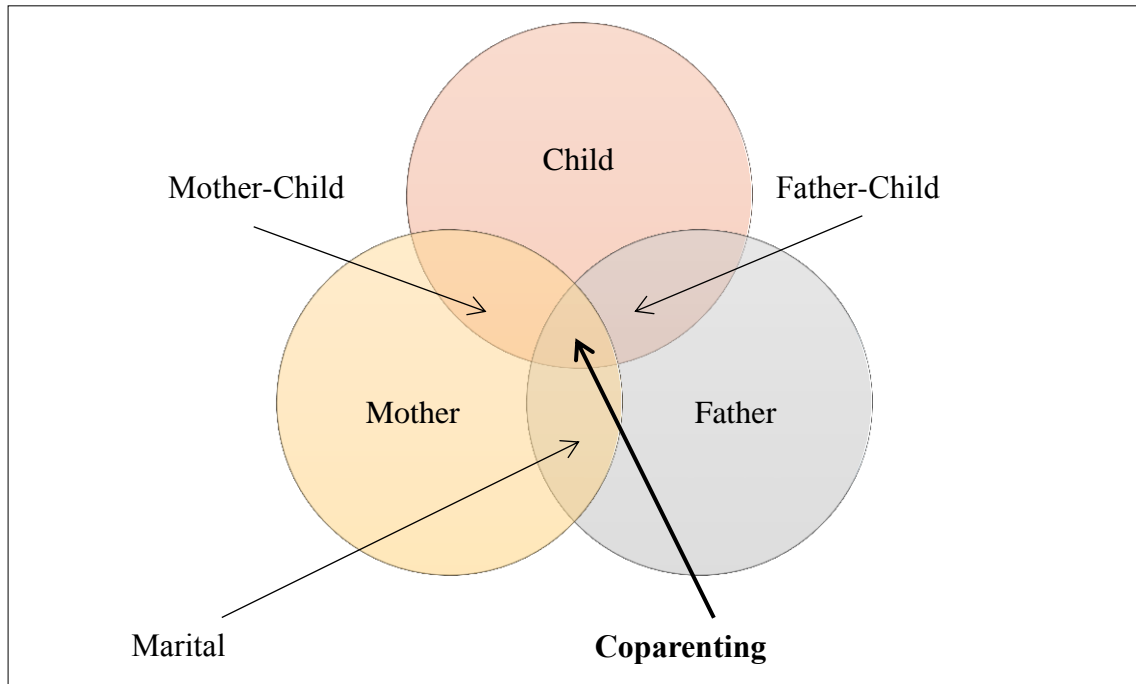
include data from both mothers and fathers to enable the exploration of parent differences.

This Introduction provides an overview of the theoretical frameworks and empirical evidence on which this thesis is grounded. It begins with an outline of Family Systems Theory and the historical context of coparenting, and then considers how coparenting is conceptualised. Following this, Feinberg's (2003) Ecological Context Model of Coparenting is presented along with an overview of the literature examining the determinants and consequences of coparenting. Finally, important considerations and rationale for the current thesis are highlighted, the main aims of the research outlined, and an overview of subsequent chapters provided.

### **Family Systems Theory**

Family Systems Theory conceptualises the family as a complex system composed of several distinct, but interrelated, subsystems including the parent-child, sibling, inter-parental (hereon referred to as 'marital') and coparenting subsystems. Figure 1.1 illustrates this as applied to a family made up of a mother, father and one child: each circle represents a family member, and the overlap between them represents the subsystem that they form. Coparenting is represented by the central part of the diagram, where all three subsystems overlap, and thus pertains to the way that the mother and father relate to each other in their role as parents. The prominence of coparenting – termed the 'executive subsystem' – for children's healthy emotional growth and development is highlighted by Salvador Minuchin in his influential work on Structural Family Theory (S. Minuchin, 1974). In this, he emphasises the importance of a hierarchically organised family system headed by coparents who provide collaborative leadership, and who also ensure appropriate intergenerational boundaries to delineate

adult and child roles such that parents are in charge and children are protected from the burden of adult responsibilities. Thus, the ability of coparents to work as a cohesive, coordinated parenting team is considered to be an important family context for understanding children's adjustment.



**Figure 1.1** Coparenting in a family composed of a mother, father and child. *Note.* Image adapted from McHale and Irace (2011).

### Historical Context and Conceptualising Coparenting

The notion that children are part of a family system in which they are simultaneously cared for by more than one parenting figure laid the theoretical foundations for contemporary coparenting theory and research (McHale & Irace, 2011). The empirical base for the coparenting literature stemmed from the parental divorce literature of the late 1970s and early 1980s. Here, concern regarding the apparent poor adjustment of children from divorced families (Hetherington, Cox, & Cox, 1985; Wallerstein & Kelly, 1975) led researchers to identify the quality of parents' ongoing coparenting – that is, how well they managed to work together to parent their children

post-divorce – as a critical factor (Ahrons, 1981). With a focus on this, rather than the experience of divorce *per se*, it became clear that children of divorced parents fared much better when mother and father communicated regularly regarding their child and their parenting, and provided consistent rules and expectations across households (Ahrons, 1981; Maccoby & Mnookin, 1992). More recently, research has examined coparenting within intact families, the vast majority of which – including this thesis – has focused on families headed by a mother and father.

Broadly speaking, coparenting refers to the degree of coordination and harmony between adults who are jointly responsible for the care and upbringing of a child (McHale, Kuersten-Hogan, & Rao, 2004); however, it is conceptualised as a multidimensional construct. Feinberg (2003) and Van Egeren and Hawkins (2004), for example, have each proposed coparenting to be comprised of four components (Table 1.1). Indeed, although there are some differences in terminology, there is substantial overlap and agreement between researchers regarding the key behaviours, attitudes and feelings that comprise coparenting:

**Table 1.1** Proposed components of coparenting.

<b>Feinberg (2003)</b>	<b>Van Egeren and Hawkins (2004)</b>
1. Support - undermining	1. Coparent support
2. Child rearing agreement	2. Coparent undermining
3. Division of Labour	3. Coparent solidarity
4. Joint family management (including conflict, coalitions and balance)	4. Shared parenting (including division of labour, balance of involvement with child)

**Support and undermining.** There has been some debate in the literature regarding whether coparent support and undermining represent opposite ends of the same dimension, or separate – but correlated – constructs (Feinberg, 2003). Coparent support refers to behaviour that demonstrates respect for the others' parenting contribution, affirms their parenting ability, and upholds their parenting authority and decisions. It may be evidenced by strategies and actions that support or extend the partners' parenting efforts. For example in a triadic interaction with the child, each coparent may build on the others' lead forming a chain of cooperative exchanges (Van Egeren & Hawkins, 2004). On the contrary, coparent undermining refers to criticism or disparagement and may be evidenced by explicit comments, or actions that thwart the others' parenting attempts. Importantly, coparent undermining may be overt and hostile, but may also be more subtle such as excluding the other parent from an activity, or may occur during a private exchange with the child.

**Child rearing agreement and coparent solidarity.** Child rearing agreement refers to the degree of agreement or disagreement between coparents on child-related topics, such as discipline, behaviour expectations, and moral values (Feinberg, 2003). Similarly, 'coparent solidarity' encompasses parents' reports of sharing child rearing values, the formation of a united coparenting team and a sense of closeness as coparents (Van Egeren & Hawkins, 2004). Coparent solidarity may be evidenced by, for example, expressions of warmth and positive emotion during joint interactions with, or about, the child, and speaking to the child positively about the other parent in their absence to promote a sense of a strong coparenting team.

**Division of labour and shared parenting.** The division of labour refers to the division of child-related duties, tasks and responsibilities between coparents and may include both daily child care activities (e.g. feeding, changing, taking child to school) as

well as ongoing responsibilities (e.g. child-related financial and medical issues).

Critically, coparenting does not imply that such tasks should be divided equally; rather it is parents' satisfaction with the division that is important. Van Egeren and Hawkins' conceptualisation of coparenting captures the division of labour within the broader dimension of 'shared parenting' which also encompasses the degree to which each parent is engaged with the child during interactions.

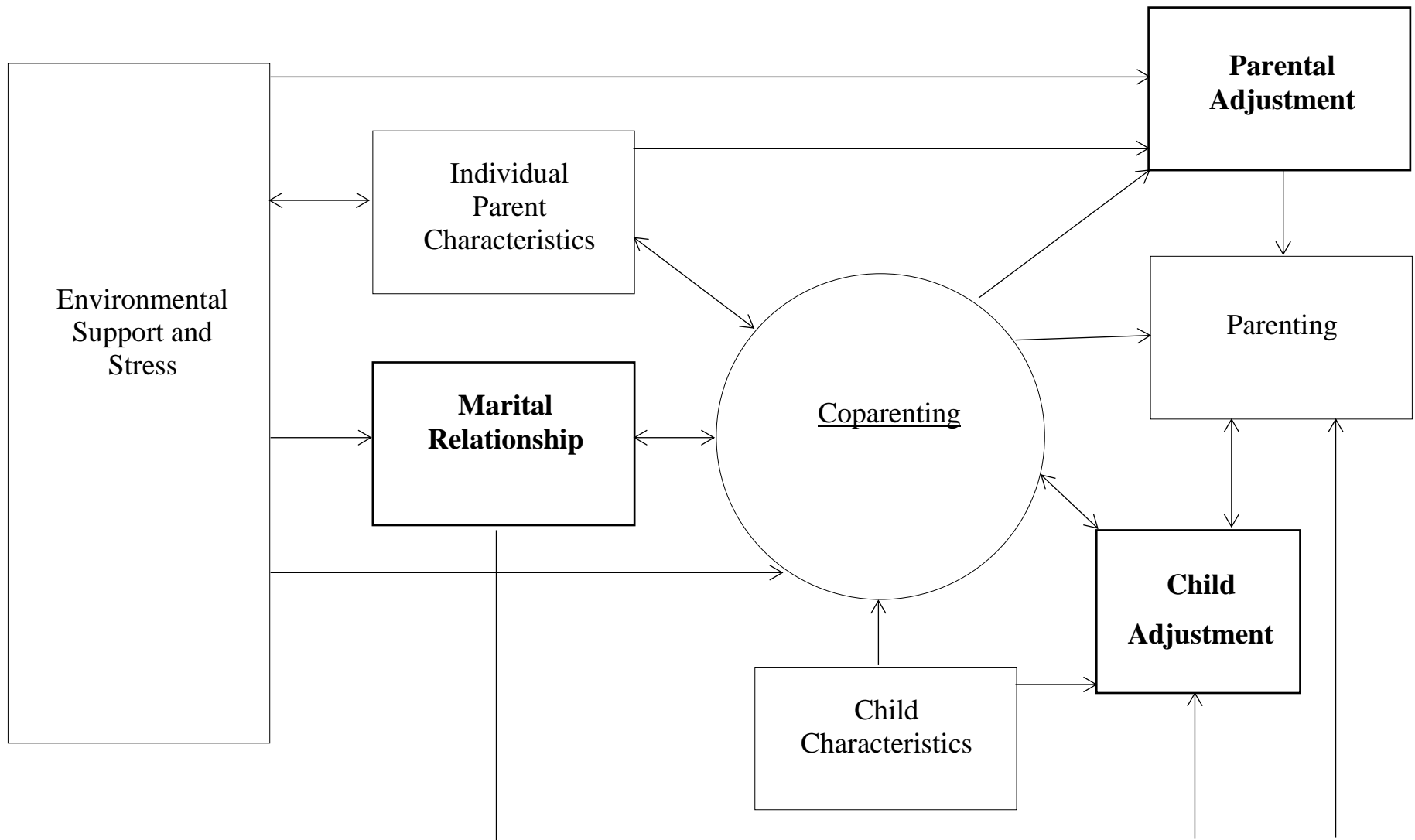
**Joint family management.** This pertains to the coparents' management of family interactions and, in particular, it refers to their responsibility for setting appropriate boundaries – for example, to ensure that children do not become concerned with adult responsibilities or involved with adult disputes. Thus, this component includes the exposure of children to conflict, and the 'triangulation' of children into a parent-child coalition such that they are used as an ally in inter-parental disputes. Feinberg refers to the engagement of coparents with a child as 'balance', a feature which he includes within his dimension of 'joint family management'.

Coparenting is thus conceptualised as comprising multiple constructs; although these are important individually, they may also be considered together as a global measure of coparenting quality (Feinberg, 2003).

### **The Ecological Context Model of Coparenting**

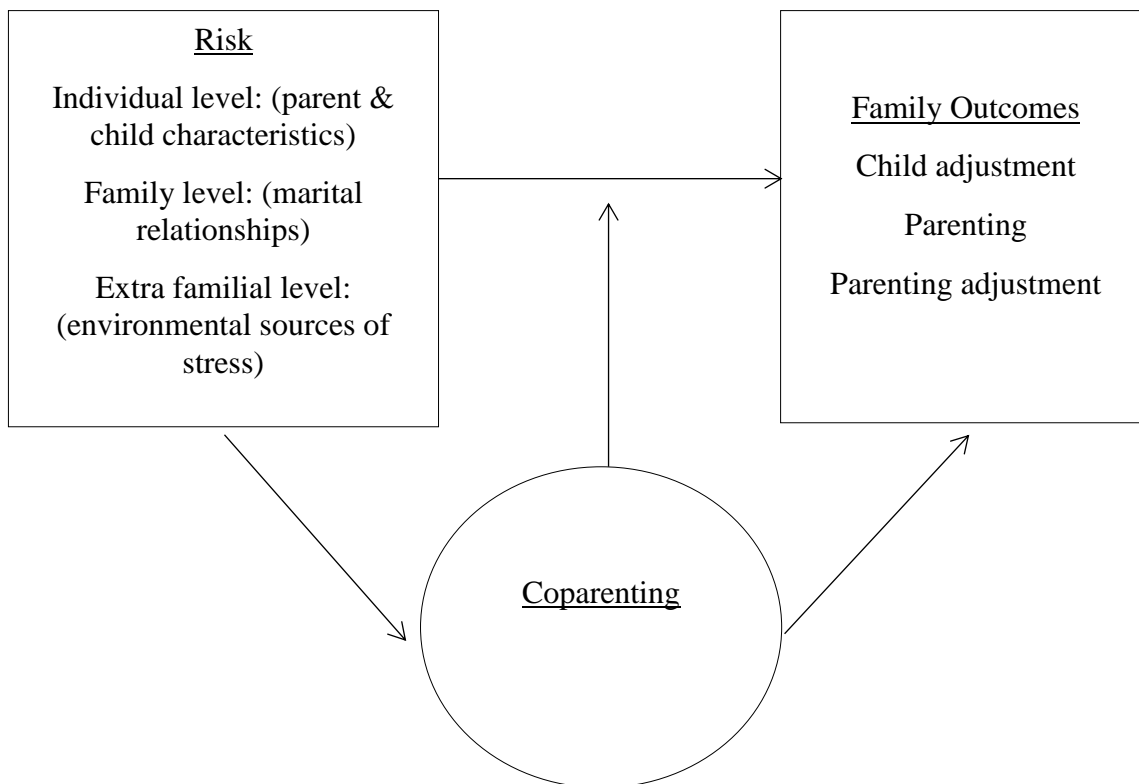
Drawing on family systems theory and work from the determinants of parenting literature (Belsky, 1984), Feinberg (2003) proposed the Ecological Context Model of Coparenting (Figure 1.2) as a framework to organise existing findings and guide future research in the area.





**Figure 1.2** Adapted from Feinberg's (2003) Ecological Context Model of Coparenting. *Note.* Determinants and consequences of coparenting highlighted in bold represent the foci of this thesis.

The model details determinants of coparenting – parent and child characteristics, the marital relationship, and environmental sources of stress and support – as well as the influence of coparenting on three key family outcomes: child adjustment, parenting and parent adjustment. Moreover, by emphasising the centrality of coparenting to the family system in this way, Feinberg’s model proposes coparenting to play a mediating and moderating role between the influence of individual, family and extra-familial ‘risk’ factors and family outcomes (Figure 1.3).



**Figure 1.3** Coparenting mediating and moderating the influence of risk on family outcomes, hypothesised by the Ecological Context Model of Coparenting. *Note.* Image adapted from Feinberg (2003).

Using the Ecological Context Model of Coparenting as a framework, the following section of this chapter provides a review of the coparenting literature. For the purposes of interest and providing context, an overview of key findings is given in relation to each of the determinants and consequences of coparenting identified by Feinberg (2003). However, particular emphasis is given to the three aspects of the model that are the focus of this thesis: the association between coparenting and the marital relationship, the influence of child adjustment on coparenting, and child and parent adjustment as consequences of coparenting.

### **Determinants of Coparenting**

Understanding factors that influence coparenting has been a key focus of research in order to illuminate why some couples successfully achieve a cohesive, supportive coparenting team whereas others do not. Feinberg's Ecological Context Model identifies determinants of coparenting at the extra-familial level (environmental sources of stress and support), the familial level (the marital relationship), and the individual level (characteristics of the parent and child).

**Environmental sources of stress and support.** According to a stress-coping perspective (Lerman & Glanz, 1997), environmental sources of stress will undermine the ability of parents to maintain coordination and harmony with the other, whereas support will bolster their ability to do so. Although very few studies have focused on the influence of extra-familial factors on coparenting, there is some evidence to support this notion. For example, Lindsey, Caldera, and Colwell (2005) found that mothers of 11 to 15-month old infants who reported greater social support displayed more supportive coparenting during observed interactions. In terms of environmental sources of stress, economic hardship has been found to put strain on the ability of parents to

work effectively together such that it is associated with lower quality coparenting (Williams, Cheadle, & Goosby, 2015). As well as portraying a direct influence of stress and support on coparenting, the Ecological Context Model also proposes it to have an indirect effect through parent characteristics or the marital relationship. Indeed, financial stress is well documented to impact negatively on parents' psychological wellbeing (Conger & Donnellan, 2007) and the marital relationship (Conger, Ge, Elder, Lorenz, & Simons, 1994) supporting the possibility of an indirect route by which parent wellbeing then impacts coparenting, and/or difficulties in the marital relationship then spill over to coparenting.

**Characteristics of the parents.** Many different parental characteristics have been explored as determinants of coparenting. Several studies have examined parents' level of education, considering it to be a personal resource that may enable parents to work more effectively together as a team through the promotion of skills such as perspective taking, cooperation, as well as knowledge of more successful parenting techniques (Stright & Bales, 2003). Indeed, a higher level of education attainment has been associated with more positive coparenting. Stright and Bales (2003) for example, found mothers' and fathers' level of education to be positively associated with supportive coparenting during observed interactions with their preschool child. Similarly, Van Egeren (2003) found that fathers with higher education and socioeconomic status during pregnancy reported more positive coparenting of their infant at 6 months. However, rather than individual parents' level of education *per se*, it has been suggested that the discrepancy between parents is more important (Belsky, Crnic, & Gable, 1995). In a study of 15-month old boys, Belsky and colleagues demonstrated that parents who had a greater difference in educational attainment

displayed less supportive coparenting than parents who were more comparable in their level of education.

Within the parenting literature, the salience of individuals' experiences within their family of origin for how they themselves subsequently parent has been recognised (Belsky, 1984). In a similar vein, coparenting researchers have examined the quality of coparenting in parents' family of origin as a determinant of their own coparenting. Findings have indicated higher quality coparenting in the family of origin to be associated with higher quality coparenting within their own families (Stright & Bales, 2003; Van Egeren, 2003).

As well as their own experiences of being coparented, each parent brings their own expectations and beliefs about gender roles to the formation of the coparenting team. Maternal beliefs about the role of fathers are considered to be especially important since mothers with more progressive beliefs about the father's role may act in ways that are supportive and encouraging of him thus facilitating more positive coparenting and greater father involvement. Indeed, expectant parents who held more progressive and less traditional beliefs about father involvement in child care have been found to report more positive coparenting at 3.5 months postpartum (Schoppe-Sullivan, Brown, Cannon, Mangelsdorf, & Sokolowski, 2008). On the contrary, mothers with more traditional views about gender roles may act in ways that inhibit a collaborative coparenting effort – so-called 'maternal gatekeeping' (Allen & Hawkins, 1999). Rather than parents' individual beliefs and expectations about gender roles, the congruency of these between partners may be particularly critical for coparenting. Studies investigating the degree of similarity and difference in parents' beliefs have found greater congruency to be associated with more positive coparenting (Lindsey et al., 2005) whereas greater discrepancies have been associated with coparenting difficulties

(McHale et al., 2004; McHale & Rotman, 2007; Van Egeren, 2003). Such findings suggest the importance for high quality coparenting of parents sharing similar views regarding gender roles in parenting.

**Characteristics of the child.** The notion of children as ‘active agents’ in family interactions is nothing new (Bell, 1968); just as child temperament has been considered to influence the parenting they receive (Lengua & Kovacs, 2005; McBride, Schoppe, & Rane, 2002; Micalizzi, Wang, & Saudino, 2015), it has also been considered to influence their coparenting. Children with difficult temperaments are, by definition, fussy, irritable and difficult to soothe such that parents of these children will likely experience relatively more ‘failures’ than ‘successes’ in their parenting, thus providing more opportunities for coparent undermining and criticism (Feinberg, 2003). Moreover, parents of children with difficult temperaments will more frequently re-evaluate their parenting strategies and consider adopting new approaches (Putnam, Sanson, & Rothbart, 2002), such that child-rearing disagreements between coparents may be more likely to arise. Research examining child temperament as a determinant of coparenting has, however, yielded some contradictory findings. On the one hand, difficult child temperament has been associated with lower quality coparenting (Lindsey et al., 2005; Van Egeren, 2004). In contrast, it has also been reported that infants rated as being more negative by observers had coparents who showed higher levels of cooperation during triadic play interactions, suggesting that parents may also ‘pull together’ in dealing with their child’s difficult temperament (Berkman, Alberts, Carleton & McHale, 2002 as cited in Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007). It may be therefore that child temperament interacts with other factors in its association with coparenting; indeed, the majority of research supports this notion. For example, Schoppe-Sullivan and colleagues (2007) reported that couples with temperamentally

difficult infants showed less optimal coparenting behaviour when they also had lower quality prenatal marital relationships, whereas couples with a difficult infant who had higher quality prenatal marital relationships subsequently demonstrated high quality coparenting. That is, parents with a higher quality marriage were able to pull together whereas those with a lower quality marriage were not. Infant temperament has also been identified as an influential moderator of the stability of coparenting. Coparenting during the first year of infancy, for example, has been found to show consistency only when infants had less difficult temperaments, whereas there was no consistency when infants had more difficult temperaments (Davis, Schoppe-Sullivan, Mangelsdorf, & Brown, 2009). Furthermore, in a novel study looking at the transition to siblinghood (i.e. the birth of the second child), Szabó, Dubas, and van Aken (2012) demonstrated the coparenting subsystem of one child to be susceptible to the temperament of the other child in the family system. More specifically, mothers with a temperamentally ‘easy’ second child reported more stable coparenting whereas mothers with a temperamentally ‘difficult’ second child reported more variability in their coparenting. Together, these findings support the notion that infant temperament plays an important role in shaping coparenting.

**The marital relationship.** As the previous discussion of family systems theory highlights, coparenting and the marital relationship are considered to be distinct, yet closely related family subsystems. On the basis that the couple’s marital relationship is typically formed prior to the arrival of a child, it is proposed that parents bring their ways of interacting – such as their ability to respect one another and resolve disagreements – to the formation of coparenting (Feinberg, 2003). Accordingly, the transition to parenthood has been a prime focus for research, and findings support the notion that the marital relationship ‘sets the stage’ for postnatal coparenting. That is,

parents who report a higher quality marital relationship subsequently demonstrate higher quality coparenting (Le, McDaniel, Leavitt, & Feinberg, 2016). Furthermore, changes in the quality of the marital relationship during the transition to parenthood have been shown to relate to subsequent coparenting – for example, increases in marital conflict have been associated with lower levels of cooperative and supportive coparenting 2 years later, and declines in fathers' marital satisfaction also found to predict higher levels of subsequent competitive coparenting (Christopher, Umemura, Mann, Jacobvitz, & Hazen, 2015). Indeed, the quality of the marital relationship is the factor most reliably associated with coparenting (Mangelsdorf, Laxman, & Jessee, 2011).

Critically, however, Feinberg's Ecological Context Model – and family systems theory – proposes the association between coparenting and the marital relationship to be bidirectional. Once formed, coparenting is considered to become central in day to day life such that spill-over from coparenting to the marital relationship may occur (Feinberg, 2003). This highlights the importance of examining these associations beyond the transition to parenthood when coparenting has become more established, as well as across developmental periods. In a longitudinal study spanning from child age 10 months to 5 years, Belsky and Hsieh (1998) reported that marital relationships which deteriorated evidenced more observed unsupportive coparenting in the intervening years compared to those marital relationships that remained stable. This indication that the quality of coparenting, over time, may enhance or erode the marital relationship is further supported by findings that observed coparenting at child age 6 months predicted the quality of marital relationships at child age 3 years, but not vice versa (Schoppe-Sullivan, Mangelsdorf, Frosch, & McHale, 2004). It is notable though that studies investigating the bidirectionality of the association are scarce, and some of their



findings contradictory. For example, unlike Schoppe-Sullivan and colleagues (2004), two recent studies have reported reciprocal associations between coparenting and the marital relationship: one in a study of fathers during early childhood (Fagan & Lee, 2014) and another over the transition to parenthood and first 3 years, noting reciprocal associations for mothers but not fathers (Le et al., 2016). The possibility of bidirectional effects between coparenting and the marital relationship is an issue that is discussed throughout this thesis.

### **Consequences of Coparenting**

Feinberg's Ecological Context Model highlights the proximal influence of coparenting on child adjustment, parenting and parent adjustment.

**Child adjustment.** Coparenting is, by definition, centred on a child, and thus understanding associations between the quality of coparenting and child adjustment (which is, arguably, foreshadowed by child temperament as a determinant of coparenting) has been the focus of much research. In line with Minuchin's (S. Minuchin, 1974) belief that collaborative coparenting provides children with a sense of predictability, stability and security in the family which promotes their healthy adjustment, positive and supportive coparenting has indeed been associated with desirable child outcomes. For example, warmth and cooperation between coparents has been concurrently associated 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 lower levels of adolescent internalising problems (Parent, Jones, Forehand, Cuellar, & Shoulberg, 2013). Moreover, cooperative coparenting observed at 24 months has been related to children's higher levels of prosocial behaviour at age 4 years (Scrimgeour,

Blandon, Stifter, & Buss, 2013). Coparenting agreement also appears to be important; parents of 14-month old toddlers who showed higher agreement regarding the use of control in parenting had children who were observed to be more compliant to mothers' verbal control strategies 4 months later (Lindsey & Caldera, 2005). Furthermore, shared decision making between coparents at 24 months has been positively linked to children's social skills at 48 months (Cabrera, Scott, Fagan, Steward-Streng, & Chien, 2012).

A negative and unsupportive coparenting relationship has been found to be associated with less desirable child outcomes. Coparenting that evinces high levels of undermining has been longitudinally linked to infant behaviour problems (LeRoy, Mahoney, Pargament, & DeMaris, 2013) as well as decreased inhibition in 3-year-olds (Belsky, Putnam, & Crnic, 1996). Furthermore, observed hostile-withdrawn coparenting – that is, coparenting characterised by high levels of negativity as well as coparents being physically withdrawn and minimally communicative with one another – at child age 5 years has been associated with children's conflicted peer interactions 4 years later (Leary & Katz, 2004). Low levels of coparent cooperation at child age 3 years have been linked with behaviour problems 1 year later (Schoppe, Mangelsdorf, & Frosch, 2001) and, during middle childhood, low coparent cooperation been related to attention problems, passivity and diminished mathematical grades of third graders (Stright & Neitzel, 2003). Coparent conflict has also received substantial research attention. Evidence has indicated longitudinal associations with children's externalising behaviour in pre-schoolers (McHale & Rasmussen, 1998), with externalising and internalising behaviour in school-age children (Jones, Shaffer, Forehand, Brody, & Armistead, 2003), and with antisocial and risky behaviour during adolescence (Baril, Crouter, & McHale, 2007; Feinberg, Kan, & Hetherington, 2007). In addition to these

associations with children's behavioural adjustment, coparent conflict at age 2 years has also been found to be negatively associated with children's school readiness (including academic and social skills) and indirectly linked with it through maternal depressive symptoms at age 4 years (Cabrera et al., 2012).

Importantly, associations between coparenting and child adjustment are significant even after controlling for individual parenting or marital adjustment (Teubert & Pinquart, 2010). It is, however, important to note that while there is considerable evidence linking dimensions of coparenting and child adjustment, there are also some published studies that have reported finding no such relationship. Schoppe-Sullivan and colleagues (Schoppe-Sullivan, Weldon, Cook, Davis, & Buckley, 2009), for example, found no significant direct association between coparenting and externalising behaviour in their study of 4-year-olds; rather, they found an interaction between coparenting and children's effortful control such that coparent cooperation appeared to prevent increases in externalising behaviour for children who were low on effortful control. Similarly, Kolak and Volling (2013) found no significant direct association between coparenting and child behaviour problems during the transition to siblinghood. However, children who were high in negative reactivity were found to be more sensitive to high levels of coparent undermining and low levels of coparent support such that they demonstrated higher levels of internalising behaviour. Coparenting may therefore interact with the characteristics of the child in its association with child adjustment. Understanding the interactive effects of coparenting for child adjustment is thus an area in need of additional research.

**Parenting.** The Ecological Context Model proposes that coparenting influences parenting, which in turn also influences child adjustment. Importantly, coparenting is portrayed as a more proximal influence on parenting (and child outcomes) than the

marital relationship is, and empirical findings have supported this supposition. For example, compared to marital relationship quality, coparenting has been found to be a stronger predictor of parenting (Abidin & Brunner, 1995) and several studies have found coparenting to mediate the association between marital relationship quality and parenting, both concurrently and longitudinally (Gonzales, Pitts, Hill, & Roosa, 2000; Margolin, Gordis, & John, 2001; Pedro, Ribeiro, & Shelton, 2012).

It has been suggested that coparenting may be especially important for fathers as, compared to mothers, their parenting may be more vulnerable to social and environmental influences (Cummings, Merrilees, & George, 2010). The relationship between coparenting and father engagement, for example, has been the focus of some research, though findings have been mixed. On the one hand, more positive, supportive coparenting has been concurrently associated with higher levels of father engagement during infancy (Fagan, 2013) and early childhood (Hohmann-Marriott, 2011). Longitudinal associations also have been evidenced between fathers' perceptions of coparent support at child age 12 months and father engagement 2 years later (Fagan & Palkovitz, 2011). On the contrary, longitudinal studies that have examined reciprocal associations between coparenting and father engagement have revealed that although earlier father engagement is associated with later coparenting, there is little evidence to support the reverse – that is, earlier coparenting does not appear to be associated with subsequent father engagement. Indeed, this has been found with regards to coparent conflict and father engagement from 9 to 48 months (Fagan & Cabrera, 2012) as well as coparent support and undermining in relation to father involvement in play and caregiving activities with pre-schoolers (Jia & Schoppe-Sullivan, 2011).

The quality of coparenting has consistently been linked with the quality of mother-child and father-child interactions. In infancy, for example, higher levels of

coparent cooperation have been concurrently associated with higher levels of maternal responsiveness (Caldera & Lindsey, 2006); higher levels of coparent conflict have been concurrently related to less sensitive mother-infant interaction and less warm father-infant interaction (Cabrera, Shannon, & La Taillade, 2009); and mothers who perceived more positive coparenting during the first 6 months have been shown to demonstrate higher levels of observed emotional availability during children's bedtime routines (Kim & Teti, 2014). Similar patterns have been reported in school-age children (Floyd, Gilliom, & Costigan, 1998) and also in a study of adolescents which found higher levels of paternal perceived coparent conflict to be associated with higher levels of both mothers' and fathers' parental negativity 3 years later (Feinberg et al., 2007).

**Parent adjustment.** Existing studies in this area have typically focused on the transition to parenthood – a period when parental wellbeing is considered to be particularly vulnerable (Cowan & Cowan, 2000) – and have mainly examined parenting stress, depression and parenting sense of competence. For example, in a study of fathers, perceptions of higher levels of coparent conflict at child age 4 years were found to be concurrently associated with higher levels of parental stress, whereas higher perceived shared decision making related concurrently to lower levels of parental stress (Fagan & Lee, 2014). Cross-sectional links have also been reported between observed coparent conflict and parental depression at child age 18 months – lower levels of conflict were associated with higher maternal depression but, unexpectedly, with lower paternal depression. Furthermore, coparent undermining at child age 6 months has been associated with higher levels of depression, parenting stress and lower sense of parenting competence for mothers and fathers at 12 months, suggesting that parents who undercut one another's parenting attempts are likely to experience poorer wellbeing and a compromised sense of their own parenting abilities (Solmeyer & Feinberg, 2011).

Feinberg's 'Family Foundations' – an intervention delivered during the transition to parenthood designed to promote high quality coparenting – has reported an intervention effect on maternal depression at 6 months post-partum: mothers receiving the intervention showed larger decreases in depressive symptoms compared to mothers in the control condition (Feinberg & Kan, 2008). Moreover, at 3-year follow-up, families who received the intervention reported lower levels of maternal depression and parenting stress, and higher levels of parenting competence compared to the control group (Feinberg, Jones, Kan, & Goslin, 2010).

## **The Current Thesis**

### **Important Considerations and Rationale**

The research in this thesis ties in with the way that coparenting is commonly conceptualised and with existing research. However, to expand the extant literatures, an additional three key considerations underpin the current research. These are highlighted here.

**Early-mid childhood.** Coparenting research has commonly focused on the transition to parenthood and infancy, considering it to be significant as the period in which coparenting first comes into existence. Once formed, however, coparents must adapt and respond to the changing needs of the developing child (McHale & Irace, 2011). Examining coparenting beyond infancy is therefore important, but has received relatively less research attention. A supportive, coordinated coparenting team is considered to be especially salient for children during early childhood as children begin to internalise the rules and standards that govern their behaviour, increase their

autonomy and responsibility, and develop their social skills and emotion regulation. Critically, children's experiences at home help prepare them for the school environment therefore coparenting behaviours may set the tone for their behaviour and interaction at school (Stright & Neitzel, 2003).

Children's transition to primary school is a significant feature of childhood. Their entry into this new physical and social environment marks a qualitative shift; daily routines change, the amount of time children spend at home and with their parents is reduced, and rather than interacting mainly with adults, children spend much more of their time interacting with their peers (Feiring & Lewis, 1989). Moreover, the school environment places demands on children that are different from preschool and home; in addition to the new academic challenge of school, children are also required to be more independent, socially and emotionally competent (Silver, Measelle, Armstrong, & Essex, 2005). Children can find this transition period challenging, and it can also be a worrying time for parents (McIntyre, Eckert, Fiese, DiGennaro, & Wildenger, 2007). Further, parents commonly have to deal with behavioural challenges associated with children's own reactions to starting school, such as complaints, clinginess, and tiredness (Giallo, Treyvaud, Matthews, & Kienhuis, 2010) meaning that this period presents new challenges for parents and the coparent team. The transition to primary school is thus a period that affects the whole family. According to a family systems perspective, during such times of change "family systems must be able to adapt to ... meet the new circumstances without losing the continuity that provides a frame of reference for its members" (S. Minuchin, 1974, p. 52). It is therefore critical to examine coparenting during early to mid-childhood and the transition to school to understand the role played by this executive subsystem.

**Perceptions of coparenting.** A wide range of measures have been used to assess coparenting, including observation and parent-report methods. Observation methods – which can be conducted in-home or in the research lab – commonly involve coparents and the focal child engaging in free play (e.g. Brown, Schoppe-Sullivan, Mangelsdorf, & Neff, 2010; Feinberg, Kan, & Goslin, 2009) or a structured-play task (e.g. Jia, Kotila, & Schoppe-Sullivan, 2012; Karreman, Van Tuijl, Van Aken, & Deković, 2008), or parents of young infants may be asked to undertake specific child-care tasks such as feeding, dressing and changing (e.g. Christopher et al., 2015; Murphy, Jacobvitz, & Hazen, 2016). Parent-report measures of coparenting, which may be completed by one or both coparents, capture parents’ own personal perceptions of the quality of their coparenting (e.g. Abidin & Brunner, 1995; Feinberg, Brown, & Kan, 2012; Margolin et al., 2001). In family research, observation methods are commonly considered the ‘gold-standard’ (Rasbash, Jenkins, O’Connor, Tackett, & Reiss, 2011) whereas, historically, there has been some resistance to parent-report methods primarily due to concern over their validity (e.g. Holden & Edwards, 1989). However, the role of perceptions over objective ratings has been demonstrated and evidence suggests they may be critical for understanding family processes (Acitelli, Douvan, & Veroff, 1993; Montoya, Horton, & Kirchner, 2008). In addition, for coparenting particularly there are several reasons why parents’ perceptions may be important.

For example, firstly, coparenting does not necessarily require both coparents and child to be physically present. By definition, coparenting requires the existence of a child; however the child’s involvement may be indirect (Van Egeren & Hawkins, 2004), as is the case when a mother and father discuss their child-rearing values. Relatedly, coparenting can also take place in the absence of one of the parents. Indeed, some coparenting behaviour may *only* manifest in this situation; for example, the way one



parent talks to their child about the other parent in their absence – that is, whether they promote a positive or negative representation of that parent, or whether they neglect to talk about them. Observational measures are therefore limited to capturing overt behaviours that manifest when all relevant members of the family are together, and thereby potentially fail to capture more subtle aspects of coparenting.

Secondly, observation measures of coparenting can assess only visible behaviours. However, as previously detailed, although some coparenting behaviour may be overt – such as a disparaging comment – coparenting also entails behaviours that may be much less explicit (McHale, 1997). For example, the absence of coparent endorsement which may be felt very strongly by a parent but not visible to an observer. Thirdly, coparenting may vary across observation contexts. Recent findings reveal considerable within-family variation in observed coparenting competition and cooperation across free-play, structured play and clean-up tasks (Blandon, Scrimgeour, Stifter, & Buss, 2014), suggesting that coparents alter how they interact with one another in response to situational demands. Thus, observational measures of coparenting may be limited to capturing coparenting that is specific to the task they use, whereas parent-report provides a measure of coparenting across contexts.

Parent reports of coparenting thus provide an important means of measuring coparenting, one that may be particularly useful in capturing aspects of coparenting that are potentially missed by observation methods. Accordingly, this thesis will use mothers' and fathers' reports of coparenting, such that their own personal perception of the quality of coparenting is the focus.

**Twin families.** Twins are typically utilised by researchers for the quasi-experimental study design they afford: monozygotic (MZ; identical) twins reared

together share their environment and share 100% of their segregating genes, whereas dizygotic (DZ; non-identical/fraternal) twins reared together share their environment, but on average share only 50% of their genes. This difference in genetic relatedness allows behavioural-genetic researchers to draw inferences about the relative contribution of genes and environment for a particular behaviour or trait of interest by comparing the resemblance of MZ and DZ twins. This twin design has been useful in exploring a wide range of personality traits and behaviours, and has generated a vast and fascinating literature (Plomin, DeFries, Knopik, & Neiderhiser, 2016; Polderman et al., 2015). However, twin families also represent an important population in and of themselves, and although they have received some attention from parenting researchers, they are currently unstudied within the coparenting literature.

Raising twins presents a specific challenge for parents, requiring them to divide finite resources to meet the needs of two children of the same chronological age and developmental stage; it is thus physically and psychologically demanding. Indeed, parents of twins report feelings of frustration with the parenting role (Goshen-Gottstein, 1980) and, compared to parents of singletons, they experience greater parenting stress (Olivennes, Golombok, Ramogida, Rust, & Team, 2005) and feel less effective as parents (Boivin et al., 2005). Considering these findings, coparenting may be particularly salient for families with twins; sharing child-related responsibilities, for example, may be crucial to easing the parenting burden and, in the face of higher levels of parenting stress, having the support and respect of a coparent may be important for parental wellbeing. On the contrary, coparenting that is characterised, for example, by undermining, a lack of solidarity and dissatisfaction with the division of labour may exacerbate the challenges associated with raising twins.

As well as – indeed potentially linked to – greater parenting stress, parents of twins are at higher risk of divorce (Jena, Goldman, & Joyce, 2011; McKay, 2010), suggesting that they experience a greater strain on the marital relationship. In light of the close – and hypothesised bidirectional – relationship between the marital and coparenting subsystems (Feinberg, 2003; S. Minuchin, 1974), a greater understanding of coparenting in twin families is critical. If the marital relationship is under strain, negative affect and behaviours may spill over and impact the quality of coparenting (McHale, 1995; Pedro et al., 2012). However, since coparenting may also influence the marital relationship (Don, Biehle, & Mickelson, 2013; Schoppe-Sullivan et al., 2004), improving the quality of coparenting may be an effective means of promoting a better quality marital relationship for parents of twins.

Twin families therefore represent an important population for coparenting research but prior to this thesis, there have been no published studies. This gap in the literature is particularly notable given the documented rise in twinning rate during recent decades – from 9.6 per 1,000 births in 1976 to 16.0 per 1,000 in 2014 (Office for National Statistics, 2014a) – meaning that more families are affected by the stresses and strains associated with raising twins.

### **Thesis Aims**

The current thesis focuses on mothers' and fathers' perceptions of coparenting young twins; these perceptions are examined in association with the marital relationship, maternal and paternal sense of parenting competence, and children's disruptive behaviour.

The three papers that comprise this thesis share three broad aims:

1. To examine parents' perceptions of coparenting during early-mid childhood
2. To explore coparenting within a sample of families with young twins
3. To include both mothers and fathers to enable the investigation of potential parent differences in patterns of associations

An overview of the subsequent chapters in this thesis is provided below, including the specific aims of each of the papers:

## **Chapter 2: The Twins, Family and Behaviour (TFaB) Study**

The sampling frame for each of the papers in this thesis was the Twins, Family, and Behaviour (TFaB) Study, a longitudinal UK study of approximately 300 families of twins born in 2009 and 2010. The author played a key role in recruitment, study design and data collection for this study, full details of which are described.

## **Chapter 3: Mothers' and Fathers' Perceptions of Coparenting and Marital Relationships during School Transition (Paper 1)**

Bidirectional associations between parents' perceptions of coparenting and the marital relationship were investigated, using cross-lagged models to account for the within-time correlation and temporal stability of these variables. The transition to primary school was the focus, as an important but understudied period for the association between coparenting and the marital relationship. The inclusion of mothers and fathers enabled exploration of potential parent differences in the pattern of associations.

## **Chapter 4: Coparenting and Children's Disruptive Behaviour: Interacting Processes for Parenting Sense of Competence (Paper 2)**

Mothers' and fathers' perceptions of children's disruptive behaviour and the quality of coparenting, as well as their interaction, were examined in association with maternal and paternal parenting sense of competence. We focus on mid-childhood as an important period in which children's disruptive behaviour is considered problematic such that parenting sense of competence may be especially vulnerable to high levels of such behaviour at this age.

## **Chapter 5: A Harsh Parenting Team? Maternal Reports of Coparenting and Coercive Parenting Interact in Association with Children's Disruptive Behaviour (Paper 3)**

The potential interactive effects of coparenting and coercive parenting on the change in children's disruptive behaviour during the transition to primary school were examined. We capitalised on a twin sample and used multilevel modelling to simultaneously explore within- and between-family effects of coparenting, coercive parenting, and their interaction.

## **Chapter 6: General Discussion**

The research findings are summarised, followed by a discussion of key themes arising from the thesis and consideration of the theoretical and practical implications. Strengths and limitations of the research, as well as directions for future research, are outlined in this concluding chapter.

## **Chapter 2**

### **Design and Procedure: The Twins, Family and Behaviour (TFaB) Study**

## **Design and Procedure**

### **Sample**

Specific details of the sub-samples used for each of the analyses are contained in their respective chapters. However, all of the research in this thesis was based on data collected as part of the Twins, Family and Behaviour (TFaB) Study by my colleague Katharine Mark (KM) and myself.

**Participant recruitment.** Initial recruitment for the TFaB study was conducted by the Office for National Statistics (ONS), who contacted 800 mothers of twins born in England and Wales in 2009 to invite them to participate in the research. Of these mothers, 287 (35.88%) indicated their interest in participating by giving permission to be contacted directly by the research team. To augment the sample, i) the inclusion criteria was extended to twins born in 2010, ii) participating families were asked if they knew any eligible families who might also be interested, and iii) the study was advertised on Twitter by the Twins and Multiple Births Association (TAMBA), a registered UK charity. As a result of this, an additional 59 families – totalling 346 families – expressed a desire to participate in the TFaB study. Two hundred and eighty three families (81.79%) participated in at least one wave of study data collection. Of these, 256 mothers (90.46%) indicated in their initial questionnaire that they lived with a partner (hereon referred to as ‘intact’ families) and the majority of these (96.88%) identified their partner as being the twins’ other parent. More specifically, 223 mothers (87.11%) were married to the twins’ birth father, 25 mothers (9.77%) cohabited with the twins’ birth father, and a small number of mothers were married to, or cohabited with, someone who was not the twins’ birth father (3 (1.17%) and 5 (1.95%) mothers respectively). For the purposes of this thesis, mothers were asked to invite their partner

to take part also – 167 partners (164 biological fathers, 1 step-father and 2 guardians) participated in at least one study wave.

**Participant retention.** Attempts to maximise participation and retention throughout the study were made. For example, at each study wave, several friendly reminders were given to families to encourage participation. At study Waves 1 and 4 (see *Procedure*, below), questionnaires were sent via post; if no response was received a month later, a reminder was sent by post, email or phone. Three reminders were sent, including a replacement questionnaire. For study Waves 2 and 3, families were initially contacted by phone or email to discuss the telephone interview and Skype observation with them. Multiple attempts were made to establish contact with families such as making phone calls at varying times of the day and week (including evenings and weekends), leaving a voicemail message, and following up with a text message or email. Throughout the study, families were asked if they had a preferred method of communication, and whether particular times were better for them to be contacted; this enabled informed decisions to be made regarding when, and how best, to contact participants.

To minimize attrition, at initial recruitment families were asked to provide a personal contact (i.e., a close friend or relative) whom we could contact in the event that we lost touch with them during the study. Participants' contact details were also routinely checked throughout the study to ensure records were kept up-to-date. Furthermore, to encourage continued involvement in the study, and to show our gratitude, handwritten 'thank you' cards were sent to parents after their participation in each study wave. In 2013, 2014, and 2016 a newsletter providing an update of study progress and sharing research findings was circulated to TFaB families to foster a sense



of ‘belonging’ to the study (Appendices A-C). Table 2.1 presents the total number of mothers and fathers who participated in each study wave and in multiple study waves.

**Table 2.1** Total participants (*N*) at each study wave and at multiple study waves

	Mothers ( <i>N</i> )	Fathers ( <i>N</i> )
Wave 1	279	132
Wave 2	230	107
Wave 3	151	106
Wave 4	173	109
Waves 1 and 2	229	93
Waves 1, 2 and 3	143	69
Waves 1, 2, 3 and 4	123	58

*Note.* Wave 1 = initial questionnaire; Wave 2 = telephone interview; Wave 3 = Skype observation, Wave 4 = follow-up questionnaire.

**Demographics.** At the birth of their twins, the average age of mothers was 33 years and 10 months ( $SD = 4$  years 8 months) and fathers was 36 years and 6 months ( $SD = 6$  years 6 months). This was a well-educated sample, 58.5% of mothers and 46% of fathers had an undergraduate degree or higher qualification. This compares to a national average of 33.9% of women and 33.3% of men of comparable age (Office for National Statistics, 2014b). Families were asked to categorise, rather than specify exactly, their total household income. The full range (from <£5,000 to > £100,000) was endorsed; the ‘average’ category was £40,000 - £49,000 which compares favourably to the average UK household income of £44,330 (Office for National Statistics, 2011).

English was the main language spoken in the home for the vast majority (91.8%) of TFaB families.

**Intact families.** The research in this thesis utilised data from ‘intact’ families where both mother and father participated in the TFaB study; there were 166 families where both parents took part in at least one study wave. These families differed from the overall TFaB sample such that they had: mothers and fathers who were older at the time of the twins’ birth (Welch’s  $F(1,205.63) = 11.04, p = .001$  and  $F(1,249) = 4.21, p = .041$  respectively); mothers and fathers with a higher level of education qualification (Welch’s  $F(1,213.07) = 27.13, p < .001$  and  $F(1,243) = 19.49, p < .001$  respectively); and a higher household income (Welch’s  $F(1,154.65) = 31.51, p < .001$ ). Specific details of the subsamples used for each analysis are contained within the relevant chapters.

## Procedure

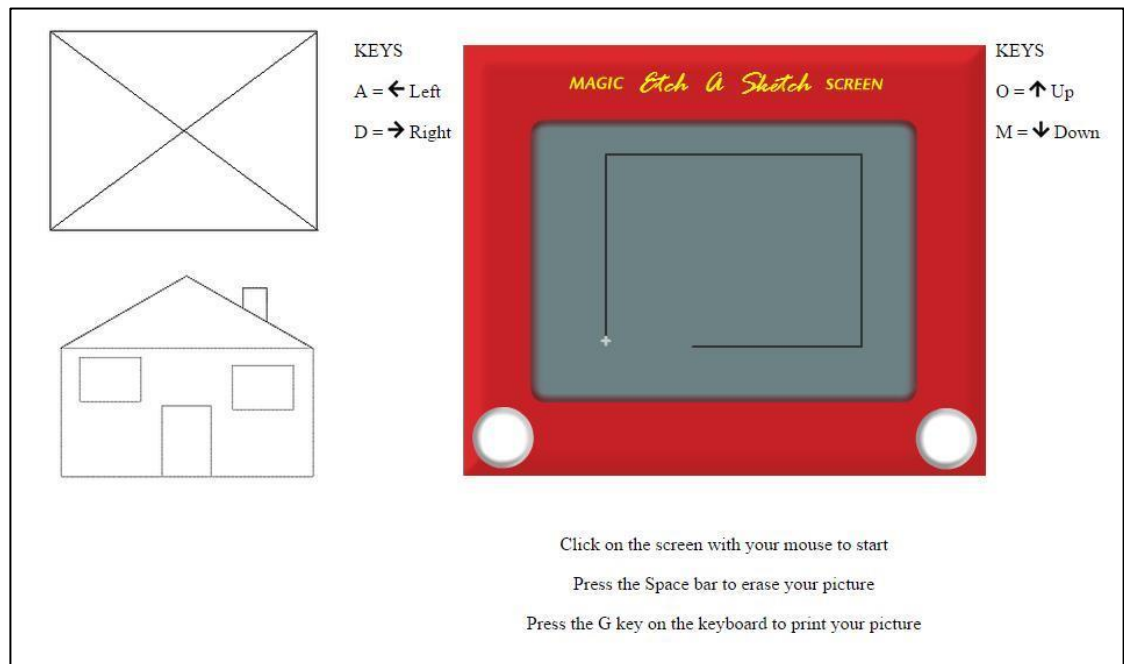
The TFaB study is a longitudinal study of young twins and their families. Over a two-year period, four waves of data collection were conducted by KM and myself.

**Wave 1: Postal Questionnaire ( $M_{\text{child age}} = 3 \text{ years } 11 \text{ months}$ ,  $SD_{\text{child age}} = 4.44 \text{ months}$ ).** On recruitment to the study, mothers and fathers were sent a pack that included a study information sheet (Appendix D), consent form (Appendix E), initial questionnaire and pre-paid return envelopes. This questionnaire asked demographic information including their own and their twins’ date of birth, their marital status, qualifications, occupation and household income (Appendix F). This was followed by measures of twin zygosity and household chaos. For each twin, parents’ also reported on their parental feelings, the parent-child relationship, parenting style and child behaviour (see Table 2.2 in *Measures* below).

**Wave 2: Telephone Interview** ( $M_{\text{child age}} = 4 \text{ years } 8 \text{ months}$ ,  $SD_{\text{child age}} = 4.44 \text{ months}$ ). Mothers and fathers were contacted by telephone or email and invited to take part in a 40-minute audio-recorded telephone interview, conducted at a time convenient to them. An information sheet (Appendix G) and consent form (Appendix H) were sent electronically (or posted if they did not have access to email) and, once consent was received, an interview was arranged. Parents were asked about significant life events (e.g., marital separations, illness, bereavements) since the twins' birth, sibling relationship quality and – for parents who lived with a partner – the quality of coparenting and the marital relationship (see Table 2.2). The interview also involved a semi-structured element, the Pre-School Five-Minute Speech Sample (PFMSS; Daley, Sonuga-Barke, & Thompson, 2003), a measure of parental expressed emotion. For this, the parent was asked to 'tell me about [child name] – what they're like as a person and how you get on with them', after which they had five minutes to speak freely and spontaneously about the child. The telephone interview was structured such that parents answered the coparenting questions and completed the PFMSS in relation to each twin respectively; the order in which parents were asked about their twins was counterbalanced. A total of 230 mothers and 107 fathers participated in this second wave of data collection. With the exception of the PFMSS, the telephone interview was coded live during the interview, and the data entered immediately after the telephone call ended. The PFMSS was subsequently transcribed and coded using the audio recordings. This coding was undertaken in pairs by KM and myself, as well as by a team of undergraduate- and postgraduate-student coders trained by KM and myself.

**Wave 3: Skype Observation** ( $M_{\text{child age}} = 5 \text{ years } 6 \text{ months}$ ,  $SD_{\text{child age}} = 6 \text{ months}$ ). For the third wave of TFaB we observed parent-child interaction. Families were provided with an information sheet (Appendix G) and consent form (Appendix H),

and invited to take part in a novel online-interaction task. The task is based on the "etch-a-sketch task", traditionally conducted during lab or in-home visits. The original version of this task involves the parent and child working together to copy two pictures using an etch-a-sketch toy (Deater-Deckard & O'Connor, 2000). Note that for the original task, parents and children are given the explicit instruction they are not to touch each other's control dial. For our online version of this, participating families were provided with a link to a web-page containing an electronic etch-a-sketch (Figure 2.1). Families could access the online etch-a-sketch and operate it using particular keys on the keyboard to draw lines ('O' and 'M' keys for vertical lines, 'A' and 'D' keys for horizontal lines) and thus copy the two pictures provided. Importantly, following the original task as closely as possible, participants were told that the parent can only control the keys that draw vertical lines, and the child can only control the keys that draw horizontal lines – they are not to touch each other's keys.



**Figure 2.1** The online etch-a-sketch task as viewed on-screen by the participants

To enable observation of parents and children completing this computer-based task, the free online video-calling software 'Skype' was used. Families were provided with a webcam and clear instructions for downloading and using Skype as required. Those without internet access were encouraged to consider using that of a friend or relative to facilitate their participation. Audio-visual recording software was used to record the Skype video-call.

Once consent to take part in the observation was received, a convenient time was arranged with the family. Parents were provided with the web-link to the etch-a-sketch game, and also a Skype username and password to enable them to log in to Skype without having to create, or use, their own personal Skype account. At the arranged time, myself or KM logged in to Skype and video-called the family. Mothers and participating fathers completed the etch-a-sketch task with each twin separately whilst other family members (including the co-twin) were asked to be out of the room. Verbal instructions for using the etch-a-sketch were given to each parent-child dyad, and they were asked to spend 8 minutes drawing the two pictures illustrated on the screen. While dyads completed the task, the researcher's webcam was switched off so that they could not be seen or heard by the participants, in order to minimise distraction and the awareness of being observed. The researcher was still able to see and hear the participants. Dyads who completed the task within the 8 minutes were encouraged to try again or to continue playing with the etch-a-sketch together for the remaining time. After the time elapsed, the researcher's webcam was switched back on, and the second parent-child dyad was invited to take part. The order in which parent-child dyads took part (i.e., mother or father first, Twin 1 or Twin 2 first) was counterbalanced and noted, along with the start-time of the recording for each; this information was stored alongside the family ID number to aid the subsequent coding of the video recordings.

The video recordings of the Skype observations were labelled with the date and the family's ID number, stored in a password protected file, and subsequently coded by University of Sussex undergraduate students. Children who participated in the Skype observation received a personalised certificate to congratulate and thank them for their involvement.

**Wave 4: Follow-up Postal Questionnaire** ( $M_{\text{child age}} = 6 \text{ years}$ ,  $SD_{\text{child age}} = 6 \text{ months}$ ). Families were invited to complete a follow-up questionnaire. Participants received an information sheet (Appendix I), consent form (Appendix J) and pre-paid reply envelopes. The follow-up questionnaire began by asking an open question about whether there had been any significant events for the family since their last contact with us. This was followed by 16 measures which included those used in study Waves 1 and 2, and covered topics such as the home environment, parent-child relationship, parenting, parent mental health, child behaviour and temperament, the twin sibling relationship and – for those parents who lived with a partner – the quality of coparenting and the marital relationship (see Table 2.2). Mothers' questionnaires additionally included questions about family composition, their pregnancy with the twins, and the twins' birth. A total of 173 mothers and 109 fathers completed the follow-up postal questionnaire.

## Measures

Specific details of the measures used for each of the analyses are contained in their respective chapters (see also Appendices K-P), however an overview of the parent-report measures used at each study wave is presented in Table 2.2. Note that, as ideas were developed over the course of the current research, additional measures of interest

were introduced in Wave 4. Inclusion of these measures at previous time points would have been optimal.

**Table 2.2** Parent-report measures used in the Twins, Family and Behaviour Study

Measure	Reference	Study Wave
Twin zygosity	(Price et al., 2000)	1
Confusion, Hubbub, and Order Scale (Household CHAOS)	(Matheny et al., 1995)	1 and 4
Parental feelings	(Deater-Deckard, 1996)	1 and 4
Parent-child Relationship Scale	(Hetherington & Clingempeel, 1992)	1 and 4
Parenting and Family Adjustment Scales	(Sanders et al., 2014)	1 and 4
Eyberg Child Behaviour Inventory	(Eyberg & Pincus, 1999)	1 and 4
Significant Life Events	(Höök, Hägglöf, & Thernlund, 1995)	2
Pre-school Five Minute Speech Sample	(Daley, Sonuga-Barke & Thompson, 2003)	2
Maternal Interview of Sibling Relationships	(Stocker, Dunn, & Plomin, 1989)	2 and 4
Quality of Marriage Index <sup>a</sup>	(Norton, 1983)	2 and 4
Brief Measure of Coparenting <sup>a</sup>	(Feinberg, Brown, & Kan, 2012)	2 and 4
Depression, Anxiety and Stress Scales	(Antony, Bieling, Cox, Enns,	4

(DAS-21)	& Swinson, 1998)	
EAS (Emotionality, Activity & Shyness) Temperament Survey	(Buss & Plomin, 1986)	4
Social Competence Scale	(Conduct Problem Prevention Research Group, 1995)	4
Strengths and Difficulties Questionnaire	(Goodman, 1997)	4
Callous-unemotional features of the Antisocial Process Screening Device	(Frick & Hare, 2001)	4
Parenting Sense of Competence (PSOC) Scale	(Gibaud-Wallston & Wandersmann, 1978 cited in Johnston & Mash, 1978)	4
Parenting Alliance Inventory <sup>a</sup>	(Abidin & Brunner, 1995)	4
O’Leary-Porter Scale (OPS) of marital hostility <sup>a</sup>	(Porter & O’Leary, 1980)	4
Conflict about parenting <sup>a</sup>	(Ahrons, 1981)	4
<i>Note.</i> <sup>a</sup> Completed only by parents who lived with a partner.,		

### **Ethical Considerations**

The TFaB study was approved by the NHS Health Research Authority, the National Research Ethics Service committee and the University of Sussex Science & Technology Cross-schools Research Ethics Committee. As previously detailed, at each study wave, participants were provided with an information sheet and a consent form – participation only took place after written consent was given. For children’s



participation in the Skype observations, as they were unable to provide consent, their verbal assent to take part was gained once the etch-a-sketch task had been explained and their questions answered.

The information sheets provided to participants advised of their ability to withdraw from TFaB at any time, and also their right to withdraw their data at any point prior to publication of results. During the study, 13 families requested to be withdrawn from further participation. To date, no-one has requested their data be withdrawn.

Data provided by families were stored securely, in line with ethical procedures. Hard copies of completed questionnaires and consent forms were stored under lock and key, and electronic files (e.g., electronic consent forms, interview audio-recordings, Skype recordings) stored in a secure password-protected file. Data were identified only by a family ID number – allocated at initial recruitment – and twins identified by a twin ID number (comprised of their family ID suffixed by a 1 or 2 to indicate first- or second-born twin). The database linking family ID and family details was password protected and accessed only by myself, KM and the Principal Investigator, Dr Bonamy Oliver.

**Chapter 3**

**Mothers' and Fathers' Perceptions of Coparenting and**

**Marital Relationships During the Transition to**

**Primary School**

**(Paper 1)**

### Abstract

Coparenting and the marital relationship are closely related yet distinct family subsystems hypothesised to influence one another. Using cross-lagged models for mothers and fathers, we examined bidirectional associations between coparenting and the marital relationship during their children's transition to primary school. Parents of twins from 106 'intact' families reported perceptions of coparenting and the marital relationship via telephone interview at Time 1 ( $M_{\text{child age}} = 4\text{years } 8\text{ months}$ ,  $SD_{\text{child age}} = 4.44\text{ months}$ ) and questionnaire at Time 2 ( $M_{\text{child age}} = 6\text{ years}$ ,  $SD_{\text{child age}} = 6.12\text{ months}$ ). Accounting for within-time associations and temporal stability for both mothers and fathers, coparenting was positively associated with subsequent reports of the marital relationship; there was no evidence of reciprocal associations between the marital relationship and subsequent coparenting. In mid-childhood, the quality of coparenting may be a driver of the quality of the marital relationship for parents of twins. Those seeking to improve the marital relationship should pay due attention to perceptions of coparenting as children age.

## **Introduction**

The way that couples work together as a parenting team – coparenting – and the marital relationship are considered to be distinct yet closely related family subsystems that are hypothesised to influence one another. However, few studies have investigated this potential bidirectionality. Understanding the direction of the flow of influence between coparenting and the marital relationship is of particular interest for considering family support. Thus, we aimed to illuminate whether the quality of the earlier marital relationship is associated with the quality of later coparenting and/or vice versa.

Family systems theory views the family as a complex system composed of several distinct but interconnected subsystems. In an ‘intact’ family consisting of a mother, father and a child, for example, there is the parent-child, marital and coparenting subsystems. Functioning within one of these subsystems is proposed to be related to functioning within another, an interdependency that emphasises the importance of the broad family context for understanding children’s development (Cox & Paley, 1997; Minuchin, 1988). This theoretical framework has guided a plethora of empirical research demonstrating the significance of the quality of the inter-parental (hereon referred to as ‘marital’) relationship and – more recently – coparenting, for children’s adjustment.

Coparenting refers to the way in which parents work together in the care and upbringing of a child (Feinberg, 2002) and is conceptualised as including multiple aspects, such as coparent support, undermining, division of labour, child rearing agreement, and the endorsement of partners’ parenting (Feinberg, 2003). The marital relationship refers to spouses’ interactions with, and sentiments about one another as romantic partners (Mangelsdorf, Laxman, & Jessee, 2011). Importantly, scholars

consider coparenting and the marital relationship to be key, yet distinct family subsystems. Coparenting comes into existence only when couples become parents, and has the potential to survive even if their marital relationship ceases (Cowan & McHale, 1996). Indeed, coparenting has traditionally been explored within the context of parental divorce, with parents' continued coordination and cooperation in childrearing highlighted as critical for children's wellbeing (e.g., Maccoby & Mnookin, 1992). In recent decades, however, research has increasingly considered coparenting in 'intact' dual-parent families (Feinberg, Brown, & Kan, 2012; Margolin, Gordis, & John, 2001; McHale, 1997).

A growing literature recognises that within intact families, positive, cohesive coparenting is important for favourable child outcomes (e.g., Cabrera, Scott, Fagan, Steward-Streng, & Chien, 2012; Schoppe, Mangelsdorf, & Frosch, 2001), and there are long-established links between problems within the marital relationship and disruptions to the parent-child relationship (e.g., Erel & Burman, 1995; Newland, Ciciolla, & Crnic, 2015) as well as adverse child outcomes (e.g., Cummings & Davies, 1994; Stover et al., 2012). Importantly, coparenting has been shown to contribute uniquely to children's development over and above the marital relationship (see Teubert & Pinquart, 2010 for a review), and to mediate the association between the marital relationship quality and parenting (e.g., Pedro, Ribeiro, & Shelton, 2012; Stroud, Meyers, Wilson, & Durbin, 2015).

However, although recognised as distinct subsystems, coparenting and the marital relationship are closely and reliably related (Mangelsdorf et al., 2011). For example, cross-sectional research has demonstrated positive associations between couples' coparenting and their marital relationship (McHale, 1995; Pedro et al., 2012) suggesting a process of spill-over – the transference of affect and behaviour from one

subsystem to another (Engfer, 1988; Erel & Burman, 1995). Of particular interest for considering family support is understanding the direction of this transference, that is, whether the flow of influence is from the marital relationship to coparenting and/or vice versa. Inferring a direction of effect from the marital relationship to coparenting is reasonable, given that couples' marital relationship typically exists prior to them becoming coparents (Liu & Wu, 2016). Longitudinal studies focused on the transition to parenthood and child infancy have indeed shown that the prenatal marital relationship 'sets the stage' for postnatal coparenting (Le, McDaniel, Leavitt, & Feinberg, 2016). Moreover, the importance of changes in the quality of the marital relationship during this transition has been demonstrated. For example, increases in marital conflict have been shown to be associated with lower levels of cooperative and supportive coparenting two years later, with declines in fathers' marital satisfaction also predicting higher competitive coparenting at this later stage (Christopher, Umemura, Mann, Jacobvitz, & Hazen, 2015). Thus, when couples first become parents, positive and negative spill over from the marital relationship to coparenting is in evidence.

Just as the marital relationship has been hypothesised to influence coparenting, so too coparenting has been hypothesised to influence the marital relationship (e.g., Feinberg, 2003). Using cross-sectional data, Morrill and colleagues (Morrill, Hines, Mahmood, & Cordova, 2010) compared a model in which parent perceptions of the quality of the marital relationship predicted their perceptions of coparenting, which, in turn, predicted their parenting practices, with an alternative model in which coparenting simultaneously predicted the marital relationship and parenting. Both models were found to fit the data equally well, providing initial support for the hypothesis that coparenting influences the marital relationship as well as the other way around. Furthermore, in a longitudinal study, Don, Biehle, and Mickelson (2013) reported an

association between prenatal marital satisfaction and parents' perceptions of coparenting agreement at child age 4 months, as well as – for mothers only – an association between coparenting agreement and subsequent marital satisfaction at child age 9 months.

However, few studies have explored potential bidirectionality in the associations between coparenting and the marital relationship, and existing findings are far from consistent. On the one hand, in a sample of 46 families, observed coparenting at child age 6 months was shown to predict observations of marital relationship quality at 3 years, but not vice versa (Schoppe-Sullivan, Mangelsdorf, Frosch, & McHale, 2004). Conversely, using a larger sample ( $N=164$ ), and focusing on parents' perceptions, Le et al., (2016) found evidence of reciprocal associations between mothers' – but not fathers' – perceptions of the marital relationship and coparenting support and undermining over the transition to and first 3 years of parenthood. Finally, in a study of 6,100 fathers over a two-year period (child age 24-48 months), reciprocal links were found between coparenting and marital relationship quality, specifically, between marital and coparenting conflict, as well as positive aspects of the coparenting and the marital relationship (Fagan & Lee, 2014).

As well as being of interest due to their longitudinal nature, these studies point towards another important issue – that of potential differences in the associations between coparenting and marital relationship constructs for mothers and fathers. It has been suggested that these differences might be understood in terms of socialisation and the proposed greater importance of the parenting role to women's identity (e.g., Maurer, Pleck, & Rane, 2001) such that – compared to fathers – mothers' feelings about coparenting may have more of an influence on their evaluation of their marital relationship. Indeed, some evidence has demonstrated longitudinal reciprocal

associations for mothers, but links from the marital relationship to coparenting only for fathers (Don et al., 2013; Le et al., 2016). Contrary to this, however, are findings of reciprocal associations between coparenting and the marital relationship for fathers as well (Fagan & Lee, 2014). Thus, the current scant literature is far from definitive regarding the existence of parent differences. Moreover, few studies have compared mothers and fathers, and there has been little consideration of parent differences beyond the transition to parenthood. While the transition to parenthood is an important period, gender roles often diverge and become more traditional at this time (e.g., Baxter, Hewitt, & Haynes, 2008; Katz-Wise, Priess, & Hyde, 2010). Parent differences in the patterns of associations between coparenting and the marital relationship are of particular interest as children transition to primary school, since ‘role traditionalisation’ may be reduced, for example as mothers return to the workforce. Moreover, as children age and parents become more established coparents, the influence of coparenting on the quality of their marital relationship may become particularly pertinent (Morrill et al., 2010).

A broadly defining attribute of coparenting studies is that they consider first-born single children. Nevertheless, family systems theory emphasises not only the mutuality of influences between individuals within a triad, but also the increased complexity of family dynamics that arises from additional children in the family. As such, examining coparenting and marital relationships within more complex families is critical. Families with twins are more complex not only because they include more children, but – unlike families with different-aged siblings – these coparents are instantly tasked with having to juggle the demands of two children with the same developmental needs. The specific challenge of raising twins is therefore physically and psychologically demanding. While twin-births have steadily increased over recent



decades such that more and more families are impacted (Office for National Statistics, 2014), these families remain unstudied within the coparenting literature. This is an important gap: twin families have been shown to experience higher parenting stress than singleton families (Olivennes, Golombok, Ramogida, Rust, & Team, 2005); the greater demands of raising two children of the same age may impact parental involvement (Lytton, 1980); and there is demonstrated to be greater strain on the marital relationship for twin families (Jena, Goldman, & Joyce, 2011). Thus, it is of interest to extend the current literature to include parents of twins in order to understand the associations between coparenting and marital subsystems in these families.

### **The Current Study**

We investigated bidirectional associations between parents' perceptions of coparenting and the marital relationship, using a cross-lagged model to account for the within-time correlation and temporal stability of these variables. We sought to extend the existing literature in three main ways. First, we focused on the transition to primary school as an important but understudied period for the associations between coparenting and the marital relationship (Le et al., 2016). Second, we included both mothers' and fathers' perceptions of the quality of their coparenting and the marital relationship to test for potential parent differences in the pattern of associations. Third, for the first time, we examined these research questions among parents of twins. In line with previous research, for both mothers and fathers we anticipated positive cross-sectional associations between coparenting and the marital relationship at both time points, as well as stability across time. We hypothesised the flow of influence to be bidirectional, but given the mixed nature of the small extant literature, the lack of previous research in this age range, and our inclusion of twin families, the pattern of cross-lagged associations and of potential parent differences was exploratory.

## Method

### Sample and Procedure

The sampling frame for the current study was the Twins, Family and Behaviour (TFaB) study. TFaB is a longitudinal study of families with twins born in England and Wales in 2009 and 2010 recruited from UK birth records through the Office for National Statistics. A total of 283 families were recruited. For the current analyses a subsample of 106 ‘intact,’ co-resident TFaB families (95.3% married) where both mother and father were active participants was selected. Forty-five families had monozygotic (identical) twin pairs and 58 families had dizygotic (non-identical) twin pairs (4 twin pairs zygosity unclassified; twin zygosity was determined using maternal reports shown to be more than 95% accurate when compared to DNA testing (Price et al., 2000)).

To assess the representativeness of this subsample, parental education and household income were compared to UK Census data. Our sample was well-educated, with 74.29% of mothers and 53.49% of fathers holding an undergraduate degree qualification or higher, compared to a national average of 33.9% of women and 33.3% of men of comparable age range (Office for National Statistics, 2014b). In terms of financial circumstances, our families were asked to categorize (rather than specify exactly) their total household income. The full range of categories (<£5,000 to >£10,000) were endorsed, with an average income given in the ‘£40,000 to £49,000’ category. This compares favourably to the average UK household income of £44,330 (Office for National Statistics, 2011).

For the current analyses, we utilised standard parent-report measures of the quality of coparenting and the marital relationship collected via a 40-minute telephone

interview (Time 1;  $M_{\text{child age}} = 4$  years 8 months,  $SD_{\text{child age}} = 4.44$  months) and a follow-up postal questionnaire (Time 2;  $M_{\text{child age}} = 6$  years,  $SD_{\text{child age}} = 6.12$  months). Identical questions were asked at both time points and informed consent was provided at each study phase. The project was approved by NHS Health Research Authority, National Research Ethics Service (NRES) committee and the University of Sussex Science & Technology Cross-schools Research Ethics Committee (CREC).

## Measures

**Coparenting.** Mothers' and fathers' perceptions of the quality of their coparenting were assessed using 12 items from the Brief Measure of Coparenting (Feinberg, Brown, & Kan, 2012). Sample items include 'My partner undermines my parenting of [child name]', and 'My partner and I have different ideas about how to raise [child name]', to cover six core coparenting constructs (support, undermining, agreement, closeness, endorsement and division of labour). Note that two items from the original measure, 'How often in a typical week do you argue about your relationship or marital issues unrelated to [child name] in the child's presence?' and 'How often in a typical week does one or both of you say cruel or hurtful things to each other in front of [child name]?' were not included because of their strong association with marital rather than coparenting constructs. 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 mean score reflected higher quality coparenting. This was calculated for mothers (Time 1:  $\alpha = .78$ , Time 2:  $\alpha = .82$ ) and for fathers (Time 1:  $\alpha = .65$ , Time 2:  $\alpha = .79$ ). The Brief Measure of Coparenting has shown good internal reliability, construct and convergent validity (Feinberg et al., 2012).

**Marital relationship.** Mothers and fathers reported on the quality of their marital relationship using the six-item Quality Marriage Index (Norton, 1983). Sample

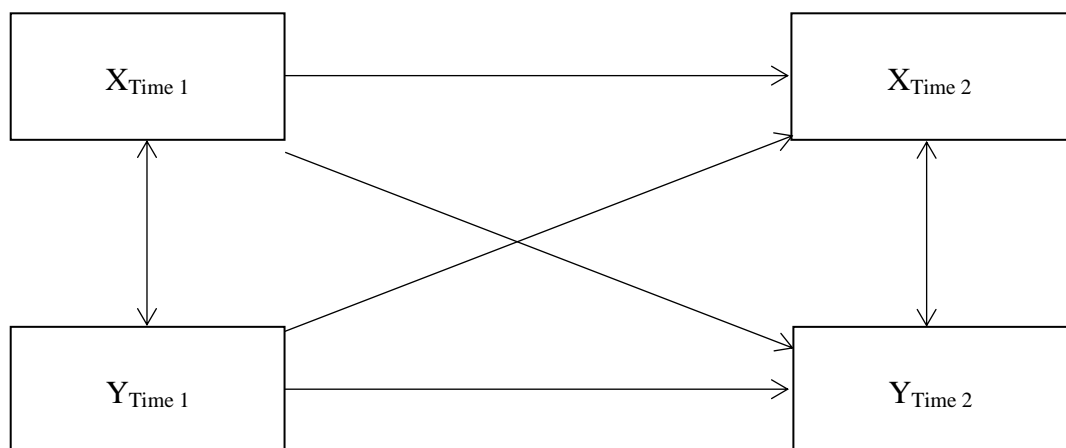
items include ‘My relationship/marriage with my partner makes me happy’ and ‘Our relationship/marriage is strong’. Responses were given on a 7-point scale for 5 items (*disagree strongly* (1) to *agree strongly* (7)), and the final item, ‘Please rate the degree of happiness, everything considered, in your marriage/relationship’, uses a 10-point rating scale (1 = low and 10 = high). Items were averaged such that a higher score indicated greater marital relationship quality (mothers Time 1:  $\alpha = .94$ /Time 2:  $\alpha = .93$ ; fathers Time 1  $\alpha = .87$ /Time 2:  $\alpha = .95$ ). This measure has excellent convergent and discriminant validity (Heyman, Sayers, & Bellack, 1994).

### **Analytic Strategy**

Prior to conducting all analyses, correlations between family socioeconomic status (SES; composed of household income, parental education and job type), child age and the number of boys in the twin dyad were examined. SES did not correlate with parents’ perceptions of coparenting or the marital relationship at either time point, and was therefore not included as a control. Child age correlated significantly with mothers’ perceptions of coparenting ( $r = .24, p = .013$ ) and the marital relationship ( $r = .21, p = .038$ ) at Time 1 such that perceptions of higher quality coparenting and marital relationship were both associated with having older children. Fathers’ coparenting at Time 2 was marginally correlated with the number of boys in the twin dyad ( $r = -.19, p = .056$ ) such that they perceived higher quality coparenting when there were fewer boys in the dyad. Thus, for our analyses, we used unstandardized residual variables controlling for child age and the number of boys in the dyad.

In order to explore the longitudinal, potentially reciprocal relationships between mothers’ and fathers’ perceptions of the quality of their coparenting and marital relationship over time, we used cross-lagged panel analyses. To illustrate, assume variable X and variable Y are both measured at Time 1, and again at Time 2. These four

measures produce a cross-lagged two-panel model as depicted in Figure 3.1. The model includes the cross-sectional association between X and Y at Time 1 and at Time 2 (indicated by double-headed arrows) as well as two autoregressive paths (indicated by horizontal, single-headed arrows linking the same variable across time points) that model the temporal stability of the variables. In addition, two cross-lagged paths (indicated by diagonal, single-headed arrows) model the relationship between variable X at Time 1 and variable Y at Time 2, whilst simultaneously modelling the relationship between variable Y at Time 1 and variable X at Time 2. These cross-lagged associations are of particular interest because they indicate the degree to which variable X and Y – in our analysis, perceptions of coparenting and the marital relationship – influence one another. Importantly, these cross-lagged models provide conservative estimates of longitudinal prediction (Kenny, 2005) since they account for the stability in perceptions of the quality of coparenting and the marital relationship, as well as the cross-sectional associations between these variables. Models were estimated separately for mothers and fathers with M-Plus version 6 (Muthén & Muthén, 2012) using Full Maximum Likelihood to handle missing data and non-normality of the data. Bias-corrected bootstrapped 95% confidence intervals (CIs) based on 10,000 samples were used to assess potential differences in the magnitude of analogous paths for mothers and fathers.



**Figure 3.1** Illustrative structure of a cross-lagged two-panel model.

## Results

### Preliminary Analyses

Table 3.1 presents descriptive statistics for all study variables. Paired *t*-tests to assess mean level differences between mothers and fathers revealed no significant differences in their reports of coparenting at Time 1 ( $t(75) = -.08, p = .938$ ), coparenting at Time 2 ( $t(102) = .08, p = .938$ ), the marital relationship at Time 1 ( $t(70) = .15, p = .879$ ) or the marital relationship at Time 2 ( $t(103) = .27, p = .788$ ).

Correlations among study variables (Table 3.2) showed stability in mothers' and fathers' respective reports of the quality of coparenting and the marital relationship. In addition, as expected, for mothers and fathers, there were cross-sectional associations between the perceived quality of coparenting and the marital relationship at both time points – higher quality coparenting was associated with a higher quality marital relationship. For both parents, there were positive associations between the marital relationship at Time 1 and later coparenting, and between coparenting at Time 1 and subsequent perceptions of the marital relationship. Although not the focus of the current study, for interest, cross-rater correlations are also shown in Table 3.2. All correlations between mother variables and father variables were positive, and moderate to large in size – with one exception, fathers' perception of the quality of the marital relationship at Time 1 and mothers' coparenting at Time 2 were not significantly correlated ( $r = .08, p = .492$ ).

**Table 3.1** Descriptive statistics for mother- and father- reported marital relationship and coparenting at Time 1 and Time 2

	<i>M</i>	<i>SD</i>	Skew	Kurtosis
Mothers				
1. Marital Relationship (Time 1)	6.89	0.86	-13.00	28.52
2. Coparenting (Time 1)	6.14	0.70	-5.64	3.58
3. Marital Relationship (Time 2)	6.85	0.79	-8.47	9.65
4. Coparenting (Time 2)	5.89	0.83	-4.58	2.01
Fathers				
5. Marital Relationship (Time 1)	6.97	0.59	-5.54	3.28
6. Coparenting (Time 1)	6.27	0.50	-3.32	0.99
7. Marital Relationship (Time 2)	6.80	0.88	-10.32	18.06
8. Coparenting (Time 2)	5.95	0.76	-3.78	1.80

Note. Variable anchor ranges: Coparenting = 1-7, Marital relationship = 1-7.5. Higher values = higher scores on each of the constructs.

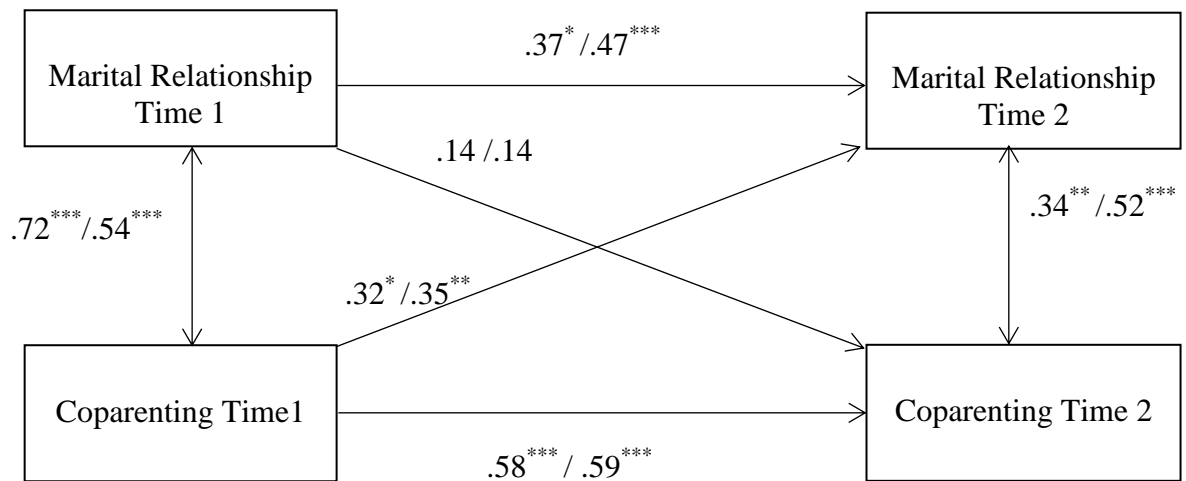
**Table 3.2** Correlations (unstandardized, child age- and sex-regressed residuals) for mother- and father- reported marital relationship and coparenting at Time 1 and Time 2

	1	2	3	4	5	6	7	8
<b>Mothers</b>								
1. Marital Relationship (Time 1)	1							
2. Coparenting (Time 1)	.73***	1						
3. Marital Relationship (Time 2)	.62***	.60***	1					
4. Coparenting (Time 2)	.57***	.68***	.61***	1				
<b>Fathers</b>								
5. Marital Relationship (Time 1)	.55**	.33**	.38**	.08	1			
6. Coparenting (Time 1)	.51***	.42***	.40***	.35**	.56***	1		
7. Marital Relationship (Time 2)	.44***	.40***	.51***	.36***	.68***	.62***	1	
8. Coparenting (Time 2)	.40***	.41***	.41***	.43***	.49***	.67***	.71***	1



### Cross-lagged Analyses

Cross-lagged analyses (see *Analytic Strategy*) were used to explore the pattern of association between parents' perceptions of the quality of coparenting and the marital relationship. Model fit was satisfactory for mothers ( $\chi^2(5) = 63.67, p < .001$ ; RMSEA = 0.000 (90% CI 0.00-0.00); CFI = 1.00; TLI = 1.00) and fathers ( $\chi^2(5) = 129.21, p < .001$ ; RMSEA = 0.00 (90% CI 0.00-0.00); CFI = 1.00; TLI=1.00). Figure 3.2 displays the results of these analyses.



**Figure 3.2** Cross-lagged model of mothers' and fathers' perceptions of the quality of coparenting and the marital relationship. Paths are labelled mother/father standardized coefficient. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Mothers.** In line with the simple correlations, within-time associations between coparenting and the marital relationship were evident, after accounting for all other pathways, indicating that mothers who perceived the quality of coparenting to be high also perceived a high quality marital relationship at Time 1 ( $\beta = .72$ , 95% CI [0.63, 0.81]) and Time 2 ( $\beta = .34$ , 95% CI [0.12, 0.56]). Autoregressive paths indicated

moderate stability in mothers' perceptions of their marital relationship ( $\beta = .37$ , 95% CI [0.06, 0.68]) and considerable stability in coparenting over this one-year time period ( $\beta = .58$ , 95% CI [0.37, 0.79]). Of particular interest here are the cross-lagged path coefficients that indicate the degree to which perceptions of coparenting and the marital relationship influence one another, accounting for the within-time associations and stability of perceptions over time. Mothers' perceptions of high quality coparenting at Time 1 were significantly associated with their perceptions of a high quality marital relationship at Time 2 ( $\beta = .32$ , 95% CI [0.04, 0.60]). Notably, however, there was no association between mothers' earlier perceptions of the marital relationship and subsequent perceptions of coparenting ( $\beta = .14$ , 95% CI [-0.11, 0.39]).

**Fathers.** The cross-lagged model for fathers revealed a strikingly similar pattern of results to that for mothers. Considerable within-time positive associations were found between fathers' perceptions of the quality of coparenting and the marital relationship (Time 1:  $\beta = .54$ , 95% CI [0.32, 0.76]; Time 2:  $\beta = .52$ , 95% CI [0.37, 0.67]), and autoregressive paths indicated substantial stability in these constructs over time (coparenting:  $\beta = .59$ , 95% CI [0.44, 0.74]; marital relationship:  $\beta = .47$ , 95% CI [0.25, 0.69]). Also consistent with the finding for mothers, fathers' perceptions of coparenting at Time 1 were positively associated with their later perceptions of the marital relationship at Time 2 ( $\beta = .35$ , 95% CI [0.09, 0.59]), but not the other way around ( $\beta = .14$ , 95% CI [-0.02, 0.30]).

**Parent differences.** Bias-corrected bootstrapped confidence intervals (see *Analytic Strategy*) indicated marginally significantly different cross-sectional associations for mothers and fathers between coparenting and the marital relationship at Time 1 (Mothers:  $b = 0.40$ , 95% CI [0.24-0.64]; Fathers:  $b = 0.15$ , 95% CI [0.09-0.23]) suggesting that mothers' perceptions of the quality of coparenting and the marital

relationship may be more closely related than fathers' at this first time point.

Overlapping confidence intervals revealed no other parent differences.

## **Discussion**

The aim of the current study was to explore bidirectional associations between perceptions of the quality of coparenting and the marital relationship for both mothers and fathers, during their children's transition to primary school. Specifically, in a UK sample of young twins, we a) used cross-lagged analyses to examine the temporal flow of influence whilst accounting for within-time associations and short-term longitudinal stability, and b) compared mothers' and fathers' perceptions of the quality of coparenting and the marital relationship to uncover potential parent differences. In brief, our results indicated that coparenting and the marital relationship were associated cross-sectionally, that patterns of association for mothers and fathers differed little, and that perceptions of coparenting were longitudinally associated with subsequent perceptions of the quality of the marital relationship. We discuss these results before acknowledging study strengths and limitations.

Consistent with the spill-over hypothesis, and with prior empirical research (McHale, 1995; Pedro et al., 2012), the nature of our cross-sectional associations were such that mothers and fathers who perceived coparenting to be of high quality also reported a high quality marital relationship. That is, for example, parents who perceived their coparent as being more supportive and less competitive also perceived their marital relationship to be strong, and felt happy with their spouse. Accounting for these cross-sectional associations, our results additionally revealed considerable stability in parents' perceptions of both their coparenting and marital relationship over the one-year study

period. Importantly this was despite our use of different methods at Time 1 (telephone interview) and Time 2 (postal questionnaire), such that – although identical questions were asked – the magnitude of stability we report may be somewhat conservative. Notwithstanding their substantial continuity, change in these key relationships was also apparent. These findings add to the existing literature that has reported modest change in the quality of coparenting and the marital relationship during the transition to, and first three years, of parenthood (Christopher et al., 2015; Le et al., 2016). As children transition to school, developmental changes – notably, children’s greater autonomy – may present new challenges for the coparenting team, to which they must adapt (McHale & Irace, 2011). As such, developmental changes in the child may contribute to the change evident in parents’ perceptions of the quality of their coparenting.

In light of cross-sectional associations between perceptions of coparenting and the marital relationship, as well as the longitudinal stability in these constructs during the transition to primary school, we found cross-lagged associations between parents’ perceptions of the quality of their coparenting and, subsequently, the quality of the marital relationship. Earlier perceptions of the marital relationship were not associated with later perceptions of coparenting. Our findings were contrary to some previous research that has highlighted the importance of the quality of the prenatal marital relationship for subsequent coparenting in the very early years (Le et al., 2016). Extending this work to the transition-to-school period, our cross-lagged results suggest that, as children age, the flow of influence between these two subsystems may revolve, such that it is mothers’ and fathers’ perceptions of the quality of their coparenting that becomes the ‘driver’ for how they evaluate their marital relationship (Morrill et al., 2010). By the time children transition to primary school, the central focus for couples has been as coparents – rather than just as marital partners – for a longer period of time,

and in part we interpret our findings to reflect these more established coparent roles. Over time, if the quality of coparenting is perceived to be low (e.g., parents feel their partner undermines, competes with, or is not supportive of, them), this may erode the quality of the marital relationship. Conversely, if the quality of coparenting is perceived to be high (e.g., parents feel their partner endorses and supports their parenting), over time, this may promote a higher quality marital relationship. This notion is supported by research indicating that marital relationships that deteriorated (from child age 10 months to 5 years) evinced more observed unsupportive coparenting in the intervening years (Belsky & Hsieh, 1998). For these reasons, extending the coparenting literature to include studies of within-family changes in coparenting and marital relationship associations as the family expands with subsequent children would be of great interest.

Our comparison of mothers' and fathers' perceptions in the study of bidirectional links between coparenting and marital relationship quality during the transition to primary school is – to our knowledge – the first. We revealed no differences in the pattern of cross-lagged associations between parents' perceptions of the quality of their coparenting and marital relationship. This is contrary to some previous findings that coparenting influences the subsequent marital relationship for mothers but not fathers (Don et al., 2013; Le et al., 2016). One explanation these scholars provided of their findings is that the greater amount of time spent by mothers in the caretaking role means that – compared to fathers – mothers' evaluation of their marital relationship is more influenced by their perceptions of coparenting. As already noted, the focus of these prior studies is on the transition to parenthood and infancy, a period when parenting roles are typically more traditional (e.g., Baxter et al., 2008; Katz-Wise et al., 2010). Thus, our finding of no parental differences in mid-childhood may reflect less divergent parental roles at this later child age. Indeed, our cross-

sectional findings may support this notion, since mothers' perceptions of the quality of their coparenting and marital relationship were more closely related at Time 1 than were fathers', however, one year later this difference was no longer evident. We note this with necessary caution, because the difference between mothers and fathers at Time 1 was marginal. Further support, however comes from empirical work elsewhere. For example, although women typically still do the majority of the childcare (Craig & Powell, 2012), from child infancy to school-age maternal employment rates increase (Office for National Statistics, 2013) a factor that has itself been associated with greater father involvement in childcare (Barnett & Baruch, 1987; McBride & Mills, 1993; Parke, 2000). Therefore, these changes in mothers' and fathers' roles at this stage of family life may explain how similarly our parents' perceptions of coparenting influenced the marital relationship. Alternatively, because of the greater demands of raising twins, these fathers may be more involved in childcare than fathers of singletons (Lytton, 1980). Thus, our finding of parent similarity in associations between coparenting and the marital relationship may reflect our focus on parents' of twins.

Our study makes a novel contribution to the coparenting literature by examining the associations between coparenting and the marital relationship in a twin sample. Despite the increasing twinning rate (Office for National Statistics, 2014a) and the greater parenting stress associated with twins (Lutz et al., 2012; Olivennes et al., 2005) these parents remain an understudied population in the coparenting literature. Raising twins – as two children of the same age and developmental stage – presents a particular challenge for parents. Their tasks and responsibilities are exponentially compounded; thus, parents may rely more on the input, help and support of the other to ease the parenting load. The quality of coparenting may therefore be particularly salient for parents of twins such that it has greater influence on how they perceive the quality of

their marital relationship. This interesting question of how coparenting in twin and non-twin families compares has not yet been addressed, and is an important area for future research.

## **Limitations**

The current study makes an important contribution to the limited research examining bidirectional associations between the coparenting and marital subsystems. The study has a number of strengths including the use of a longitudinal cross-lagged design, as well as utilising a unique sample for this field and including information from both mothers' and fathers'. However, we acknowledge its limitations also. Firstly, our power – particularly to detect bidirectional effects – was limited due to our relatively small sample size. However, bivariate correlations that suggested cross-domain associations to be almost as strong as those within domain across time (see Table 3.2), our reasonable model fit indices, and size of effects (Figure 3.2) are to be noted. Secondly, we have focused on a brief, global measure of coparenting quality; however, illuminating the sub-constructs of coparenting (e.g., support, undermining, division of labour) during the transition-to-school period that are most important for the later quality of the marital relationship is an interesting area for future longitudinal research. Finally, we were interested in, and therefore focused on coparenting of twins within families headed by a mother and father; as a consequence, our sample was not representative of the UK population. As such, caution is warranted in generalising, and we encourage future work to explore the current research questions within samples of socioeconomic diversity and across family types, as well as studies designed to examine twin- and singleton-family differences.

## **Implications and Conclusions**

Our key finding of associations between coparenting and the subsequent marital relationship during children's transition to school implies that supporting parents to establish and maintain high quality coparenting over this important period may help to promote a higher quality marital relationship. Our study is particularly pertinent in light of the UK government's recent interest in interventions aiming to support the quality of parents' marital relationship (Early Intervention Foundation, 2016), suggesting that these interventions should pay close attention to coparenting as a potential mechanism of change. Indeed, we posit that parents may be more willing to consider a coparenting-based intervention – perhaps finding the focus on their children more appealing – than traditional forms of marital relationship support. Finally, these issues may be particularly important for parents of twins, and an improved understanding of how best to support these families is critical, given their increased risk for parental divorce (Jena et al., 2011; McKay, 2010).



**Chapter 4**

**Coparenting and Children's Disruptive Behaviour:**

**Interacting Processes for Parenting Sense of**

**Competence**

**(Paper 2)**

### Abstract

Parenting sense of competence (PSOC) is a critical aspect of parental adjustment that may be undermined by children's disruptive behaviour. We examined mothers' and fathers' perceptions of both children's disruptive behaviour and the quality of coparenting, as well as their interaction in association with maternal and paternal PSOC. Mothers and fathers from 108 'intact' families participating in the Twins, Family and Behaviour (TFaB) Study reported on their children's disruptive behaviour, coparenting and PSOC via postal questionnaire ( $M_{\text{child age}} = 6$  years,  $SD_{\text{child age}} = 6.12$  months). Regression analyses revealed that higher levels of children's disruptive behaviour related to parents' lower levels of PSOC and, for fathers only, perceptions of higher quality coparenting were associated with higher PSOC. Notably, for both mothers and fathers there was a significant interaction between coparenting and children's disruptive behaviour such that perceptions of high quality coparenting buffered PSOC from its negative association with children's disruptive behaviour. High quality coparenting is an important aspect of family functioning that may protect the PSOC of parents dealing with high levels of children's disruptive behaviour.

## **Introduction**

Mothers' and fathers' cognitions and evaluations of themselves as parents – maternal and paternal parenting sense of competence (PSOC) – is a critical aspect of parental adjustment, conceptualised as being comprised of perceived self-efficacy as a parent – their ability to positively influence the behaviour and development of their child – the degree of pleasure or motivation they derive from parenting, and their feelings of satisfaction with the parenting role (Johnston & Mash, 1989). PSOC has been related to parental responsiveness to the child (Donovan, Leavitt, & Walsh, 1997) and engagement in parenting interactions (Mash & Johnston, 1983), as well as use of harsh discipline (Sanders & Woolley, 2005), parenting stress (Wells-Parker, Miller, & Topping, 1990) and parental depression (Cutrona & Troutman, 1986). Understanding factors associated with PSOC is therefore critical. Research in this area has been guided by theoretical models developed to understand influences on parenting (e.g. Belsky, 1984) and has identified children's characteristics and family contextual factors as influences on PSOC. Extending this to examine the interactive effects of children's characteristics and family contextual factors on PSOC is also important, though rarely examined. Here we focus on children's disruptive behaviour, the quality of coparenting, and their interaction for maternal and paternal PSOC.

Studies examining PSOC have often focused on children's behavioural characteristics. Infant 'difficult' temperament has been shown to be associated with new parents' lower PSOC (Cutrona & Troutman, 1986; Ponomartchouk & Bouchard, 2015); and in older children, disruptive behaviour has also been considered, assuming that parents base their PSOC, in part, on how their child behaves. Although disruptive behaviour during toddlerhood is often considered normative, during the early school

years it is considered to be more problematic (Tremblay et al., 2004) and, thus, these parents may find it difficult to sustain a high level of PSOC (Ardelt & Eccles, 2001). In particular, evidence consistently demonstrates concurrent relations between children's disruptive behaviour and lower levels of PSOC (Johnston & Mash, 1989; Salari, Wells, & Sarkadi, 2014), and longitudinal findings have highlighted children's disruptive behaviour as a factor that may reduce PSOC over time (Slagt, Deković, de Haan, van den Akker, & Prinzie, 2012).

The importance of the family context as a determinant of PSOC has also been highlighted. In 'intact' families, one parent's parenting frequently occurs in front of the other (Cox & Paley, 1997) such that coparenting may be important for PSOC. Coparenting refers to the way in which adults work together as parents (Feinberg, 2002) and is conceptualised as including multiple aspects such as support, undermining, closeness, division of labour, childrearing agreement and endorsement of partner's parenting. 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). Accordingly, mothers' and fathers' perceptions of the quality of their coparenting may serve as an important source of feedback regarding their performance in the parenting role, thereby informing their PSOC. Indeed, coparenting may be an especially influential source of information given the coparent's experience and knowledge of the other's parenting skills and abilities (Martire, Stephens, & Townsend, 1998).

Associations between perceptions of coparenting and PSOC have been evinced in early infancy (Pinto, Figueiredo, Pinheiro, & Canário, 2016; Ponomartchouk &

Bouchard, 2015; Solmeyer & Feinberg, 2011) and in childhood also. For example, during the preschool period, the extent to which fathers perceived that their partner considered them a good parent was related to paternal PSOC (Bouchard, Lee, Asgary, & Pelletier, 2007). Similarly, at child age 2-7 years, Merrifield and Gamble (2013) found parents' perceptions of undermining coparenting to be associated with lower levels of parenting self-efficacy, although perceptions of supportive coparenting did not relate to higher levels of self-efficacy. Furthermore, in a longitudinal study, coparenting intervention at the transition to parenthood has been associated with higher PSOC at child age 3.5 years (Feinberg, Jones, Kan, & Goslin, 2010).

As well as directly influencing PSOC, coparenting may also have interactive effects (Merrifield & Gamble, 2013; Schoppe-Sullivan, Settle, Lee, & Kamp Dush, 2016). In particular, the coparenting context has been proposed as a potential moderator of associations between 'risk' and 'parent adjustment' (Feinberg, 2003). It is therefore of interest to examine whether parents' perceptions of coparenting moderate the association between children's behavioural characteristics and PSOC. To our knowledge, only one study has explored this important question. Focusing on the transition to parenthood, Solmeyer and Feinberg (2011) reported a significant interaction between parents' perceptions of coparent undermining and infant negative temperament. However, the direction of effect was not as they hypothesised: negative infant temperament was found to be associated with lower levels of maternal and paternal PSOC when coparent undermining was low, but not when it was high. The authors cautiously interpreted this finding as a 'swamping effect', suggesting that, in families with high levels of coparent undermining, parents' self-efficacy is swamped such that it is less sensitive to infant temperament. However, as the stress-buffering hypothesis (Cohen & Wills, 1985) suggests that high quality coparenting may be a

protective factor, the authors urge further investigation of this important research question.

### **Parent Differences**

Relatively few studies of coparenting and PSOC have included both mothers and fathers, thus limiting parent comparisons. However, the sensitivity of fathers' parenting to environmental contexts (Cummings, Merrilees, & George, 2010) and the suggestion that mothers can influence the nature of fathers' parenting role through 'maternal gatekeeping' (Schoppe-Sullivan, Brown, Cannon, Mangelsdorf, & Sokolowski, 2008) intimates that, compared to mothers, fathers' perceptions of the quality of coparenting may be especially important for paternal PSOC. Indeed, Dickie (1987) reported no difference between maternal and paternal PSOC when coparenting support was high, however when coparenting support was low, fathers reported feeling significantly less competent than mothers.

### **Twins**

Parenting tasks and responsibilities are exponentially compounded for families with twins; compared to parents of singletons, parents of twins have been shown to experience greater parenting stress (Olivennes, Golombok, Ramogida, Rust, & Team, 2005) and also to report feelings of frustration with the parenting role (Goshen-Gottstein, 1980). In addition, work by Boivin and colleagues (Boivin et al., 2005) that utilised comparable twin and non-twin samples revealed that twin mothers reported feeling significantly less effective as parents than their non-twin counterparts. In this way, twin parents may be especially vulnerable to lower levels of PSOC. Considering the pressure of childcare tasks for parents of twins, coparenting may be particularly salient for these families. Indeed, parents' perceptions of high quality coparenting – for

example, feeling their parenting is supported and endorsed by their partner – may be critical to offset the negative impact of these parenting challenges on their PSOC.

These families therefore represent an important population for coparenting research, yet despite the increased twinning rate over recent decades (Office for National Statistics, 2014a), they have received little attention in this field (Latham, Mark & Oliver, 2017).

### **The Current Study**

In a UK sample of families with young twins, we aimed to investigate mothers' and fathers' perceptions of children's disruptive behaviour, perceptions of the quality of coparenting, and their interaction in association with maternal and paternal PSOC. In particular, we examine these associations within-rater on the basis that parents' PSOC may be based in part on how they perceive their children to behave (Johnston & Mash, 1989), and informed by their perception of coparenting as feedback regarding their role as a parent (Martire, et al., 1998). Thus, the current study sought to extend the literature in the following ways: first, we built on the limited research exploring the interaction between coparenting and children's behaviour for maternal and paternal PSOC. Second, we focused on mid-childhood as an important period in which children's disruptive behaviour is considered problematic (Tremblay et al., 2004) such that PSOC may be especially vulnerable to parents' perceptions of high levels of such behaviour at this age. Third, for the first time, we examined these research questions using a sample of mothers and fathers of twins. Based on previous research, we expected higher levels of children's disruptive behaviour to be associated with lower levels of PSOC, and perceptions of high quality coparenting to be associated with higher levels of PSOC. In line with the stress-buffering hypothesis, we anticipated parents' perceptions of high quality coparenting to provide a context in which they can successfully maintain their PSOC in spite of children's high levels of disruptive behaviour.

## Method

### Sample and Procedure

The sampling frame for the current study was the Twins, Family and Behaviour (TFaB) study. TFaB is a longitudinal study of families with twins born in England and Wales in 2009 and 2010. A subsample of 108 ‘intact,’ co-resident TFaB families (95.3% married) where both mother and father were active participants was selected. Forty-five families had monozygotic (identical) twin pairs and 59 families had dizygotic (non-identical) twin pairs (4 twin pairs zygosity unclassified; twin zygosity was determined using maternal reports shown to be more than 95% accurate when compared to DNA testing (Price et al., 2000)).

To assess the representativeness of this subsample, parental education and household income were compared to UK Census data. Our sample was well-educated, with 73.58% of mothers and 52.87% of fathers holding an undergraduate degree qualification or higher, compared to a national average of 33.9% of women and 33.3% of men of comparable age range (Office for National Statistics, 2014b). In terms of financial circumstances, our families were asked to categorize (rather than specify exactly) their total household income. The full range of categories (<£5,000 to >£10,000) were endorsed, with an average income given in the ‘£40,000 to £49,000’ category. This compares favourably to the average UK household income of £44,330 (Office for National Statistics, 2011).

For the current analyses, we utilised maternal and paternal measures of PSOC, child disruptive behaviour and the quality of coparenting collected via postal questionnaire ( $M_{\text{child age}} = 6 \text{ years}$ ,  $SD_{\text{child age}} = 6.12 \text{ months}$ ). The project was approved by NHS Health Research Authority, National Research Ethics Service (NRES)



committee and the University of Sussex Science & Technology Cross-schools Research Ethics Committee (CREC).

## Measures

**Parenting sense of competence** was measured using the 16-item Parenting Sense of Competence Scale (Gibaud-Wallston & Wandersmann, 1978 cited in Johnston & Mash, 1989). Example items include ‘I honestly believe I have all the skills necessary to be a good mother/father to my child’ and ‘Being a parent is manageable, and any problems are easily solved.’ Responses were given on a 6-point scale (‘strongly agree’ (coded 1) to ‘strongly disagree’ (6)). Positive items were reversed, and responses averaged, such that a higher score indicated higher PSOC (mothers  $\alpha = .82$ ; fathers  $\alpha = .83$ ). The PSOC scale has been validated in a normative sample of parents with school-age children (Johnston & Mash, 1989).

**Child disruptive behaviour** 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)) and responses averaged to create a mean Intensity score (mothers  $\alpha = .93$ ; fathers  $\alpha = .94$ ) for each child. In line with the aims of the study, an overall measure of the level of child disruptive behaviour was created by calculating the average across the twins for mother- and father-report respectively (within twin-pair  $r = .84$  for mother-report and  $r = .80$  for father-report). The ECBI has demonstrated high reliability and validity across age and SES (Eyberg, Colvin, & Adams, 1999).

**Coparenting.** Perceptions of the quality of coparenting were assessed using 12 items from the Brief Measure of Coparenting (Feinberg et al., 2012). Sample items

include ‘My partner undermines my parenting of [child name]’, and ‘My partner and I have different ideas about how to raise [child name]’, to cover six core coparenting constructs (support, undermining, agreement, closeness, endorsement and division of labour). Note that two items from the original measure, ‘How often in a typical week do you argue about your relationship or marital issues unrelated to [child name] in the child’s presence?’ and ‘How often in a typical week does one or both of you say cruel or hurtful things to each other in front of [child name]?’ were not included because of their strong association with marital rather than coparenting constructs. 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 mean score reflected higher quality coparenting. This was calculated for mothers ( $\alpha = .83$ ) and for fathers ( $\alpha = .80$ ). The Brief Measure of Coparenting has shown good internal reliability, construct and convergent validity (Feinberg et al., 2012).

## Results

### Preliminary Analyses

Table 4.1 presents descriptive statistics and correlations for all study variables. Paired *t*-tests to assess mean level differences between mothers and fathers revealed no differences in their reports of PSOC ( $t(103) = 1.26, p = .212$ ), child disruptive behaviour ( $t(105) = -1.42, p = .158$ ) or coparenting ( $t(105) = -0.64, p = .527$ ). Correlations (Table 4.1) revealed that for both mothers and fathers, PSOC was associated with their report of child disruptive behaviour and also with their perception of coparenting. These correlations were moderate to large, suggesting that higher PSOC was related to lower levels of child disruptive behaviour, and to perceptions of

higher quality coparenting. For interest, although not a focus of this study, the cross-correlations between mothers and fathers are also presented in Table 4.1. Large correlations were evident between mothers' and fathers' reports of child disruptive behaviour, indeed PSOC was related to child disruptive behaviour as reported by the other parent. There were positive associations between mothers' and fathers' perceptions of coparenting, but no association between maternal and paternal PSOC. For fathers, higher PSOC was moderately related to higher quality mother-reported coparenting.

### **Regression Analyses**

Regression analyses were used to test associations between mothers' and fathers' PSOC and their perceptions of children's disruptive behaviour, the quality of coparenting and the interaction between child disruptive behaviour and coparenting. Analyses were conducted in M-Plus using Full Maximum Likelihood estimation which is robust to non-normality of the data. We used standardized scores and included child age and the sex constellation of the twin dyad in the regression models as controls. Table 4.2 presents the results of these regression analyses.

**Table 4.1** Descriptive statistics and correlations (unstandardized) for mother- and father-reported parenting sense of competence, children's disruptive behaviour and coparenting

	Mean	SD	Skew	Kurtosis	1	2	3	4	5	6
Mother-reported:										
1. Parenting sense of competence	4.36	0.63	-0.41	-0.75	1					
2. Children's disruptive behaviour	2.96	0.69	-1.61	-1.23	-.37***	1				
3. Coparenting	5.87	0.86	-4.81	2.10	.24*	-.27**	1			
Father-reported:										
4. Parenting sense of competence	4.28	0.60	-1.25	-0.99	.19	-.27**	.26**	1		
5. Children's disruptive behaviour	3.04	0.75	-0.22	-1.05	-.37***	.59***	-.25*	-.52***	1	
6. Coparenting	5.93	0.78	-3.63	1.36	.13	-.19*	.45***	.41***	-.37***	1

*Note.*  $N = 106-108$  mothers and  $103-107$  fathers. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . Variable anchor ranges: Parenting sense of competence (PSOC) =

1-6, Children's disruptive behaviour = 1-7, Coparenting = 1-7. Higher values = higher scores on each of the constructs.

**Table 4.2** Multiple regression analyses (standardized coefficients) predicting maternal and paternal parenting sense of competence from mothers' and fathers' own perceptions of children's disruptive behaviour, coparenting and their interaction

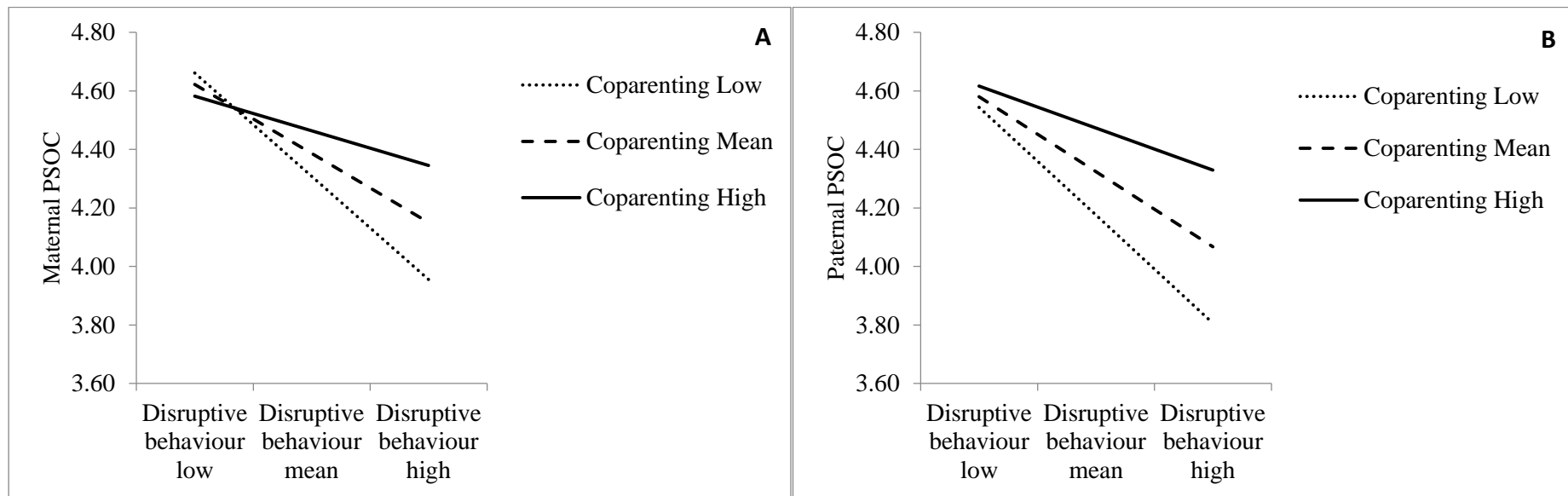
	<u>Mothers</u>			<u>Fathers</u>		
	$\beta$	95% CI	$p$	$\beta$	95% CI	$p$
Child age	-.02	[-.16, .12]	.771	.02	[-.13, .18]	.764
Sibling dyad sex constellation	.09	[-.08, .26]	.331	.08	[-.08, .23]	.340
Children's disruptive behaviour	-.37	[-.56, -.19]	<.001	-.42	[-.60, -.24]	<.001
Coparenting	.12	[-.05, .29]	.166	.25	[-.09, .41]	.002
Children's disruptive behaviour * coparenting	.19	[.02, .35]	.029	.18	[.07, .30]	.002

*Note.* Mothers:  $N = 106$ .  $R^2 = .20$ .  $\Delta R^2$  due to interaction = .04 ( $F(1,100) = 4.54$ ,  $p = .036$ ). Fathers:  $N = 103$ .  $R^2 = .37$ .  $\Delta R^2$  due to the interaction = .04 ( $F(1,97) = 5.42$ ,  $p = .022$ ).

**Mothers.** Analyses revealed a main effect of mother-reported child disruptive behaviour on maternal PSOC. In line with the simple correlations, mothers who reported their children to have higher levels of disruptive behaviour, reported lower PSOC. There was no main effect of mothers' perceptions of the quality of coparenting, however, the interaction between her perception of coparenting and child disruptive behaviour was significantly associated with PSOC, accounting for 3.6% of the variance. To illustrate this interaction, we plotted simple slopes of the associations between children's disruptive behaviour and PSOC at low ( $-1\ SD$ ), mean, and high ( $+1\ SD$ ) levels of coparenting (Figure 4.1, Panel A). The slopes representing low ( $b = -.51, t = -4.01, p < .001$ ) and mean coparenting ( $b = -.34, t = -3.63, p < .001$ ) suggested a negative association between mother-reported child disruptive behaviour and maternal PSOC. However, there was no such association when mothers perceived the quality of coparenting to be high ( $b = -.17, t = -1.24, p = .218$ ). We interpret these results to suggest that mothers' perceptions of high quality coparenting buffer maternal PSOC from children's disruptive behaviour. Overall, the regression model explained 19.9% of the variance in maternal PSOC, with 3.6% of this accounted for by the interaction term.

**Fathers.** Consistent with the findings for mothers, there was a main effect of father-reported child disruptive behaviour on paternal PSOC such that higher levels of child disruptive behaviour were associated with lower levels of PSOC. Additionally, for fathers, there was a main effect of their perceptions of coparenting; higher quality coparenting was related to higher paternal PSOC. Also consistent with the findings for mothers, fathers' perceptions of coparenting interacted with father-reported child disruptive behaviour in association with paternal PSOC. Simple slopes illustration of this interaction (Figure 4.1, Panel B) indicates a pattern of effects similar to that for mothers. There was a negative relationship between children's disruptive behaviour and

paternal PSOC when fathers perceived the quality of coparenting to be low ( $b = -.48, t = -5.27, p < .001$ ) or at the mean ( $b = -.34, t = -.21, p < .001$ ). However, when fathers perceived the quality of coparenting to be high, there was no such association ( $b = -.19, t = -1.87, p = .064$ ). Thus, for fathers as for mothers, we interpret these findings to suggest that perceptions of high quality coparenting serve to maintain PSOC in the face of disruptive child behaviour. The regression model explained 36.7% of the variance in paternal PSOC, with 2.2% accounted for by the interaction term.



**Figure 4.1** Panel A: Simple slopes illustration of mothers' coparenting\*children's disruptive behaviour in association with maternal parenting sense of competence (PSOC). Panel B: Simple slopes illustration of fathers' coparenting\*children's disruptive behaviour in association with paternal parenting sense of competence (PSOC).



## Discussion

The main aim of the current study was to use a UK twin sample to explore parents' perceptions of children's disruptive behaviour, coparenting, and their interaction in association with PSOC. Our results indicated that: both mothers' and fathers' perception of higher levels of children's disruptive behaviour were associated with lower levels of PSOC; fathers' perceptions of higher quality coparenting were associated with higher paternal PSOC; and high quality coparenting buffered parents' PSOC from children's disruptive behaviour. We discuss these results in the context of existing theory and research, noting future directions for research and study limitations.

Consistent with our hypothesis and existing research (Johnston & Mash, 1989; Salari et al., 2014), parents' report of higher levels of children's disruptive behaviour were concurrently associated with their lower PSOC. That is, when children displayed disruptive behaviour – for example, acting defiant and destroying toys – mothers and fathers reported feeling, for example, less able to manage the challenges of parenting and derived less positive affect from the parenting role. In this way, for parents of children who display high levels of disruptive behaviour, it may be more difficult to maintain a high level of PSOC (Ardelt & Eccles, 2001). Accounting for children's disruptive behaviour, perceptions of coparenting were also associated with paternal – but not maternal – PSOC. This association was such that fathers who perceived higher quality coparenting also reported higher PSOC, consistent with the findings of Bouchard and colleagues (2007). That is, fathers who, for example, felt supported and not undermined by their coparent, felt parenting was manageable and that they had the skills to be a good parent. Interestingly, this was not the case for mothers; maternal PSOC was not associated directly with their perception of the quality of coparenting.

Our findings suggest that mothers' self-evaluations of their PSOC are based, in part, on how their children behave, whereas fathers' self-evaluations draw on their perceptions of coparenting as well as their children's behaviour.

This difference may be understood in terms of gender role theory which suggests that the role of mothers, compared to fathers, is more clearly socially defined (Coiro & Emery, 1998). For this reason, mothers may rely less on cues from their coparent as feedback of their parenting performance, whereas, for fathers – for whom societal expectations are less clear – PSOC may be more sensitive to messages regarding their parenting ability communicated through coparenting. Our finding that the quality of coparenting was associated with paternal but not maternal PSOC is also consistent with the literatures highlighting the sensitivity of fathers' parenting to environmental factors (Cummings et al., 2010) and, in particular, the notion that mothers' have more influence on the nature of fathers' parenting role, than fathers do on mothers' role (Belsky, 1979). So-called 'maternal gatekeeping' may be important in understanding the salience of coparenting for fathers; fathers who report high quality coparenting may be experiencing maternal 'gate-opening', facilitating their parenting input and providing opportunity to foster their parenting competence, whereas those who report lower quality coparenting may experience the opposite through 'gate-closing' (Schoppe-Sullivan et al., 2008).

We focus on the role of children's behaviour, coparenting, and their interaction as salient factors for PSOC *in the here and now*. Our study was the first to explore the interactive effects of mothers' and fathers' perceptions of coparenting and child disruptive behaviour in association with their PSOC. Consistent with our expectations, mothers' and fathers' perceptions of high quality coparenting buffered their PSOC from their children's disruptive behaviour. Notably, the direction of effects we found are not

consistent with those reported by Solmeyer and Feinberg (2011) – though are in-line with that hypothesised by these authors. However, the two studies differ in the stage of child development studied (infancy versus childhood), and the measure of coparenting used (coparent undermining versus global quality of coparenting) which may be responsible for the different direction of effects reported. Further research exploring this question across a range of child ages using detailed measures of coparenting to enable exploration of separate subscales is needed.

We posit that, during the early primary school years, high levels of children's disruptive behaviour threatens both maternal and paternal PSOC, but perceiving, for example, that their coparent supports their parenting, shares their child rearing values and makes them feel like a good parent, provides a context in which they are able to successfully maintain their PSOC in the face of their children's behaviour. Note that, whilst we have conceptualised the quality of coparenting to be the moderator, it is plausible that children's disruptive behaviour moderates the association between parent's perception of coparenting and PSOC. This interpretation would be in-line with the research indicating that support matters most to subpopulations where stress is relatively high (Turner & Turner, 1999).

In light of the unique challenges associated with parenting twins, high quality coparenting may be particularly important for the maintenance of maternal and paternal PSOC such that our findings may reflect our sample. Parents of twins experience lower PSOC than parents of non-twins (Boivin et al., 2005) and, considering the literature documenting associations between child disruptive behaviour and lower PSOC, raising twins who display high levels of disruptive behaviour may pose an even greater threat to parents' PSOC. Thus, our study may not generalise to parents of non-twin siblings, or indeed to single-child families. However, our finding that high quality coparenting

may play a protective function makes a valuable contribution to the PSOC and coparenting literature broadly, and we have no rationale for these interactive processes to look different in non-twin families. Moreover, the coparenting literature is scant for twin families; we thus encourage scholars to examine the questions to hand in other twin and non-twin samples.

Our results imply that high quality coparenting may buffer PSOC from children's disruptive behaviour. Importantly, while higher quality coparenting may promote higher PSOC, one parent's support and endorsement of their coparent may be more likely if they are – or, are perceived to be – competent in their parenting. Longitudinal studies can provide greater insight into the influence of coparenting and children's disruptive behaviour – as well as their interaction – on the development and maintenance of PSOC during childhood. A single longitudinal study has reported child disruptive behaviour to impact PSOC over time but not vice versa (Slagt et al., 2012); however, this study did not examine interactive effects. We encourage further work to better understand these important questions.

The current study focused within-rater to examine parents' *own* perceptions of children's disruptive behaviour, coparenting and PSOC. As with all research, use of multi-informants is of interest. However, PSOC is subjective; thus, although there may be shared method variance, the very purpose of this study was to understand how parents' own perceptions of the way their children behave interact with their perceptions of the quality of coparenting to inform their PSOC.

With replication and extension within economically diverse samples, longitudinal work, and including families with twins, non-twins and single children, these findings may be expanded and augmented. However, the implications of the current work are

that practitioners and interventions concerned with promoting PSOC – such an integral part of parental adjustment for both mothers and fathers – should pay due attention to the quality of coparenting as an important family context.

## **Chapter 5**

# **A Harsh Parenting Team? Maternal Reports of Coparenting and Coercive Parenting Interact in Association with Children's Disruptive Behaviour (Paper 3)**

### Abstract

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. Mothers and fathers from 106 'intact' families were included from the Twins, Family and Behaviour (TFaB) Study. 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. 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. When combined with highly coercive parenting, maternal perceptions of high quality coparenting may be detrimental for children's adjustment.

## **Introduction**

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, 2003).

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 et al., 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 et al., 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.

### **The 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 and Procedure

The Twins, Family and Behaviour (TFaB) Study involves families with twins born in England and Wales in 2009-2010. 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 £44,330 (Office for National Statistics, 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 Twin A and 3 for Twin B, 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 Twin A, and  $3-2.5=0.5$  for Twin B.

**Marital quality** (Time 2) perceptions were assessed for mothers and fathers using the six-item Quality Marriage Index (Norton, 1983). Sample 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 et al., 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 and 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.

M-Plus v.6 (Muthén & Muthén, 2012) was used with Full Maximum Likelihood estimation which is robust to non-normality of the data, chosen over Restricted Likelihood, to examine regression coefficients and variance components at the same time (Bickel, 2007). All variables were residualized standardized scores (controlling for child age and sex).

## Results

### Preliminary Analyses

Table 5.1 presents descriptive statistics for all study variables and within twin-pair correlations for child disruptive behaviour and coercive parenting. The large correlations suggested considerable twin similarity and paired-samples *t*-tests revealed no significant mean level differences between twins in a pair for child disruptive behaviour (Time 1: ( $t(105) = -0.35, p = .726$ ); Follow-up:  $t(83) = 1.81, p = .075$ ), maternal coercive parenting ( $t(102) = 1.06, p = .292$ ) or paternal coercive parenting ( $t(91) = -0.96, p = .342$ ).

Table 5.2 displays correlations between all study variables; these are shown for one member of the twin pair below the diagonal, and replicated for the corresponding twin above the diagonal. These 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. Higher quality father-reported coparenting modestly related to lower levels



of child disruptive behaviour at Time 1 and follow-up. Although these correlation coefficients appear to differ across the twins, these were not statistically different ( $z = 0.51, p = .613$ ;  $z = 1.69, p = .091$ ).

**Table 5.1** Descriptive statistics and within twin-pair correlations (raw data) for child disruptive behaviour (combined maternal and paternal report) and maternal- and paternal-reported marital quality, coercive parenting and coparenting

	<u>Twin A</u>				<u>Twin B</u>				<i>r</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	Skew	Kurtosis	<i>M</i>	<i>SD</i>	Skew	Kurtosis		
Child disruptive behaviour (Time 1)	109.42	22.19	-0.46	-1.08	109.89	22.16	1.19	1.82	.81	<.001
Child disruptive behaviour (Follow-up)	108.30	26.57	0.54	-0.66	105.83	24.29	-0.70	-1.06	.88	<.001
Maternal-reported:										
Marital quality <sup>a</sup>	6.80	0.87	-9.61	13.40						
Coercive parenting	3.92	2.07	3.50	3.87	3.82	2.02	3.75	4.58	.89	<.001
Coparenting <sup>a</sup>	6.18	0.59	-4.41	2.34						
Paternal-reported:										
Marital quality <sup>a</sup>	6.94	0.57	-6.06	3.53						
Coercive parenting	3.93	1.81	2.49	3.65	4.01	1.92	2.50	2.58	.89	<.001
Coparenting <sup>a</sup>	6.29	0.43	-4.17	1.85						

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

Coparenting = 1-7.

**Table 5.2** Correlations (standardized, child age- and sex- regressed residuals) among child disruptive behaviour (combined maternal and paternal report), maternal- and paternal-reported marital quality, coercive parenting and coparenting

	1	2	3	4	5	6	7	8
Combined:								
1. Child disruptive behaviour (Time 1)	1	.83***	-.10	.44***	-.06	.00	.47**	-.19
2. Child disruptive behaviour (Follow-up)	.75***	1	-.18	.33**	-.09	-.08	.34**	-.24*
Maternal-reported:								
3. Marital quality	-.14	-.13	1	-.08	.64***	.53***	.05	.35***
4. Coercive parenting	.33**	.25*	-.08	1	-.13	.11	.44***	-.06
5. Coparenting	-.12	.01	.64***	-.19	1	.34**	.07	.34**
Paternal-reported:								
6. Marital quality	-.08	-.03	.53***	.12	.34**	1	.15	.50***
7. Coercive parenting	.44***	.39**	.06	.42***	.09	.09	1	-.15
8. Coparenting	-.22*	-.15	.35***	-.08	.34**	.50***	-.17	1

*Note.* \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . Correlations below the diagonal are for one randomly-selected member of the twin pair, correlations above the diagonal are for the corresponding twin.

### Multilevel Modelling (MLM)

Table 5.3 presents our MLM results. 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 ( $\Delta\text{-2LL} = 114.86$ ,  $df = 1$ ,  $p < .005$ ), 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 ( $\Delta\text{-2LL} = 21.80$ ,  $df = 8$ ,  $p < .010$ ) 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 ( $\Delta\text{-2LL} = 20.70$ ,  $df = 6$ ,  $p < .005$ ), 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.

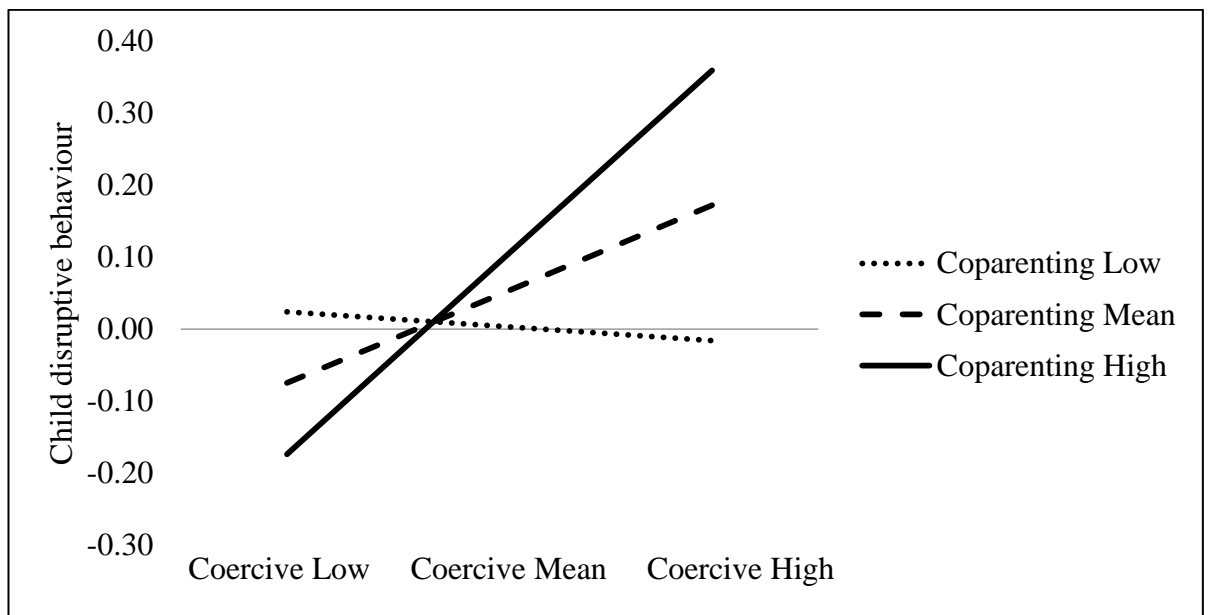
**Table 5.3** Multilevel model standardized results: within- and between-family effects on change in child disruptive behaviour

	<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>
	<i>[95% CIs]</i>	<i>[95% CIs]</i>	<i>[95% CIs]</i>	<i>[95% CIs]</i>
Fixed effects				
Within-family level				
Child disruptive behaviour (Time 1)		0.70 <sup>***</sup> (0.08) [0.54, 0.86]	0.68 <sup>***</sup> (0.08) [0.52, 0.84]	0.66 <sup>***</sup> (0.08) [0.50, 0.82]
Maternal differential coercive parenting			0.02 (0.16) [-0.29, 0.33]	0.09 (0.15) [-0.20, 0.38]
Paternal differential coercive parenting			-0.22 (0.15) [-0.51, 0.07]	-0.29 (0.15) [-0.58, 0.00]
Maternal overall coercive parenting*differential coercive parenting				-0.11 (0.27) [-0.64, 0.42]
Paternal overall coercive parenting*differential coercive parenting				0.07 (0.15) [-0.22, 0.36]
Maternal coparenting* differential coercive parenting				-0.07 (0.14) [-0.34, 0.20]
Paternal coparenting *differential coercive parenting				-0.24 (0.15) [-0.53, 0.05]
Between-family level				
Maternal marital quality			-0.10 (0.09) [-0.28, 0.08]	-0.13 (0.09) [-0.05, 0.31]

Paternal marital quality			0.04 (0.06) [-0.08, 0.16]	0.07 (0.07) [-0.07, 0.21]
Maternal overall coercive parenting			0.06 (0.07) [-0.08, 0.20]	0.07 (0.07) [-0.07, 0.21]
Paternal overall coercive parenting			0.08 (0.10) [-0.12, 0.28]	0.04 (0.09) [-0.14, 0.22]
Maternal coparenting			0.13 (0.09) [-0.05, 0.31]	0.10 (0.08) [-0.06, 0.26]
Paternal coparenting			-0.09 (0.08) [-0.25, 0.07]	-0.10 (0.07) [-0.24, 0.04]
Maternal coparenting*overall coercive parenting				0.17* (0.07) [0.03, 0.31]
Paternal coparenting*overall coercive parenting				0.03 (0.07) [-0.11, 0.17]
Random effects				
Within-family	0.13*** (0.04) [0.05, 0.21]	0.12*** (0.02) [0.08, 0.16]	0.11*** (0.02) [0.07, 0.15]	0.10*** (0.02) [0.06, 0.14]
Between-family	0.74*** (0.12) [0.50, 0.98]	0.23*** (0.06) [0.11, 0.35]	0.20*** (0.05) [0.10, 0.30]	0.19*** (0.04) [0.11, 0.27]
Model fit				
-2LL	437.88	323.02	301.22	280.52

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

In order to interpret and illustrate the interaction, for simplicity we plotted simple slopes of the association between maternal overall coercive parenting and children's disruptive behaviour at low ( $-1\ SD$ ), mean and high ( $+1\ SD$ ) levels of maternal coparenting (Figure 5.1). 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.



**Figure 5.1** Simple slopes illustration of mothers' coparenting\*overall coercive parenting in the prediction of child disruptive behaviour.

## 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 (Scrimgeour et al., 2013; Stright & Neitzel, 2003) 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 (Scrimgeour et al., 2013; Stright & Neitzel, 2003). 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 der 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.

## **Chapter 6**

### **General Discussion**

## **General Discussion**

This thesis presented three papers which together examined determinants and consequences of mothers' and fathers' perceptions of coparenting young twins. The specific findings, limitations and implications of each individual paper have been discussed in detail in their respective chapters, and therefore these discussions will not be repeated here. Rather, the purpose of this General Discussion is to synthesise the findings and consider key themes and implications arising from the research encapsulated in the thesis as a whole. Accordingly, this chapter will provide a brief summary of the findings, discuss emerging themes and implications, before acknowledging strengths and limitations of the research, along with suggested directions for future coparenting research.

### **Summary of Findings**

The research in this thesis had three overarching aims, and all three papers linked to these: i) to examine parents' perceptions of coparenting during early to mid-childhood; ii) to explore coparenting and its associations within a sample of families with twins; and iii) to include data from both mothers and fathers to enable the investigation of potential parent differences in patterns of associations.

The first paper in this thesis (Chapter 3) examined bidirectional associations between parents' perceptions of the quality of coparenting and the marital relationship during their children's transition to primary school. This study was the first to examine this research question using a sample of parents of twins, a population who experience higher levels of parenting stress (Olivennes, Golombok, Ramogida, Rust, & Team, 2005) and strain on their marital relationship (Jena, Goldman, & Joyce, 2011). Results

from the cross-lagged path models demonstrated that for mothers and fathers, earlier perceptions of higher quality coparenting were associated with subsequent perceptions of the marital relationship. However, there was no evidence for the opposite – that is, accounting for all other pathways, earlier perceptions of the marital relationship were not related to subsequent perceptions of coparenting. These findings make an important contribution to the limited research – particularly during the transition to school primary period – investigating bidirectional relations between coparenting and marital relationship subsystems.

In the second paper (Chapter 4), parents' perceptions of children's disruptive behaviour, coparenting, and their interaction were examined in association with parenting sense of competence (PSOC). Consistent with existing research, findings indicated that for both mothers and fathers, perceptions of higher levels of children's disruptive behaviour were associated with lower concurrent levels of PSOC. Parent differences were evident in the association between coparenting and PSOC; fathers' perceptions of higher quality coparenting were related to their higher level of PSOC, whereas there was no such association for mothers. This was the first study to examine the interactive effects of coparenting and children's disruptive behaviour for maternal and paternal PSOC. In line with the stress-buffering hypothesis (Cohen & Willis, 1985), findings suggested that parents' perceptions of high quality coparenting buffered their PSOC from their children's disruptive behaviour.

The third paper in this thesis (Chapter 5) used a longitudinal design and focused on the interactive effects of coparenting and coercive parenting for children's disruptive behaviour. Previous research has typically sampled one child per family; this paper capitalised on the TFaB twin sample and used multilevel modelling to examine within- and between- family effects of coparenting, coercive parenting and their interaction. As

well as this novel feature, it is the first study to investigate the interaction between coparenting and coercive parenting, and thus makes an important contribution to the very limited literature examining interactive effects of coparenting and parenting. The findings revealed a particularly striking, and unexpected, interaction effect – mothers' perceptions of high quality coparenting were found to exacerbate the association between her coercive parenting and the development of children's disruptive behaviour. Although the study included mothers and fathers, paternal factors were not found to be independent significant predictors of child disruptive behaviour in these models.

When the findings of these papers are considered together, overarching themes emerge that have important theoretical and practical implications.

### **Emerging Themes and Their Implications**

#### **Coparenting and the marital relationship are separate constructs.**

Theoretically, there are several reasons to differentiate between coparenting and marital relationship constructs. As discussed in the General Introduction (Chapter 1), each follow different developmental trajectories where, typically, the marital relationship forms first, whereas coparenting emerges with the birth of a child and may persist even if the marital relationship does not (Cowan & McHale, 1996). Furthermore, coparenting and the marital relationship are conceptualised as existing at different levels within the family system. That is, the marital relationship is purely dyadic – involving only the couple – whereas coparenting also involves the child and thus crosses two family subsystems, that of the marital relationship and the parent-child relationships (Gable, Crnic, & Belsky, 1994).

Importantly, the current research supports this theoretical distinction: consistent with family systems and coparenting theories, the findings of this thesis suggest that



coparenting and the marital relationship are closely related to one another, but are not entirely overlapping. This is reflected in the large, positive correlations between parents' perceptions of the quality of coparenting and the marital relationship (Papers 1 and 3), as well as cross-sectional and cross-lagged associations between the two (Paper 1). Additionally, the interactive effects of maternal coparenting found in Paper 3 were over and above the effects of the marital relationship. Alongside their shared variance, this indicates unique variance evident for these two constructs, empirically supporting their theoretical distinction.

Indeed, the current research contributes to a growing body of evidence supporting a differentiation between coparenting and the marital relationship. At the transition to parenthood, for example, research has noted that not all parents who have a low quality marital relationship display negative coparenting, and, similarly, not all parents who display negative coparenting are unhappy with their marital relationship (Van Egeren, 2004). Much like Paper 3, several studies (see also Teubert & Pinquart, 2010 for a meta-analysis) have found coparenting to uniquely influence children's adjustment over and above the influence of the marital relationship. Furthermore, a separation of the two constructs is supported by investigations revealing coparenting to mediate associations between marital and parent-child subsystems (Floyd, Gilliom, & Costigan, 1998; Margolin, Gordis, & John, 2001). Thus, rather than being one and the same, coparenting appears to be an important mechanism that can help explain the process by which marital relationship distress and conflict can spill over and detrimentally impact the parent-child subsystems.

The separation of coparenting and marital relationship constructs highlights the importance of coparenting as a distinct field of research, which has both theoretical and practical implications. Theoretically, it underlines a fundamental notion of coparenting

theory: that coparenting exists not only between married parents, but rather ‘between any two (or more) adults who have conjoint responsibility for a particular child’s welfare’ (Van Egeren & Hawkins, 2004). Unlike the marital relationship, coparenting is therefore a concept that transcends family types, one that is viable regardless of parent gender (Parent, Jones, Forehand, Cuellar, & Shoulberg, 2013), sexuality (Farr & Patterson, 2013), marital status, or genetic relatedness to the child (Hock & Mooradian, 2012). Indeed, as children are increasingly raised in more diverse family types (Office for National Statistics, 2015) a focus on coparenting may be ever more relevant.

Practically, recognising that coparenting and the marital relationship are distinct but closely related has important implications for intervention. On the one hand – noting the direction of cross-lagged associations found in Paper 1 – improving the quality of coparenting may be an effective means of improving the quality of the marital relationship. On the other, that there is some separation between the two enables the possibility that the quality of coparenting could be protected from couples’ marital relationship difficulties. Interventions that support these couples to develop the quality of their coparenting quite separately from their marital relationships may bear fruit, scaffolding parents to continue to provide harmonious, collaborative coparenting regardless of their feelings of animosity towards one another (Margolin et al., 2001). Moreover, targeting coparenting in this way may be especially critical to prevent parenting and child adjustment from being detrimentally impacted by marital relationship difficulties. Traditional forms of marital relationship support do not typically address coparenting issues, focusing instead on a myriad of other issues pertinent to the couple; however the findings of this thesis, in conjunction with the existing literature, indicate the importance of interventions that pay close attention to coparenting.

**High quality coparenting can have differing effects.** Together, the research in this thesis demonstrates that the effects of high quality coparenting can be both positive and negative. Consistent with family systems and coparenting theory, as well as existing research (e.g., Ponomartchouk & Bouchard, 2015; Schoppe-Sullivan, Mangelsdorf, Frosch, & McHale, 2004), perceptions of high quality coparenting were found to be associated with a higher quality marital relationship (Paper 1) and higher concurrent paternal PSOC (Paper 2). Moreover, interactive effects suggested it may protect PSOC from children's disruptive behaviour (Paper 2). However, arguably the most striking finding to emerge from the current research is that the effects of high quality coparenting may not always be positive (Paper 3).

Taken together, the findings of the current research provide support and also some challenge to existing theoretical accounts of coparenting. Broadly, the interactive effects of coparenting in Papers 2 and 3 support the view that coparenting can play a moderating role in the association between 'risk' and 'family outcome' (Feinberg, 2003). It has previously been assumed, however, that the direction of this moderation is such that high quality coparenting serves as a protective factor that buffers an individual from the negative effects of a risk factor. The direction of effects found in Paper 2 aligns to this 'stress-buffering' perspective of high quality coparenting, whereas the findings of Paper 3 may be seen rather as 'stress-exacerbation'. The moderating role of coparenting therefore appears to be more complex than has previously been assumed.

It is important to consider how perceptions of high quality coparenting can have such different – indeed opposite – effects. It is possible that having a partner who you perceive to share your child rearing beliefs, support (rather than undermine) your parenting, and who makes you feel like a good parent, provides a strong endorsement of your performance in the parenting role. This reassurance and affirmation can therefore

have positive effects, serving as a boost for parents' sense of competence (Paper 2).

Perceiving such endorsement and affirmation of one's parenting skills and abilities may make it more likely that parents continue to parent in the way that they do.

Accordingly, coercive mothers may be encouraged – explicitly or implicitly – to continue their suboptimal parenting, repeating cycles of aversive parent-child interaction thereby contributing to children's maladjustment (Paper 3). In this way, perceptions of high quality coparenting may have moderating effects that are both positive and negative.

Interestingly, the possibility of supportive coparenting and coercive parenting combining in ways that are detrimental for children's adjustment has been previously suggested, but discounted as being unlikely on the basis that high quality coparenting is typically linked with more optimal parenting (Caldera & Lindsey, 2006). It is notable therefore that in the current research, correlations between coparenting and coercive parenting were small, and non-significant. Taken together, these findings imply that interventions aimed at improving the quality of coparenting should also consider parenting. This is appropriate to ensure that partners are, for example, supporting and endorsing parenting that is positive and conducive to healthy child adjustment rather than parenting strategies that are less optimal. Thus, the finding of this thesis that high quality coparenting can have effects that are positive and negative – with appropriate replication and extension – has important implications for both coparenting theory and intervention.

**Perceptions of coparenting are important.** A further theme to emerge from the research presented in this thesis is the salience of parents' perceptions of their coparenting. That is to say, for parents' marital relationship (Paper 1) and their own adjustment (Paper 2) *feeling* supported and not undermined by your partner, *believing*

that your partner agrees with your parenting and that you are working together as a parenting team appears to be important. Moreover, as discussed above, the findings from Paper 3 may indeed hang substantially on the concept of perception not behaviour. These findings align with other literatures that have, for example, demonstrated partners' perceived similarity to one another – rather than their actual similarity – to be more important for attraction (Montoya, Horton, & Kirchner, 2008) and marital relationship quality (Acitelli, Douvan, & Veroff, 1993).

The salience of parents' perceptions of coparenting is not wholly surprising; viewed in the context of identity theory (Tajfel & Turner, 1979) being a parent is likely a central part of these individuals' self-identity, and thus an important source of pride and self-esteem – indeed, Paper 2 lends support to this. Feeling that one's beliefs about parenting and one's parenting behaviour are validated by others is therefore psychologically preferable and more comfortable than having these questioned or challenged. Moreover, the fact that the coparent is the source of this validation – or lack thereof – likely heightens its impact since this represents feedback from someone very close to, and knowledgeable of, one's parenting (Martire et al., 1998).

Measures of parents' perceptions of coparenting typically include items that pertain to the other's behaviour (e.g. 'My partner undermines my parenting' and 'My partner supports my parenting'). This raises interesting questions regarding perceptions of coparenting versus coparenting behaviour *per se* – in particular, what it means to be, for example, a 'supportive coparent'. Whilst this might mean acting in ways that show approval or endorsement of the others' parenting, for example by reinforcing a request made by a coparent to a child (i.e. coparenting behaviour), it is interesting to consider whether it necessarily has to mean 'going along with' the other's parenting strategy in this way. This notion is particularly pertinent when considering the implications of

Paper 3. Here, the interactive effect of maternal coparenting suggests that when mothers are coercive it may not be in children's best interests to have fathers who support, and endorse their partners' parenting strategies. However, this should not be taken to advocate for 'low quality' coparenting. Rather, being a 'supportive coparent' need not be incompatible with being able to question the other's parenting strategies, and suggest more optimal methods as long as it is done in a way that is perceived to be supportive, and not in a way that is perceived to be critical, undermining or causing conflict. In this way therefore, being a 'supportive coparent' doesn't mean just going along with and 'allowing' suboptimal parenting. Instead, done in the right way, it can (or should) also mean being able to supportively question the other parent's actions and behaviour, for example, through parents communicating and working together to find the best parenting solutions for their child.

Overall, the current research supports the notion of coparenting as a prominent feature of the family system, and one that may provide an effective means of intervention. As a whole, the research has a number of strengths but there are some methodological limitations to acknowledge also.

### **Strengths of the Current Research**

**Longitudinal design.** A key strength of this thesis is the longitudinal nature of the TFaB study, spanning a two-year period and including the transition to primary school. Within this study, parents' perceptions of the quality of coparenting and the marital relationship were measured at two time points (1 year apart) allowing Paper 1 to address questions regarding stability and change in these constructs, as well as the temporal flow of influence between them. Parents also reported on their children's

disruptive behaviour at two time points (2 years apart) which enabled Paper 3 to examine *change* in children's disruptive behaviour during the transition to school.

**Inclusion of mothers and fathers.** The inclusion of data from both mothers and fathers is another important strength of the current research. Coparenting is fundamentally about the parenting team, but nonetheless, some existing research has focused on only mothers' or only fathers' perceptions (e.g. Cabrera, Scott, Fagan, Steward-Streng, & Chien, 2012; Fagan & Lee, 2014). Inclusion of both parents however is important because, as mentioned previously, parent-report measures of coparenting typically include items that pertain to the other's behaviour such that gaining both perspectives is informative. In addition, there may be parent differences in the determinants and consequences of coparenting as societal expectations regarding the roles of mothers and fathers are very different; 'mothering' and 'fathering' are not considered to be one and the same thing (Belsky & Volling, 2014). Indeed, the inclusion of data from mothers and fathers from the same family in the current research revealed some interesting parent differences. For example, for fathers – but not mothers – perceptions of coparenting were found to be associated with parenting sense of competence (Paper 2). Furthermore, interactive effects of maternal – but not paternal – perceptions of coparenting were found in Paper 3. As well as these differences, some striking similarities between mothers and fathers were also evident – for example, the pattern of associations between coparenting and the marital relationship (Paper 1), and the interactive effects of coparenting and children's disruptive behaviour for maternal and paternal PSOC (Paper 2).

**Novel sample.** A further strength of the research in this thesis is that it uses a novel sample – families with twins – which enabled two important gaps in the literature to be addressed. First, coparenting has not previously been studied in families with

twins. However, in light of the greater parenting demands associated with raising twins (Olivennes et al., 2005) a central tenet of this thesis is that the way in which these parents work together as a parenting team – for example to share the child care and to support one another – may be particularly critical. The findings of Paper 1 support this notion, highlighting the importance of high quality coparenting for promoting a high quality marital relationship. Similarly, the findings of Paper 2 suggest that high quality coparenting plays a role in helping to protect parents' PSOC, a key aspect of parental wellbeing, when they are faced with their twins' difficult behaviour. Without a comparable sample of non-twins, however, it is not possible to determine whether these findings are specific to raising twins.

Second, unlike typical coparenting research which – much like family research more generally – focuses on one child per family, the twin sample enabled consideration of two children per family. As well as between-family effects, this advantage allows for the exploration of within-family (child-specific) factors, so far relatively neglected in the coparenting literature. Moreover, uniquely, using a twin sample allowed the studies to account for chronological age differences, so commonly a confound in sibling research.

### **Limitations of the Current Research and Future Directions**

**Global measure of coparenting.** The research in this thesis focused on a brief, global measure of coparenting (Feinberg, Brown, & Kan, 2012). Although use of this short (14-item) version of the full Coparenting Relationship Scale was appropriate in the TFaB study, given its inclusion as part of a battery of measures completed by parents, it did not allow for exploration of the individual components of coparenting (e.g. support, undermining, conflict, division of labour etc). As a consequence,



interpretations of the research findings are limited to speculating upon the most salient features of coparenting. An important avenue for future research is therefore to extend the findings of the current thesis using a more detailed measure of coparenting.

Illuminating the most relevant components of coparenting in this way is particularly essential for the development of effective interventions. For example, if future research identified coparent support and the division of labour to be the most pertinent components in the association between coparenting and the subsequent marital relationship, then interventions aimed at improving the quality of couples' marital relationship could be developed that specifically focus on these aspects. In this way, findings of basic research can be used to inform a theory of change that interventionists can utilise.

**Inability to detect within-family differences.** In the TFaB study, mothers and fathers reported on coparenting in respect of each of their twins. However, the brief measure of coparenting was not sensitive enough to capture such within-family differences; twin-pair correlations were very large (mothers:  $r = 0.89 - 0.99$  and fathers:  $r = 0.86 - 0.99$ ) and so coparenting scores for Twin 1 and Twin 2 were combined, and perceptions of coparenting treated as family-wide variables. It is, however, possible that the coparenting that evolves for one child in a family differs from that of their sibling. Firstly, because children's characteristics may influence the coparenting they receive. Secondly, and relatedly, because the coparenting subsystem that evolves in respect of each child is interrelated with a different pair of parent-child subsystems – and we know that individual parents do not behave, or parent, identically towards each of their children (Conger & Conger, 1994; Feinberg & Hetherington, 2001; Meunier, Bisceglia, & Jenkins, 2012). Whether coparenting is shared between siblings in a family (such that it contributes to sibling similarity) or whether it is non-shared (and

thus contributes to sibling differences) is of interest for future research to explore, particularly within a genetically sensitive design; unfortunately, the twin sample of the current research was not large enough to enable behaviour genetic analyses to address this.

Related to this notion of within-family differences in coparenting, is an interesting question regarding the appropriateness of different coparenting existing for different children. On the one hand, differences in coparenting between siblings may reflect coparents' sensitivity to each child's own particular needs and characteristics. It may also reflect coparenting that is appropriately tailored to best suit the unique challenges associated with a particular child. For example, it might be necessary for a different division of labour to exist between coparents for a child who is especially challenging than a less challenging sibling. On the contrary – and drawing parallels with the literature on parental differential treatment (e.g., Kowal, Kramer, Krull, & Crick, 2002) – it is possible that within-family differences in coparenting may be associated with problematic child adjustment, particularly if children perceive such differences in terms of favouritism. To illustrate, if coparents have very disparate beliefs about their parenting of one sibling such that they are critical and undermining of one another, but are in agreement regarding their parenting of the other sibling such that they are harmonious and coordinated, the children may perceived the latter as being the more favoured sibling. Investigation of coparenting within families thus represents a significant gap in the extant literature which future work should seek to address.

**Sample size.** Although the TFaB study included measures for each of the determinants and consequences of coparenting outlined in the Ecological Model of Coparenting (Figure 1.2; Feinberg, 2003), due to sample size there was insufficient

power to test this full model, a potentially useful avenue for future studies employing large samples.

Recruitment of families to the TFaB study and their continued involvement at each study wave would likely have been enhanced by the provision of payment – or other monetary reward such as shopping vouchers – to participants. Unfortunately, resource constraints were such that we relied heavily on families’ good-will, and were limited to giving ‘thank you’ cards, certificates and newsletters as a means of encouraging their on-going participation. Given the focus of the current research on both mothers and fathers, the size of the TFaB subsample utilised was also restricted by the number of participating fathers. In addition to offering payment, the recruitment of fathers to the TFaB study would likely have been more successful if they had been invited to take part alongside mothers at the outset, rather than being invited to participate subsequently through the mother. Likewise, framing the study and research topics to families in a way that highlight the role of fathers and the importance of their participation are suggested for future research, in order to further promote the recruitment of a larger study sample, and thus enabling investigation of more complex models of the determinants and consequences of coparenting.

**Single method.** It is also important to acknowledge that the current research utilised only parent-report measures. Because of this, measures of coparenting, the marital relationship, children’s disruptive behaviour and PSOC may have shared method variance, potentially inflating the significance of the results. The use of a full family model including both mother- and father-report likely reduced this risk in Paper 3; however, it would be beneficial for future work to examine determinants and consequences of coparenting in twin families using other assessment methods, for example independent observation and teacher report of child behaviour. The

opportunity to use the TFaB data to explore coparenting in relation to observed parent-child interaction (see Skype etch-a-sketch task, Chapter 2) in twin families remains an interesting possibility for the future. The TFaB study would, however, have been greatly enriched by the inclusion of data from teachers or the National Pupil Database, particularly given the focus of this thesis on the transition-to-school period. As well as addressing the aforementioned issue of shared-method variance, such data would also have enabled exploration of research questions regarding the coparenting of twins and the children's school adjustment, in line with existing longitudinal findings suggesting positive, cohesive coparenting to be associated with children's socio-emotional adjustment and higher grade achievement during the primary school years (Stright & Neitzel, 2003; Sturge-Apple, Davies, & Cummings, 2010).

**Generalisability.** The research in this thesis is the first to examine coparenting among mothers and fathers of twins; consequently, the sample is not representative of UK population so caution is warranted in generalising the findings. In particular, it is currently unknown how coparenting in twin and non-twin families compares. Because of the greater demands of raising twins, these fathers may be more involved with their children than fathers of singletons (Lytton, 1980). However, it is important to remember that higher levels of father involvement do not necessarily equate to higher quality coparenting. Increased father involvement may, for example, arouse negative maternal gatekeeping behaviours as mothers try to protect their authority over parenting (Schoppe-Sullivan, Brown, Cannon, Mangelsdorf, & Sokolowski, 2008). Furthermore, if coparents disagree about childrearing and do not find ways to successfully manage this, then fathers' greater involvement may increase the opportunity for undermining and coparenting conflict to occur (Jia & Schoppe-Sullivan, 2011). An important task therefore is for studies with comparable twin and non-twin samples to investigate mean

levels of coparenting (including its individual components) to illuminate how coparenting looks across these family types. Importantly, even in the absence of mean-level differences in coparenting, coparenting may be more significant in twin families due to the greater demand of raising two children of the same age. As such, it is also vital that the current research findings be replicated in non-twins samples. Further work is therefore required to inform whether the findings of this thesis can be generalised beyond families with twins.

There are some additional limitations to note regarding the sample. First, participants were highly educated and predominantly English-speaking. Demographics such as these may influence family dynamics (Bronfenbrenner, 1992) and education may influence coparenting directly, or indirectly via the marital relationship (Feinberg, 2003; Stright & Bales, 2003). Thus, future work should explore the research questions addressed in this thesis within more economically diverse samples. Second, the analyses in this thesis utilised data from intact families in which both mother and father participated in the TFaB study. However, mothers from families where the father also participated in at least one study wave reported coparenting that was, on average, higher quality than mothers from families where the father did not participate at all (Welch's  $F(1,71.86) = 10.04, p = .002$  and Welch's  $F(1,37.98) = 4.68, p = .037$  for study Waves 2 and 4 respectively). Thus, the subsamples utilised captured families at the upper end of the coparenting scale. Similarly, the quality of the marital relationship reported by these parents was, on average, high – reflecting the ‘intact’ and self-selecting nature of the sample. As such, the pattern of effects reported in the current research could differ in other samples. Caution may therefore be warranted in generalising the current findings to families where the quality of coparenting and/or marital relationships is perceived to be lower. Replication of the current findings in more diverse samples is critical.

**Future Directions using the TFaB Study.** The research in this thesis focuses on the three key aspects of Feinberg's (2003) Ecological Model of Coparenting in a UK sample of young twins: the association between coparenting and the marital relationship, the influence of child adjustment on coparenting, and child and parent adjustment as consequences of coparenting. However, there remains opportunity for additional analyses using data collected for the TFaB study.

For example, examining environmental sources of stress such as significant life events (e.g. family illness, bereavement and financial difficulty) and household chaos as determinants of coparenting in twin families is a key avenue for research using the TFaB dataset since these stressors may reduce parents' ability to invest effort in maintaining co-ordination and harmony with one another (Lerman & Glanz, 1997; Williams, Cheadle, & Goosby, 2015). High levels of household chaos – that is, high levels of noise, crowding, and low levels of regularity and routines – have indeed been shown to impact negatively on family members' interactions (Fiese & Winter, 2010) including the quality of coparenting (Whitesell, Teti, Crosby, & Kim, 2015).

Interactions between coparenting and observed parenting (see Procedure, Chapter 2) are also of interest to extend the literature regarding the moderating role of coparenting for associations between positive and negative parenting and children's adjustment (Scimgeour et al., 2013; Stright & Neitzel, 2003). Further exploration of the interactive effects of coparenting and harsh parenting for children's disruptive behaviour using observed parenting to augment the findings of Paper 3 is a particularly valuable possibility for future analyses of the TFaB dataset.

Additionally, there is scope to investigate the potential moderating role of the gender constellation of the twin dyad as well as the number of other siblings in the

home. Since research has typically focused on one child per family, understanding how determinants and consequences of coparenting may be impacted by these family factors is an important avenue to be explored. It is suggested here that coparenting may be more salient in families with twins compared to non-twin families; it may be more salient still in families who are required to not only manage the significant challenge of parenting twins, but do so alongside parenting other siblings. Whether the presence of additional children in the home moderates the current findings may be particularly relevant for the cross-lagged association between coparenting and the marital relationship (Paper 1).

Finally, extending the coparenting literature away from a focus on just one child per family to include twins additionally affords important research regarding associations between the quality of coparenting and the sibling relationship. This is an area that is currently unexplored, but the inclusion of parental reports of twin sibling relationship quality in the TFaB study (Waves 2 and 4) means that this remains an exciting opportunity for future analysis of the dataset.

## **Conclusion**

The research presented in this thesis contributes to our knowledge and understanding of the determinants and consequences of coparenting in intact families. In particular, it makes a significant contribution to the field by examining mothers' and fathers' perceptions of coparenting – for the first time – in families with young twins. Parents' perceptions of the quality of their coparenting were examined in association with the quality of the marital relationship, maternal and paternal parenting sense of competence, and children's disruptive behaviour. Findings support the distinction

between coparenting and marital relationship constructs, and highlight the salience of parents' perceptions of coparenting. Perceptions of high quality coparenting were found to have positive, desirable effects, but notably the current research also identifies that in some circumstances there can be negative, undesirable effects.

As the first of its kind, this research serves as a springboard for future work examining coparenting twins; most importantly, the current findings require replication and extension, but new avenues of interest have also been identified for this young – but rapidly expanding – field of study.



## **Appendices**

## APPENDIX A: TFaB study newsletter 2013





NOVEMBER 2013  
ISSUE 1



Welcome to the first edition of our newsletter for parents. This is our chance to tell you more about the progress of the research which you are making possible.

### What is TEDS and what is the TFaB study?

The Twins Early Development Study (TEDS) began in 1995 under the leadership of Professor Robert Plomin at King's College London. With the help of around 13,000 families it is now one of the world's premier studies of how genes and environment shape our development.

Dr Bonny Oliver was the first TEDS manager and she now leads a brand new study - Twins Family and Behaviour (TFaB) at the University of Sussex

In January 2013, the TEDS team helped us to invite families with young twins born in 2009 and 2010 to join our TFaB study. If you're reading this newsletter then it means that you are among our first new recruits!



### Welcome to TFaB!

### Meet the TFaB Team



From left to right: Katie Shaw, Rachel Latham, Alison Pike and Bonny Oliver.

[www.sussex.ac.uk/psychology/thenurturelab/index](http://www.sussex.ac.uk/psychology/thenurturelab/index)

Hello, I'm **Bonny**. I helped Professor Plomin to set up the original TEDS study all those years ago, and am now an independent researcher, although Professor Plomin and I continue to work closely together. It is so exciting to be able to start a new study with families like you! I research the family and children's development. In particular, I am interested in twins because they can help us understand how genes and environments work together to shape our behaviour, relationships and personality.

Hello, I'm **Alison**. Bonny and I have worked together over the last 18 years, and I'm pleased to be involved in this exciting project! Much of my past research has looked at why some brothers and sisters get along so well, and others not so well. In addition, I look at why children who grow up in the same family often turn out so differently from one another. Twins can provide unique insights into these questions, and I look forward to learning more from your families!

Hello I'm **Katie**. I have recently joined the TFaB team, and I am really excited about getting involved in this fantastic project. I come from a research background, having recently completed a postgraduate degree in developmental and clinical psychology. I am interested in exploring the relationship between twins and learning about the bonds that they form compared to other, more typical, siblings. By taking part in this study you are helping us to develop our understanding of these unique attachments, so your contribution is really valuable. I look forward to getting a chance to speak to many of you in the near future.

Hello I'm **Rachel** and I have also recently joined the TFaB team. For the last few years since graduating with my degree in Psychology I have been working directly with children and families providing support and intervention at times of crisis and need. I am interested in relationships between parents and children and also how Mums and Dads on their own, as well as Mums and Dads together parent their children. I'm really excited to be exploring this within this study and can't wait to see what results we find!

### The study so far . . .

We started by contacting Mums, and so far 321 families have told us they are interested in taking part in TFaB. We have already had 246 questionnaires back! However, we are keen to involve Mums, Dads, Stepdads and Stepdads in our research, so now we are getting them involved as well.

We are now extending our sample further to include any twins born in 2009 and 2010. So if you know someone who wants to be involved, please put them in touch with us by email, text or using the enclosed form.

#### Who are our families?

Our TFaB families are spread right across the United Kingdom as well as a couple of families who have now moved abroad.

To date, 56% of the TFaB children are female and 44% are male. The proportion of same sex and different sex twins is shown in this pie chart— 68.5% are same sex and 31.5% are different sex twins.



We know that many of you had your twins start school in September, we hope they have settled in well.



### Moving forward with the study . . .

As well as keeping up with recruiting our new families, the TFaB team is currently phoning all of our involved families, to properly update everyone with our progress since we began the study.

Beginning over the next month, we will be asking families some questions over the telephone. This is a great way for you to tell us a bit more about your twins, and your family. Following these telephone interviews, we plan to ask you to play some games with each of your twins, where possible over the internet, so that we can learn even more about parents' relationships with their children. We will be in touch nearer the time to let you know the details. We will be telephoning you so you will get the chance to ask us any questions – as always, feel free to contact us anytime.

### And finally . . .

We will be keeping you updated with the progress of the TFaB study through our annual newsletters. We will be collecting a lot of information from our families so it will take some time until we have results to share – but we promise to let you know as soon we do!

We really appreciate your participation and patience, we couldn't do our research without you!



Please cut here and return.....

Have you moved recently? If so please let us know your current address: \_\_\_\_\_

\_\_\_\_\_ Tel: \_\_\_\_\_

It is also really helpful for us to have the contact details of a friend or family member in case we lose touch with you in the future: \_\_\_\_\_

\_\_\_\_\_ Tel: \_\_\_\_\_





# WANTED



**ANY ONE YOU KNOW WHO IS  
ALSO INTERESTED IN  
PARTICIPATING IN OUR STUDY  
WHO HAS TWINS BORN IN 2009  
OR 2010!**

**WE ARE KEEN TO ENGAGE ANY OTHER FAMILIES WHO MIGHT WISH TO TAKE  
PART IN OUR STUDY. IF YOU KNOW ANYONE WHO IS INTERESTED AND FITS  
THIS DESCRIPTION PLEASE PUT US IN CONTACT WITH THEM BY COMPLETING  
THEIR DETAILS BELOW AND RETURNING THIS PAGE TO US.**

**FAMILY 1:**

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**CONTACT NUMBER/EMAIL:** \_\_\_\_\_

**FAMILY 2:**

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**CONTACT NUMBER/EMAIL:** \_\_\_\_\_

**FAMILY 3:**

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**CONTACT NUMBER/EMAIL:** \_\_\_\_\_

**THANKS FOR YOUR HELP!**

## APPENDIX B: TFaB study newsletter 2014

DECEMBER  
2014  
ISSUE 2

# Twins Family & Behaviour Study



Welcome to the second edition of our newsletter for parents. This is our chance to tell you more about the progress of the research which you are making possible.

**A brief update ...**

Since our first newsletter last November we have been busy receiving more of your completed questionnaires and talking to many of you over the phone to learn more about you and your family. Thank you so much for your participation!

We're delighted with the response we've had, and as you can see we have families taking part from all over the UK. We know there are a few of you who are a bit further afield too!





We are in the process of arranging these video calls with everyone, but thank you to those of you who have been in touch and taken part already. After your family have had a go at the game, we'll send each of the twins a 'You're a star!' certificate to say thank you so much and well done for being a valued member of TFaB!

**What's happening now?**

The next stage of our research is currently underway! For this part of the study, we're asking parents to play a ten-minute online game with each of their twins, while we record via Skype. This is a fun task for you to enjoy with the children. We're thrilled to be able to have the children involved and to put names to faces!



Proudly showing off their certificates!

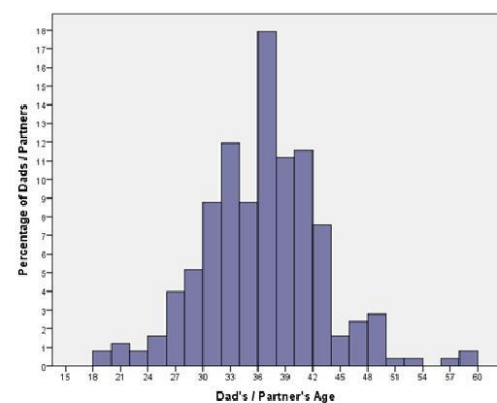
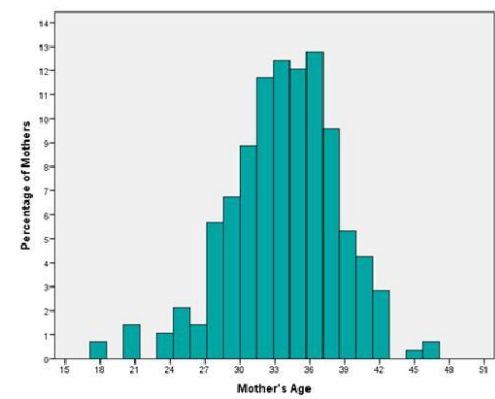
*"The Skype call was a source of much happiness. When we talked about it afterwards, we realised how fun it was!" Mum from Kent.*



## Taking a Peek ...

We know many of you are as excited as we are to hear about findings from the TFaB study. The questionnaires and telephone interviews have provided us with a lot of information so you are keeping us nicely busy! We have peeked at some of the information you have given us so far.

You may already know that the chance of having twins increases with mothers' age, the graph below shows the age of TFaB mothers and fathers when they had their twins. Where do you fit on the graph?



## Results ...

One of our most exciting findings so far has come from looking at the differences and similarities between twin siblings and non-twin brothers and sisters. If you took part in the telephone interview earlier in the year, you kindly told us about how your twins get along together. You may remember that we asked you about things like affection, sharing, helping, quarrels and jealousy within your twins' relationship. The same questions were answered by parents of a non-twin sibling study (the Sisters and Brothers Study, see reference below for more information), so we have been able to compare this information.



After taking into account the age of the children involved, our results show that the relationship between brothers and sisters is very similar for both twin siblings and non-twin siblings. In other words, your descriptions of how your twins get on together were no different from the reports from parents of more typical brothers and sisters.

This finding is interesting, and also a bit surprising for us! It's a commonly held view that twins have a unique relationship, one that is in some way distinct from the bond between non-twin siblings. According to our results, this is not the case – all brothers and sisters, regardless of their twin or non-twin status, seem to share similar levels of positivity and negativity within their sibling relationship.

We are only at the beginning stages of analysing the information we've gathered over the past year and a half or so, but we are hoping that the above finding, as well as others we come across throughout the course of the study, will eventually be published in a scientific journal. This process takes time, but if you would like to be informed of any TFaB-related publications please let us know and we'll add you to our mailing list.

### Reference.

Pike, A., Coldwell, J & Dunn, J. (2006). *Family relationships in middle childhood*. London, England: National Children's Bureau for the Joseph Rowntree Foundation.

### Our Contact Details:

Tel: 01273 877052, Text: 07847 814140  
Email: [TFaB@sussex.ac.uk](mailto:TFaB@sussex.ac.uk)

## APPENDIX C: TFaB study newsletter 2016

DECEMBER  
2016  
ISSUE 3



# Twins Family & Behaviour Study

Welcome to the third edition of our newsletter for parents. This is our chance to tell you more about the progress of the research which you are making possible.



For some of you, it may feel like a while since we were last in touch, so we do apologise for that - rest assured we have been very busy!

## What a lot of information!

As part of our study, you have been telling us about your family life since before your TFaB twins started school. That may feel like a long time ago now!

With thanks to all our families for their hard work and commitment to the study, we now have a lot of information. We have hundreds of questionnaires, telephone interviews, and Skype videos from mothers, fathers, guardians and other carers from all over the UK:



**Questionnaires** from when the children were ~3½ years old and 6 years old

**Telephone interviews** from when the children were ~4½ years old

**Videos** of adults playing with their ~5½ year old children online

## What is happening to this information now?

Everything we have collected from you helps us understand more about being a family with young twins. But it takes a lot of time to process – the TFaB bees are still busy coding interviews and videos, and entering the data. Some of the information is ready now, and we are working hard on interesting research questions, analyzing our findings, and writing reports.

*"Thank you...I had an overwhelming feeling of pride of my family unit!"*  
Mum, Nottinghamshire.

We are delighted to say that we are starting to see some very stimulating findings!

## Talks in the UK & Amsterdam...

This year we presented TFaB to academics at home and abroad.

In particular, we demonstrated our Skype game, which is the first of its kind. It's always lovely to present to a room of colleagues and see lots of nodding heads! We were delighted to find that other academics were very interested in our findings and our techniques.



*Amsterdam is beautiful!*

*On our way to the Life History Conference to present our work*

## We are in the news...

One of our academic papers was released recently (5th December, 2016) - you could see it in the press very soon, so look out for it! The research shows that, in two-parent families, the way the parents work together has an important role for children's behaviour. For the first time we show that for mothers who use negative parenting strategies, having a partner who disagrees with them may be helpful for the children's behaviour.

## On the radio...

Some of you may have heard one of our lead researchers, **Dr Bonamy Oliver** on Radio 4



last autumn. If you haven't, do look on the TFaB website – we have a link to the programme there:

<http://www.sussex.ac.uk/psychology/thenurturelab/>

### On the television...

Have you seen our film star?! **Dr Alison Pike**, another lead researcher in our team, was on *The Secret Life of Brothers and Sisters* on Channel 4 this summer. If you missed her, don't worry, she is now a regular psychologist on Channel 4's *Secret Life* series - the *Secret Life of 4, 5, and 6 year olds* is now showing!

### ...And in Parliament!

One of our junior researchers, **Alex**, won first prize in the Junior Research Associate poster competition, using TFaB research! She presented the work to MPs at an annual exhibition, *Posters in Parliament*. Alex's study looked at how parents treat their children as individuals with their own personalities. Alex says, "I hope to involve elements of this project in my post-graduate research, particularly continuing to unpack the role of the father in relation to interventions for children with pervasive and distressing disorders." We are delighted to say that Alex has just started her PhD at King's College London.



### Our researchers...

And finally, many of you will have spoken to one or other of us here at TFaB over the years. We would like to tell you a bit about how our star researchers on the study, Rachel and Katie, are getting on!

**Rachel** recently spent six months working at the *Early Intervention Foundation* in London. The Foundation is a charity whose mission is to improve children's wellbeing through championing the use of science-based interventions for families and children in need. Rachel says, "The *Early Intervention Foundation* work really hard to gather together findings from lots of different scientific studies. They communicate the information to people in government who make policies that affect children and families, and also to those who work directly with children – like health visitors and social workers. It was really exciting to see how research can make a difference."

**Katie** has just finished her PhD studies with us! We are delighted that she has produced some fantastic work using some of the information from TFaB. In particular, she was interested in understanding the sibling relationship between twins. Katie says, "I have loved my time working with the TFaB team and families. My favourite finding from my research relates to the influential nature of the twin relationship on the relationship between mums and children. We found that the way twin brothers and sisters get on can affect the bond between

mums and their children within families." Goodbye Katie, we will miss you!

### What next? ...

Just now, we are enjoying taking a look at all of the information you have provided, and we don't have any plans for asking you for more just yet. So THANK YOU very much for all that you have done for us. Please pat yourselves on the back, and take a TFaB breather!



**All our very best wishes for the holidays to you and your family!**

### Our Contact Details:

Text: 07847 814140

Email: [TFaB@sussex.ac.uk](mailto:TFaB@sussex.ac.uk)



## APPENDIX D: Participant information for study Wave 1 (initial postal questionnaire)

**Information Sheet****THANK YOU FOR TAKING PART IN OUR STUDY SO FAR!**

This sheet tells you a bit about why we are doing this research and what is involved for in these next steps for you and your family. If you would like to hear more about our study or have any questions please contact the team on 01273 877052 or email [bonamy.oliver@sussex.ac.uk](mailto:bonamy.oliver@sussex.ac.uk).

*What is the purpose of this study?*

As parents you already know that your children develop differently. As parents of twins, you have a wonderful chance to see how your children develop together.

Children develop in many different ways, and in different situations. As a parent you have a wonderful opportunity to watch how your children learn and become the people they are. You have a special knowledge and we would like you to share it with us. We are interested in your twins because they let us see how genes and experience work together to influence their development.

*Do both mothers and fathers have to take part?*

No. It is up to each of you to decide to take part in the study. That is, we are interested in hearing from you even if only mother or only father wishes to participate. All we ask is that you sign the consent form before taking part. You are free to withdraw at any time, individually, without giving a reason.

*What will happen if I take part?*

So far we have heard from mothers, and we are interested in the points of view of all parents. This time, we would like fathers to answer the questions in our booklet; they are almost the same as those we sent to mothers. We ask about where you live, any qualifications you may have, who lives with you, your household income, and how similar your twin children are to each other. We also ask you some questions about your children's behaviour and your thoughts about being a parent. The questionnaire will take around 40 minutes to complete. Your answers will be kept strictly confidential. There will be no cost to you as all postage costs will be paid by us.

As well as your answers to our questions, we would like to speak to participating mothers and fathers over the telephone and to capture real-life interactions between you and your children. The telephone interview will last around 15 minutes, and we will be asking about significant family life events and family relationships. We will also ask participating mothers and fathers to play two short online games with each of the twins that will be videoed via Skype technology (if you have internet access in your home).

You can be part of the study for as long as you wish, and will hear about the findings through our yearly newsletters.

*What are the possible benefits of taking part?*

The information we get from this study will help us understand how children develop together.

*Will my taking part in the study be kept confidential?*

Yes. We will follow ethical and legal practice and all information about you will be handled in confidence.

*What will happen if I don't want to carry on with the study?*

Either of you can withdraw from the study at any time without giving a reason; data already collected will be stored anonymously but no new data collected. In addition, it is your right to withdraw your data at any time prior to publication of results. No identifying information is included in such publications.

*Will my taking part in this study be kept confidential?*

All the data that your family provides are strictly confidential; you and your twins are identified only by a number in the study datasets. Identifiable data will be only accessed by authorised persons in the research team and stored in a secure location. The data your family provides will be kept for a minimum of 10 years after completion of the study, as recommended by the Medical Research Council (MRC). **We will not pass your family's information on to any other organisations.** The data may be retained for our use in future studies subject to further ethical approval.

*What happens to the results of the findings of the research study?*

The findings will be published in scientific journals, and also made available on our web site after the completion of the study.

*Who has reviewed the study?*

This study has been reviewed by the Sciences & Technology Cross-Schools Research Ethics Committee, Sussex University. If have any concerns about the way in which the study is conducted as it progresses, please contact the Chair of the Ethics Committee (R.De-Visser@sussex.ac.uk).

*Questions about the study?*

Please call Bonamy Oliver on: 01273 877052

**Or email:** [bonamy.oliver@sussex.ac.uk](mailto:bonamy.oliver@sussex.ac.uk)

**Thank you so much for your time!**

## APPENDIX E: Participant consent form for study Wave 1 (initial postal questionnaire)

*Please tick each box*

1. I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected. ☐
3. I understand that unidentifiable data collected during the study may be analysed by individuals from the TEDS team and other researchers. Access to identifiable data is strictly controlled and used only by authorised TEDS staff, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my data. ☐
4. I agree to take part in the above study. ☐

If you have any questions at any time, please contact the TEDS team on freephone 0800 317029, or email [teds-project@kcl.ac.uk](mailto:teds-project@kcl.ac.uk)

Your name: .....

Relationship to the twin (e.g. mother, guardian etc): .....

Your address: .....

.....

.....

Postcode: .....

Your telephone number: .....

Your email: .....

SIGNATURE: .....

Date: (day/month/year) ...../...../.....

It would be useful if we could have the contact details of a relative or friend that we could contact should we be unable to reach you – for example, if you move house.

First name: ..... Last name: .....

Address:

.....  
.....  
.....

Postcode: .....

Telephone: .....

Email: .....

APPENDIX F: Demographic items included in study Wave 1 (initial postal questionnaire).

## ABOUT YOU AND YOUR FAMILY

To be sure that we know which twin you are telling us about, we refer to your 'OLDER' and 'YOUNGER' twin – but of course, there may be only a few minutes or hours between the children's ages. We are interested in twins from lots of different backgrounds. Knowing a little about you, and, if you have one, your partner, will help us understand a bit more about your family.

### 1. YOUR OLDER TWIN (FIRST BORN)

First name: ..... Last name:

.....

☐

Boy

☐

Girl

Date of birth:   /   /     (dd/mm/yyyy)

### 2. YOUR YOUNGER TWIN (SECOND BORN)

First name: ..... Last name:

.....

☐

Boy

☐

Girl

Date of birth:   /   /     (dd/mm/yyyy)

3. What is your date of birth?   /   /      
(dd/mm/yyyy)

4. What is your relationship to the twins?

<input type="checkbox"/>	Birth mother	<input type="checkbox"/>	Natural father
<input type="checkbox"/>	Stepfather	<input type="checkbox"/>	Stepmother
<input type="checkbox"/>	Other guardian (please describe).....		

## 5. What is your marital status?

<input type="checkbox"/>	Single unmarried	<input type="checkbox"/>	Married to parent of twins	<input type="checkbox"/>	Married to other
<input type="checkbox"/>	Single separated	<input type="checkbox"/>	Cohabiting with parent of twins	<input type="checkbox"/>	Cohabiting with other
<input type="checkbox"/>	Single divorced	<input type="checkbox"/>	Single widowed	<input type="checkbox"/>	Other

6. What is your household income (per year, before tax)? This should include the income for **all** of the adults in your household.

<input type="checkbox"/>	Less than £5,000	<input type="checkbox"/>	£5,000 to £9,999
<input type="checkbox"/>	£10,000 to £14,999	<input type="checkbox"/>	£15,000 to £19,999
<input type="checkbox"/>	£20,000 to £24,999	<input type="checkbox"/>	£25,000 to £29,999
<input type="checkbox"/>	£30,000 to £39,999	<input type="checkbox"/>	£40,000 to £49,999
<input type="checkbox"/>	£50,000 to £74,999	<input type="checkbox"/>	£75,000 to £100,000
<input type="checkbox"/>	More than £100,000	<input type="checkbox"/>	Prefer not to answer this question

## 7. What is the highest level of qualifications that you have reached? Please select the closest match from the list.

<input type="checkbox"/>	No qualifications
<input type="checkbox"/>	GCSEs or O levels with grades D – G, or CSEs with grades 2 - 5
<input type="checkbox"/>	1 to 4 GCSEs or O levels with grades A - C (or CSEs with grade 1)
<input type="checkbox"/>	5+ GCSEs or O levels with grades A - C (or 5+ CSEs with grade 1)
<input type="checkbox"/>	1 A level pass (grades A - E)
<input type="checkbox"/>	2+ A level passes (grades A - E)
<input type="checkbox"/>	First degree (e.g. BA, BSc)
<input type="checkbox"/>	Higher degree (e.g. MA, PhD) or Postgraduate certificate or diploma (e.g. PGCE)
<input type="checkbox"/>	Other qualifications obtained outside the UK
<input type="checkbox"/>	Prefer not to answer this question

8. Which of the following best describes the type of work that you do? Please select the closest match from the list.

<input type="checkbox"/>	Manager, director or senior official
<input type="checkbox"/>	Qualified scientist, engineering or IT professional
<input type="checkbox"/>	Teacher, lecturer, research or education professional
<input type="checkbox"/>	Qualified professional such as doctor, accountant, solicitor, architect or clergy
<input type="checkbox"/>	IT, science, engineering, electrical or laboratory technician
<input type="checkbox"/>	Nurse, midwife, paramedic, qualified therapist, social welfare
<input type="checkbox"/>	Armed forces, police or protective services
<input type="checkbox"/>	Artistic or literary, design or media, or professional sports occupation
<input type="checkbox"/>	Business or finance professional such as broker, estimator, estate agent
<input type="checkbox"/>	Administrator, secretary, PA, receptionist or clerical work
<input type="checkbox"/>	Agricultural or horticultural trades, such as farmer, gardener, groundsman
<input type="checkbox"/>	Trained construction or building trades (plasterer, bricklayer, carpenter, glazier, electrician, plumber, etc)
<input type="checkbox"/>	Trained vehicle, craft or food trades (mechanic, tailor, florist, baker, chef, etc)
<input type="checkbox"/>	Leisure, sports or travel services
<input type="checkbox"/>	Childcare, classroom assistant, care assistant, dental or veterinary nurse
<input type="checkbox"/>	Hairdressing, housekeeping and other personal services
<input type="checkbox"/>	Sales assistant, cashier or check-out, trader, call centre or customer services
<input type="checkbox"/>	Driver or transport operator, machinist or vehicle fitter
<input type="checkbox"/>	Security guard, attendant, school patrol, traffic warden
<input type="checkbox"/>	Postal worker, courier or messenger
<input type="checkbox"/>	Goods handling, porter, shelf filling, storage
<input type="checkbox"/>	Labourer, farm worker, factory worker or machine operator
<input type="checkbox"/>	Cleaning, laundering, refuse collection
<input type="checkbox"/>	Kitchen worker, bar staff, waiter or waitress
<input type="checkbox"/>	Unemployed or student
<input type="checkbox"/>	None of the above
<input type="checkbox"/>	Prefer not to answer this question

## ABOUT THE PERSON YOU LIVE WITH

*If you do not have a partner who lives with you, please go to page 9*

1. First name: ..... Last name: .....

2. What is their relationship to the twins?

<input type="checkbox"/>	Birth mother	<input type="checkbox"/>	Natural father
<input type="checkbox"/>	Stepfather	<input type="checkbox"/>	Stepmother
<input type="checkbox"/>	Other guardian (please describe).....		

3. Date of birth:     /  /  (dd/mm/yyyy)

4. What is the highest level of qualifications that they have reached?

<input type="checkbox"/>	No qualifications
<input type="checkbox"/>	GCSEs or O levels with grades D – G, or CSEs with grades 2 - 5
<input type="checkbox"/>	1 to 4 GCSEs or O levels with grades A - C (or CSEs with grade 1)
<input type="checkbox"/>	5+ GCSEs or O levels with grades A - C (or 5+ CSEs with grade 1)
<input type="checkbox"/>	1 A level pass (grades A - E)
<input type="checkbox"/>	2+ A level passes (grades A - E)
<input type="checkbox"/>	First degree (e.g. BA, BSc)
<input type="checkbox"/>	Higher degree (e.g. MA, PhD) or Postgraduate certificate or diploma (e.g. PGCE)
<input type="checkbox"/>	Other qualifications obtained outside the UK
<input type="checkbox"/>	Prefer not to answer this question



5. Which of the following best describes the type of work that they do? Please select the closest match from the list.

<input type="checkbox"/>	Manager, director or senior official
<input type="checkbox"/>	Qualified scientist, engineering or IT professional
<input type="checkbox"/>	Teacher, lecturer, research or education professional
<input type="checkbox"/>	Qualified professional such as doctor, accountant, solicitor, architect or clergy
<input type="checkbox"/>	IT, science, engineering, electrical or laboratory technician
<input type="checkbox"/>	Nurse, midwife, paramedic, qualified therapist, social welfare
<input type="checkbox"/>	Armed forces, police or protective services
<input type="checkbox"/>	Artistic or literary, design or media, or professional sports occupation
<input type="checkbox"/>	Business or finance professional such as broker, estimator, estate agent
<input type="checkbox"/>	Administrator, secretary, PA, receptionist or clerical work
<input type="checkbox"/>	Agricultural or horticultural trades, such as farmer, gardener, groundsman
<input type="checkbox"/>	Trained construction or building trades (plasterer, bricklayer, carpenter, glazier, electrician, plumber, etc)
<input type="checkbox"/>	Trained vehicle, craft or food trades (mechanic, tailor, florist, baker, chef, etc)
<input type="checkbox"/>	Leisure, sports or travel services
<input type="checkbox"/>	Childcare, classroom assistant, care assistant, dental or veterinary nurse
<input type="checkbox"/>	Hairdressing, housekeeping and other personal services
<input type="checkbox"/>	Sales assistant, cashier or check-out, trader, call centre or customer services
<input type="checkbox"/>	Driver or transport operator, machinist or vehicle fitter
<input type="checkbox"/>	Security guard, attendant, school patrol, traffic warden
<input type="checkbox"/>	Postal worker, courier or messenger
<input type="checkbox"/>	Goods handling, porter, shelf filling, storage
<input type="checkbox"/>	Labourer, farm worker, factory worker or machine operator
<input type="checkbox"/>	Cleaning, laundering, refuse collection
<input type="checkbox"/>	Kitchen worker, bar staff, waiter or waitress
<input type="checkbox"/>	Unemployed or student
<input type="checkbox"/>	None of the above
<input type="checkbox"/>	Prefer not to answer this question

APPENDIX G: Participant information for study Waves 2 and 3 (telephone interview and Skype observation)

**Information Sheet**

**THANK YOU FOR TAKING PART IN OUR STUDY SO FAR!**

This sheet tells you a bit about why we are doing this research and what is involved in these next steps for you and your family. If you would like to hear more about our study, or if you have any questions, please contact the team on 01273 877052 or email [TFaB@sussex.ac.uk](mailto:TFaB@sussex.ac.uk).

*What is the purpose of this study?*

As parents you already know that your children develop differently. As parents of twins, you have a wonderful chance to see how your children develop together.

Children develop in many different ways, and in different situations. As a parent you have a wonderful opportunity to watch how your children learn and become the people they are. You have a special knowledge and we would like you to share it with us. We are interested in your twins because they let us see how genes and experience work together to influence their development.

*Do both mothers and fathers have to take part?*

No. It is up to each of you to decide to take part in the study. That is, we are interested in hearing from you even if only mother or only father wishes to participate. All we ask is that each person signs the consent form before taking part. You are free to withdraw at any time, individually, without giving a reason.

*What will happen if I take part?*

So far we have asked parents to complete an initial questionnaire booklet, in order for us to learn more about you and your family. We asked about where you live, any qualifications you may have, who lives with you, your household income, and how similar your twin children are to each other. We also asked you some questions about your children's behaviour and your thoughts about being a parent. Thank you for your participation in this first stage of our research.

We would now like to speak to participating mothers and fathers over the telephone. The telephone interview will last between 30 and 40 minutes, and we will be asking about significant family life events and family relationships.

For the next stage of our study, we will be asking participating mothers and fathers to play an online game (if you have access to the internet) with each of the twins which will be videoed via Skype technology. This will allow us to capture real-life interactions between you and your children.

You can be part of the study for as long as you wish, and you will hear about the findings through our yearly newsletters.

*What are the possible benefits of taking part?*

The information we get from this study will help us understand how children develop together.

*What will happen if I don't want to carry on with the study?*

Participating mothers and fathers can withdraw from the study at any time without giving a reason; data already collected will be stored anonymously but no new data collected. In addition, it is your right to withdraw your data at any time prior to publication of results. No identifying information is included in such publications.

*Will my taking part in this study be kept confidential?*

Yes. We will follow ethical and legal practice, and all the information that your family provides is strictly confidential. You and your twins are identified only by a number in the study datasets, and any identifiable data will only be accessed by authorised persons in the research team and stored in a secure location. The data your family provides will be kept for a minimum of 10 years after completion of the study, as recommended by the Medical Research Council (MRC). We will not pass your family's information on to any other organisations. The data may be retained for our use in future studies, subject to further ethical approval.

*What happens to the results of the findings of the research study?*

The findings will be published in scientific journals, and also made available on our web site after the completion of the study.

*Who has reviewed the study?*

This study has been reviewed by the Nottingham 1 Research Ethics Proportionate Review Sub-Committee and the Sciences & Technology Cross-Schools Research Ethics Committee, Sussex University. If have any concerns about the way in which the study is conducted as it progresses, please contact the Chair of the Ethics Committee (R.De-Visser@sussex.ac.uk).

*Questions about the study?*

Please call Bonamy Oliver on: 01273 877052

[Or email: TFaB@sussex.ac.uk](mailto:TFaB@sussex.ac.uk)

**Thank you so much for your time!**

## APPENDIX H: Participant consent form for study Waves 2 and 3 (telephone interview and Skype observation)

### TEDS: Family and Behaviour Study (TFaB)



#### CONSENT FORM

Please tick to indicate your consent to take part in the next stage of the study. Where Mothers and Fathers are both participating, please ensure each give their respective consent.

- |   |                                    |                                    |
|---|------------------------------------|------------------------------------|
| 1. I confirm that I have read and understand the information sheet for the TFaB study. I have had the opportunity to consider the information, ask questions and had these answered satisfactorily.   | Mother<br><input type="checkbox"/> | Father<br><input type="checkbox"/> |
| 2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected.  | Mother<br><input type="checkbox"/> | Father<br><input type="checkbox"/> |
| 3. I understand that unidentifiable data collected during the study may be analysed by individuals from the TFaB team. Access to identifiable data is strictly controlled and used only by authorised TFaB staff, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my data. | Mother<br><input type="checkbox"/> | Father<br><input type="checkbox"/> |
| 4. I agree to take part in the telephone interview part of the study. I understand that these conversations will be recorded and transcribed.   | Mother<br><input type="checkbox"/> | Father<br><input type="checkbox"/> |
| 5. I agree to take part in the video-interaction part of the study. I understand that these interactions will be recorded.  | Mother<br><input type="checkbox"/> | Father<br><input type="checkbox"/> |

If you have any questions at any time, please contact the team on 01273 877052, or email [TFaB@sussex.ac.uk](mailto:TFaB@sussex.ac.uk)

Mother's name..... Mother's signature.....  
 Father's name..... Father's signature.....

You may volunteer to allow us to use sections of any video-taped interactions between you and your child in public (e.g. at academic conferences, as teaching materials etc.) Names will not be used. If you would like to allow us to do this, please tick the box below and sign your name. This does not affect your participation in any way.

☐ Mother's name..... Mother's signature.....  
☐ Father's name..... Father's signature.....

Please return this form to us at [TFaB@sussex.ac.uk](mailto:TFaB@sussex.ac.uk) prior to your telephone interview.

## APPENDIX I: Participant information for study Wave 4 (follow-up postal questionnaire)

### Information Sheet

#### **Thank you for taking part in our study!**

We hope you have enjoyed taking part in our study so far.

This information sheet tells you a bit about why we are doing this research and what is involved for you and your family if you take part in the next phase.

#### *What is the purpose of this study?*

As your children grow up, you'll know how differently they develop from each other and from other children. As parents of twins, you have a wonderful chance to see how your children develop together.

As a parent you have a fantastic opportunity to watch how your children navigate through childhood. We would like you to continue to share your insights with us. We are interested in your twins because they let us see how genes and experience work together to influence their development.

#### *Do both mothers and fathers have to take part?*

No. It is up to each of you to decide to take part in the study. That is, we are interested in hearing from you even if only mother or only father wishes to participate. All we ask is that you sign the consent form before taking part. You are free to withdraw at any time, individually, without giving a reason.

#### *What will happen if I take part?*

In the enclosed questionnaire, we ask you questions about who lives in your home, what your home is like, how the relationships work in your home and the kinds of people your twins are becoming. The questionnaire will take around 40 minutes to complete. Your answers will be kept strictly confidential. There will be no cost to you - all postage costs will be paid for by us.

We ask that you return the consent form in the smaller envelope, and the completed questionnaire - on which you are identified only by ID number - in the larger envelope.

#### *What are the possible benefits of taking part?*

The information we get from this study will help us understand how children develop together.

You will hear about the findings from the study through our yearly newsletters.

#### *Will my taking part in the study be kept confidential?*

Yes. We will follow ethical and legal practice and all information about you will be handled in confidence. You and your twins are only identified by a number in the study datasets.

Identifiable data will be only accessed by authorised persons in the research team and stored in a secure location. The data your family provides will be kept for a minimum of 10 years after

completion of the study, as recommended by the Medical Research Council (MRC). **We will not pass your family's information on to any other organisations.** The data may be retained for our use in future studies, subject to further ethical approval.

*What will happen if I don't want to carry on with the study?*

You can withdraw from the study at any time without giving a reason; data already collected will be stored anonymously but no new data collected. In addition, it is your right to withdraw your data at any time prior to publication of results. No identifying information is included in such publications.

*What happens to the results of the findings of the research study?*

The findings will be published in scientific journals, and also made available on our web site after the completion of the study.

*Who has reviewed the study?*

This study has been reviewed by the Sciences & Technology Cross-Schools Research Ethics Committee, Sussex University. If have any concerns about the way in which the study is conducted as it progresses, please contact the Chair of the Ethics Committee (crecscitec@sussex.ac.uk).

*Questions about the study?*

Please contact the team on our team mobile 07847 814140, or Bonamy Oliver on 01273 877052, or email [tfab@sussex.ac.uk](mailto:tfab@sussex.ac.uk).

**Thank you so much for your time!**

APPENDIX J: Participant consent form for study Wave 4 (follow-up postal questionnaire)

**TFaB: Twins, Family and Behaviour Study**



Consent Form

*Thank you for your participation in our study so far! Please tick to indicate your consent to take part in the next stage of the study.*

1. I confirm that I have read and understood the information sheet for this stage of the TFaB study. I have had the opportunity to consider the information, ask questions and had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected.
3. I understand that unidentifiable data collected during the study may be analysed by individuals in the TFaB team. Access to identifiable data is strictly controlled and used only by authorised TFaB staff, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my data.
4. I agree to take part in the next questionnaire part of the study.

*If you have any questions, please contact the team on our team mobile 07847 814140, or Bonamy Oliver on 01273 877052, or email [tfab@sussex.ac.uk](mailto:tfab@sussex.ac.uk).*

Your name .....

Your signature .....

Your relationship to the TFaB twins:

- ☐ Mother                      ☐ Father
- ☐ Other (please describe) .....

Please return this form to us in the envelope provided or mail it to:

TFaB Research c/o B. R. Oliver  
Pevensey 1  
School of Psychology  
University of Sussex  
Brighton  
BN1 9RH

APPENDIX K: Twin Zygosity measure (Price, Freeman, Craig, Petrill, Ebersole, & Plomin, 2000) included in wave 1 postal questionnaire – used in Papers 1-3.

1. Have you ever been told by a *health professional* (for example doctor, nurse, consultant) that your twins are identical or non-identical?

<input type="checkbox"/>	YES, identical	<input type="checkbox"/>	YES, non-identical	<input type="checkbox"/>	NO
--------------------------	----------------	--------------------------	--------------------	--------------------------	----

2. Do *you* think your twins are identical or non-identical?

<input type="checkbox"/>	Identical	<input type="checkbox"/>	Non-identical
--------------------------	-----------	--------------------------	---------------

3. Are there differences in the *shade* of your twins' hair?

<input type="checkbox"/>	Clear difference	<input type="checkbox"/>	Only slight difference	<input type="checkbox"/>	None
--------------------------	------------------	--------------------------	------------------------	--------------------------	------

4. Are there differences in the *texture* of your twins' hair (fine or coarse, straight or curly etc)?

<input type="checkbox"/>	Clear difference	<input type="checkbox"/>	Only slight difference	<input type="checkbox"/>	None
--------------------------	------------------	--------------------------	------------------------	--------------------------	------

5. Are there differences in the colour of your twins' eyes?

<input type="checkbox"/>	Clear difference	<input type="checkbox"/>	Only slight difference	<input type="checkbox"/>	None
--------------------------	------------------	--------------------------	------------------------	--------------------------	------

6. Are there differences in the shape of your twins' ear lobes?

<input type="checkbox"/>	Clear difference	<input type="checkbox"/>	Only slight difference	<input type="checkbox"/>	None
--------------------------	------------------	--------------------------	------------------------	--------------------------	------

7. Did the twins' teeth begin to come through at about the same time?

<input type="checkbox"/>	Matching teeth on the same side came through within a few days of each other
<input type="checkbox"/>	Matching teeth on opposite sides came through within a few days of each other
<input type="checkbox"/>	The twins had different teeth come through within a few days of each other
<input type="checkbox"/>	The twins' first teeth did not come through within a few days of each other
<input type="checkbox"/>	The twins' teeth have not come through yet

8. (a) Do you know your twins' ABO blood group?

<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
--------------------------	-----	--------------------------	----



(b) If YES, what is their blood group?

<b>Older twin</b>	<input type="checkbox"/>	A	<input type="checkbox"/>	B	<input type="checkbox"/>	AB	<input type="checkbox"/>	O
<b>Younger twin</b>	<input type="checkbox"/>	A	<input type="checkbox"/>	B	<input type="checkbox"/>	AB	<input type="checkbox"/>	O

9. As your twins have grown older, how has the likeness between them changed?

<input type="checkbox"/>	Remained the same	<input type="checkbox"/>	Become less	<input type="checkbox"/>	Become greater
--------------------------	-------------------	--------------------------	-------------	--------------------------	----------------

10. If you look at a new photograph of your twins, can you tell them apart (without looking at their clothes or using any other cues)?

<input type="checkbox"/>	YES, easily
<input type="checkbox"/>	YES, but it is hard sometimes
<input type="checkbox"/>	NO, I often confuse them in photographs

11. Do any of the following people ever mistake your twins for each other?

(a) **Other parent of the twins**

<input type="checkbox"/>	YES, often
<input type="checkbox"/>	YES, sometimes
<input type="checkbox"/>	Rarely or never
<input type="checkbox"/>	There is no other parent

(b) **Older brothers or sisters**

<input type="checkbox"/>	YES, often
<input type="checkbox"/>	YES, sometimes
<input type="checkbox"/>	Rarely or never
<input type="checkbox"/>	There are no older brothers or sisters

(c) **Other relatives**

<input type="checkbox"/>	YES, often
<input type="checkbox"/>	YES, sometimes
<input type="checkbox"/>	Rarely or never

(d) **Babysitter/day carer**

<input type="checkbox"/>	YES, often
<input type="checkbox"/>	YES, sometimes
<input type="checkbox"/>	Rarely or never
<input type="checkbox"/>	There is no babysitter/day carer

(e) **Parents' close friends**

<input type="checkbox"/>	YES, often
<input type="checkbox"/>	YES, sometimes
<input type="checkbox"/>	Rarely or never

**(f) Parents' casual friends**

<input type="checkbox"/>	YES, often
<input type="checkbox"/>	YES, sometimes
<input type="checkbox"/>	Rarely or never

**(g) People meeting the twins for the first time**

<input type="checkbox"/>	YES, often
<input type="checkbox"/>	YES, sometimes
<input type="checkbox"/>	Rarely or never

12. If the twins *are* ever mistaken for one another, does this ever occur when they are together?

<input type="checkbox"/>	YES, often
<input type="checkbox"/>	YES, sometimes
<input type="checkbox"/>	NO, almost never
<input type="checkbox"/>	They are not mistaken for one another

13. Would you say that your twins:

<input type="checkbox"/>	are as physically alike as "two peas in a pod" (virtually the same)
<input type="checkbox"/>	are as physically alike as brothers and sisters are
<input type="checkbox"/>	do not look very much alike at all

APPENDIX L: Brief Measure of Coparenting (Feinberg, Brown & Kan, 2012) – used in Papers 1-3.

*For each item, select the response that best described the way you and your partner work together as parents:*

1	2	3	4	5	6	7
Strongly disagree	Moderately disagree	Disagree a little	Neither Agree nor disagree	Agree a little	Moderately Agree	Strongly Agree

1. I believe my partner is a good parent to [child name].
2. My relationship with my partner is stronger now than before we had [child name].
3. My partner pays a great deal of attention to [child name].
4. My partner likes to play with [child name] and then leave the dirty work to me.
5. My partner and I have the same goals for [child name].
6. My partner and I have different ideas about how to raise [child name].
7. My partner tries to show that he/she is better than me at caring for [child name].
8. My partner does not carry his/her share of the parenting work of [child name].
9. My partner undermines my parenting of [child name].
10. We are growing and maturing together through experiences as parents to [child name].
11. My partner appreciates how hard I work at being a good parent to [child name].

12. My partner makes me feel like I'm the best possible parent for [child name].

These next two questions ask you to describe things you do when both you and your partner are physically present together with [child name] (i.e. in the same room, in the car, on outings). Count only the times when all three of you are actually within the company of one another (even if this is just a few hours per week).

1	2	3	4	5	6	7
Never	Less than once a week	Once or twice a week	Several times a week	Once a day	Twice a day	Several times a day

*How often in a typical week, when all 3 of you are together, do you:*

13. Argue about your relationship or marital issues unrelated to [child name], in [child name's] presence?

14. One or both of you say cruel or hurtful things to each other in front of [child name]?

## APPENDIX M: Quality of Marriage Index (Norton, 1983) – used in Papers 1- 3.

1	2	3	4	5	6	7
Strongly disagree	Moderately disagree	Disagree a little	Neither Agree nor disagree	Agree a little	Moderately Agree	Strongly Agree

1. We have a good marriage/relationship.
2. My relationship with [partner name] is very stable.
3. Our marriage/relationship is strong.
4. My relationship/marriage with [partner name] makes me happy.
5. I really feel like part of a team with [partner name].
6. Can you rate the degree of happiness, everything considered, in your marriage /  
relationship on a scale of 1-10 (where 1 = the most unhappy and 10 = the most happy).

APPENDIX N: Coercive parenting subscale of the Parenting and Family Adjustment Scale (Sanders, Morawska, Haslam, Filus & Fletcher, 2014) – used in Paper 3.

*For each item below, please tick a box that best describes your style of parenting for your twins.*

	Not at all	A little (some of the time)	Quite a lot (a lot of the time)	Very much (most of the time)
I shout or get angry with him/her when he/she misbehaves <b>Older twin</b> <b>Younger twin</b>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
I try to make him/her feel bad (e.g. guilt or shame) for misbehaving to teach him/her a lesson <b>Older twin</b> <b>Younger twin</b>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
I smack him/her when he/she misbehaves <b>Older twin</b> <b>Younger twin</b>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
I argue with him/her about their behaviour or attitude <b>Older twin</b> <b>Younger twin</b>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
I get annoyed with him/her <b>Older twin</b> <b>Younger twin</b>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

describing how often the behaviour currently occurs with each twin.

[illegible]

[illegible]



[illegible]



Appendix P: Parenting Sense of Competence (Gibaud-Wallston & Wandersmann, 1978 cited in Johnston & Mash, 1989) – used in Paper 2.

*Please consider the following statements in relation to being a parent to your twins.*

	<b>Strongly agree</b>	<b>Some what agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Some what disagree</b>	<b>Strongly disagree</b>
1. The problems of taking care of a child are easy to solve once you know how your actions affect your child, an understanding I have acquired.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I go to bed the same way I wake up in the morning, feeling I have not accomplished a whole lot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I do not know why it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. My parent(s) was better prepared to be a good parent than I am.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I would make a fine model for a new parent to follow in order to learn what they would need to know in order to be a good parent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Being a parent is manageable, and any problems are easily solved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	<b>Strongly agree</b>	<b>Some what agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Some what disagree</b>	<b>Strongly disagree</b>
8. A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Sometimes I feel like I'm not getting anything done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I meet by own personal expectations for expertise in caring for my child.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. If anyone can find the answer to what is troubling my child, I am the one.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. My talents and interests are in other areas, not being a parent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Considering how long I've been a parent, I feel thoroughly familiar with this role.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. If being a parent of a child were only more interesting, I would be motivated to do a better job as a parent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I honestly believe I have all the skills necessary to be a good parent to my child.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Being a parent makes me tense and anxious.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Being a good parent is a reward in itself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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