



Parents' Relationship Quality and Children's Externalizing Problems: The Moderating Role of Mother–Child Relations and Family Socio-demographic Background

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Abstract

This study investigates the extent to which parents' relationship quality affects children's externalizing problems and whether the quality of the mother–child relationship and the family socio-demographic background moderate this association. We use data from a nationally representative sample of UK children (the Millennium Cohort Study) and OLS regressions models. We find that parents' relationship quality is clearly related to children's externalizing problems at ages 3 and 5 years and that the quality of mother–child relationships explains a substantial part of this association. Notably, a reported warm relationship with the mother does not reduce the detrimental effect of poor parental relationship problems, whereas a conflictual relationship exacerbates it. The effect of parents' relationship quality is the same for children from different ethnic and marital status backgrounds, as well as for mother's education and child's gender, but is greatest amongst poorer children. At age 5, poor children with the lowest level of parents' relationship quality have an externalizing score of 7.21 while poor children with the highest level have a score of 4.16; a 3 point difference. In contrast, among rich children, those with the lowest level of parent relationship quality have an externalizing score of 6.16 while those with the highest level have a score of 4.01; a difference of 2.15 points. These findings suggest that policies and intervention programs that promote parents' relationship quality are likely to be beneficial for children from different family contexts, but especially for those from poor families.

Keywords Parents' relationship quality · Maternal representations of mother–child relationship · Family socio-demographic background · Children's externalizing problems · UK Millennium Cohort Study

Studies have shown there to be a clear association between early childhood mental health and later psychopathology in adolescence and adulthood. Moreover, the longitudinal stability of externalizing problems during childhood and adolescence has been shown to be greater than other psychological dimensions such as internalizing problems (Pihlakoski et al., 2006). Child externalizing disorders are important because they predict a number of difficulties in adolescent and adult functioning, such as criminal behaviour (Caspi,

2000), substance abuse (Fergusson, Horwood, & Ridder, 2007), mental health (Fergusson et al., 2007; Kosterman et al., 2010), suicidality (Beautrais, Joyce, & Mulder, 1998); partnership difficulties (Woodward, Fergusson, & Horwood, 2002), and school drop-out (Brook & Newcomb, 1995).

Children's externalizing problems are known to be the result of the interplay between genetic and environmental factors (Rohde, 2013). Although genetic factors have recently received more attention, there is also continuing interest in the role of environmental factors (Rohde, 2013). The contribution of environmental factors is not negligible. For example, van der Valk, van den Oord, Verhulst, and Boomsma (2003) found that environmental factors explain about of 50% of the variance of externalizing problems at ages 3 and 7 years in a sample of twins. Those environmental factors that have received most attention are family variables such as parents' relationship quality (Rohde, 2013). According to Cummings and Davies (2011), one-half of US children will experience parental separation during

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their childhood or adolescence, with partners' relationship problems being one of the strongest predictors of separation. However, there are many couples with poor relationship quality that do not separate but continue to have chronic partnership problems. Moreover, there has been a reported decrease in parents' relationship quality over the last decades (Gähler & Palmtag, 2015). Thus, a significant proportion of children are likely to live in families whose parents have poor relationship quality.

Nevertheless, a recent report suggests that relationship support services appear to be significantly underdeveloped in the UK compared to other countries such as the United States (Harold, Acquah, Sellers, Chowdry, & Feinstein, 2016). During the 2000s, promoting parent-child relationships were at the top of UK political agenda; however programs and reports developed during this period did not include parents' relationship quality support issues (Klett-Davies, 2012). It was not until the late 2000s that relationship support policies moved on to this agenda (Klett-Davies, 2012). Since 2010, there has been a growing interest in tackling parental conflict and supporting parental relationships. In 2016, for example, the British government doubled funding for relationship support services. However, the literature presents several gaps which would need to be settled before developing more effective preventive programs.

A large body of research has shown a clear effect of parents' relationship quality on children's externalizing problems (Buehler et al., 1997; Cummings & Davies, 2011; Harold et al., 2016; Knopp et al., 2017; Westrupp, Brown, Woolhouse, Gartland, & Nicholson, 2018). However, more research is needed to explain *how* this effect occurs and for whom and under what circumstances (Schmidt & Schimmelmann, 2015). It is well known that not all children have the same reactions to adverse family contexts, such as poor relationship quality (Flouri, Midouhas, Joshi, & Tzavidis, 2014). Some children experience serious adjustment problems whereas others do not (Rutter, 2013). To better understand such heterogeneity in children's responses to family stress, there is a call in developmental research "to move beyond main effects models to explain risk for the development of psychopathology and to identify high risk groups with better precision by considering the role of potential moderators that enhance risk" (Goodman et al., 2011, p. 2). In this respect, cumulative risk perspectives have largely shown that family risk factors such as low parent relationship quality, poverty and poor parent-child relations rarely occur in isolation and that there are multiple and, sometimes, complex relations between them (Appleyard, Egeland, van Dulmen, & Sroufe, 2005; Forehand, Biggar, & Kotchick, 1998; Kiernan & Mensah, 2011; Rutter, 1979). However, as Cummings and Davies (2011) noted, most studies linking parents' relationship quality and children's adjustment problems have focused on the main effect of parents' relationship

quality and less on other family risk factors that may produce variability in this effect. Specifically, few studies have explored whether the quality of parent-child relations and socio-demographic variables, such as poverty, alter the relationship between parents' relationship quality and children's psychological adjustment. The identification of children who are more vulnerable to lower levels of parents' relationship quality is important in order to better focus early intervention programs on those children who potentially are at more risk of suffering psychological problems. Much of the literature has focused on marital conflict as an indicator of marital quality but as Shek (2000) points out, marital conflict "may not be a sensitive indicator of most marriages where marital conflict is relatively little" (p. 148) and "the absence of marital conflict does not imply that a marriage is a positive one" (p. 148). For these reasons, the use of more global measures of relationship quality may have a role in identifying those children whose parents have relationship problems.

As Pendry and Adam (2013) suggest, much of the research on parents' relationship quality and children's wellbeing has largely focused on children in their middle childhood, while the few studies that focus on very young children are based on non-nationally representative samples. There are good reasons for adding to the research on parents' relationship quality amongst families with very young children as a growing literature has shown the importance of early childhood environments and externalizing problems on adult functioning (Currie & Almond, 2011). Moreover, there is evidence that relationship quality decreases after a child's birth and this decline seems to be greater amongst younger generations (Twenge, Campbell, & Foster, 2003). On becoming parents gender roles tend to become more traditional (Baxter, Hewitt, & Haynes, 2008) and an unequal division of household labour and childcare has been found to be related to low relationship quality (Schober, 2012). Couples with young children also have fewer hours of spousal/partner time per day than other couples and spousal/partner time is related to the quality of their relationship (Dew, 2009; Dew & Wilcox, 2011). There is also evidence which suggests that parents' relationship dissatisfaction may be greater among families with younger children than among families with older children, because "older children demand less direct caregiving and spend much of their time in school. Thus they create less role conflict for parent caregivers" (Twenge et al., 2003, p. 576).

Prevalence rates of externalizing problems among children under 6 years have been estimated to range from 10 to 23% (Campbell, 1995; Powell, Fixsen, & Dunlap, 2003) and children's externalizing problems are the most common reason for referral to child mental health services (McKay, Harrison, Gonzales, Kim, & Quintana, 2002). Early childhood interventions have also been shown to have substantial impacts on child mental health (Kieling et al., 2011) and

the child's future development (Currie & Almond, 2011; Thompson, 2009), especially when they are of a high quality (Webster-Stratton & Taylor, 2001). Studies that identify risk and protective factors for early childhood problem behaviour may contribute to improving the quality of interventions and mental health services (Rutter, 2013). For such reasons an important aim of the research reported in this paper is to ascertain under what conditions parents' relationship quality has a greater effect on the externalizing problems of young children when they are 3 and 5 years old.

Parents' Relationship Quality and Mother-Child Relations

Several perspectives have stressed the idea that parents' relationship quality may affect children both directly or indirectly through parent-child relations (e.g. the "spillover hypothesis" proposed by Erel & Burman, 1995 and the "cognitive contextual model" proposed by Grych & Fincham, 1990). Grounded in the attachment theory, the emotional security theory (Davies & Cummings, 1994) is among those few that provides a useful conceptual model for understanding the direct and indirect effects of exposure to low levels of parents' relationship quality by giving high importance to the emotional-laden domains of parent-child relations (Cummings & Davies, 2011; Schoppe-Sullivan, Schermerhorn, & Cummings, 2007). On the one hand, the emotional security theory predicts that the quality of the parents' relationship is directly connected to greater problems for the children, because being exposed to and aware of parental disputes undermines the children's emotional security, which affects how children are able to adjust. Children who are emotionally insecure about their parents' relationship perceive that domestic disputes threaten their well-being. Even children who view their attachment to their parents as secure can have their emotional security compromised due to their perception of insecurity in the relationship between their parents (Davies & Cummings, 1994).

The emotional security theory also considers parent-child relationship quality as an important component of children's emotional security; insecurity increases when parents' relationship problems disrupt parent-child relationships. This theory explains the link between family subsystems by extending the attachment theory to the adults members of the family, since "marital conflict behaviours (e.g., escalating hostility, disengagement, warmth) can be seen as manifestations of the quality of the attachment bond" (Cummings & Davies, 2011, p. 108). Hostility and disengagement may signal that one parent may not consider the other a secure base and, in some circumstances, may even threaten the well-being of the other parent (Davies, Sturge-Apple, Weitach, & Cummings, 2009). Insecure attachment in the marital

relationship may undermine childrearing abilities especially in the emotion-laden domain of parent-child relations. For instance, "difficulties using the partner as a secure base for regulating distress should be linked with diminished empathy and sensitivity in caregiving" (Cummings & Davies, 2011, p. 133). Consistent with this theory, some studies show that has stronger effects on the emotional dimensions of parent-child relations, such as parental warmth and conflict, rather than on other dimensions, such as lax control or discipline (Davies & Cummings, 1994; Han, Rudy, & Proulx, 2017; Krishnakumar & Buehler, 2000). Other studies also find that parental warmth and conflict are among the most important mediators of the link between parents' relationship quality and children's adjustment (Buehler & Gerard, 2002; Gerard, Krishnakumar, & Buehler, 2006; Han et al., 2017; Schoppe-Sullivan et al., 2007).

Cummings and Davies (2011) state that not all families may have the same experience of the links between marital, parent-child subsystems and children's adjustment. In fact, the compensatory hypothesis defends that "some caregivers may respond to some of the most adverse marital circumstances (e.g., recurring and severe violence) by consciously attempting to offset children's vulnerability to this adversity through increasing their effectiveness as parents" (Cummings & Davies, 2011, p. 117). Some studies have found evidence of an increase in positive parent-child relationships among parents who experience difficulties in their interparental relationship (see Gomulak-Cavicchio, 2010 for a review). For example Levendosky, Huth-Bocks, Shapiro, and Semel (2003) find that, for some women, domestic violence has positive effects on parenting and parent-child relations. However, some scholars warn that is extremely difficult to distinguish between genuinely positive parent-child relationships from seemingly positive relations that only meet the needs of the adult in a context of low parental relationship quality (Cox, Paley, & Harter, 2001; Cummings & Davies, 2011; Erel & Burman, 1995; Gomulak-Cavicchio, 2010). It is well-known that marital conflict is related to parent-child triangulation, emotional entanglement, boundary dissolution and intrusiveness (Cox et al., 2001). Therefore, in this family context, expressions of parental warmth may be part of a broader pattern of harmful parent-child relations that may be even negative or not relevant to child well-being (Cummings & Davies, 2011). This is why it becomes unclear to what extent the impression of positive parent-child relations are genuinely related to children's well-being in the context of marital problems.

A few studies have analysed whether the quality of parent-child relations and specifically the dimensions of parent-child conflict and warmth moderate (modify) the effect of parents' relationship quality on children's adjustment, and the findings have been mixed. Most studies conclude that hostile parent-child relations exacerbate the risk of

adjustment problems associated with marital conflict (Buehler & Gerard, 2002; El-Sheikh & Elmore-Staton, 2004; Frosch & Mangelsdorf, 2001), whilst studies that analyse the moderating role of parental warmth do not find consistent evidence. For example, Frosch and Mangelsdorf (2001) showed that positive parent–child interactions can protect children from the effect of negative parents’ relationship quality being manifest in children’s externalizing problems, whereas Schoppe-Sullivan et al. (2007) found that this effect is similar for children exposed to high levels of parental warmth and for children exposed to low levels.

Studies that explore the mediating and moderating role of parent–child relations on the link between parents’ relationship quality and children’s adjustment presents several limitations. First, most studies are not based on nationally representative longitudinal samples, which provides poor generality at the population level (Gerard et al., 2006; Vandewater & Lansford, 1998; Westrupp et al., 2018). Second, very few studies have tested the mediating and moderating role of parent–child relationship on very young children (Frosch & Mangelsdorf, 2001), though this mechanism is likely to be more important for young children than for older, since children’s dependency on their parents tends to decrease with age. Third, to our knowledge most research on the associations between parents’ relationship quality and the quality of parent–child relations has only measured parent–child behavioural patterns (with some exceptions such as Levendosky, Bogat, & Huth-Bocks, 2011; Sokolowski, Hans, Bernstein, & Cox, 2007). However, the parent–child relationship is more than solely the observable interactions between parents and children (Vreeswijk, Maas, & van Bakel, 2012). It has four major, interconnected components; the children’s and parent’s interactive behaviours and the children’s and parent’s internal representations (Stern, 1995). A change in any of these components affects the other three (Stern, 1995). A parent’s subjective experiences and perceptions of the relationship with their child influence parenting behaviour and parent’s mental health (Dollberg, Feldman, & Keren, 2010; Nanzer et al., 2012; Schechter et al., 2008; Sokolowski et al., 2007). Therefore, it is important to explore the links between parents’ relationship quality and children’s adjustment through parent–child relationship quality using parental internal representations of parent–child relationships rather than parenting behaviours.

Parents’ Relationship Quality and Socio-demographic Background

Socio-demographic variables such as the parents’ socio-economic status (SES), ethnicity and marital status help to define the context in which children live (Goodman et al., 2011) and when these variables are conceptualized

as stressors they are likely to contribute significantly to the development of externalizing problems of children with poor parents’ relationship quality. However, little is known about the associations between parents’ relationship quality and children’s mental health beyond mainly white middle-class married families on which most research has been based. The few studies that use nationally representative samples also tend to include only socio-demographic background as a control for the main effect of parents’ relationship quality (Hayatbakhsh et al., 2013) and few explore to what extent socio-demographic variables modify the impact of parents’ relationship quality on children’s externalizing problems.

SES has been largely studied as a predictor of externalizing problems. Qi and Kaiser (2003), in their review of the literature, report that almost 30% of young children (aged 3–5 years) from low SES backgrounds experience externalizing problems compared to the 3–6% of children in the general population. Reiss (2013) also shows that the impact of low SES on mental health is greater in early childhood than in adolescence and on externalizing disorders than on internalizing disorders. Parental education and financial constraints have a greater impact on children’s mental health problems than other socio-economic indicators such as parental unemployment or low occupational status (Reiss, 2013). The relationship between parental education and poverty on marital stability and satisfaction is also well established (Conger, Conger, & Martin, 2010). Thus it would seem reasonable to expect that the effect of parents’ relationship quality will be greater in families with low SES than in families with high SES. However, findings are mixed some studies found this to be the case (Buehler et al., 1997; Jouriles, Bourg, & Farris, 1991), whereas others did not show differences according to family socioeconomic characteristics (Bradford, Vaughn, & Barber, 2008; Gerard & Buehler, 1999).

Some studies indicate that ethnic minority children have higher rates of externalizing problems but other studies do not show such an association (Willcutt, 2012). However, Thompson (2005) points out that amongst ethnic minority families with young children, the most common reason for referral to mental health services is externalizing problems. It is known that families from different ethnic backgrounds experience both similar and more distinct family lives (Parke, 2000, 2004). For example, African Americans report lower marital quality and have higher divorce rates than white Americans (Bryant et al., 2010): McLoyd, Harper, and Copeland (2001) have shown that parental conflict may have a less pronounced impact on ethnic minority children than on white children. Children from minority backgrounds are more likely to be surrounded by extended family than white children, and children’s access to alternative sources of support to their parents may reduce the negative effect of parental conflict. However, research has

rarely examined whether the effect of parents' relationship quality on children's adjustment differs by ethnicity. The very few studies that have analysed the moderating effect of ethnicity have mainly focused on white, black and Hispanic American children (Bradford et al., 2008; Buehler et al., 1997) and the findings have been inconsistent. Some studies show that the effect of marital conflict on children's externalizing problems is similar across these three groups (Bradford et al., 2008; Buehler et al., 1997), whereas others find that it is greater for white American children (Nievar & Luster, 2006).

Previous studies on the effect of parents' relationship quality have mainly focused on families composed of married natural parents. This is an important limitation since the number of children living in cohabiting two-parent families has increased dramatically in recent decades in Western countries (Kiernan, 2004) and research shows that married and cohabiting couples differ in terms of relationship outcomes. Cross-sectional studies indicate that cohabiting couples have a lower relationship quality than married couples (Brown & Booth, 1996; Stanley, Whitton, & Markman, 2004) and Carlson's (2007) longitudinal analysis found that the decline in relationship quality after childbirth was greater among cohabiting couples than among couples that were married at time of the birth. In most countries, cohabiting relationships are characterized by more instability than married ones (Kiernan, 2004). However, in spite of these differences by marital status, to our knowledge, only Goldberg and Carlson (2014) have analysed whether the association between parents' relationship quality and children's externalizing problems differs between married and cohabiting families amongst US children. Finally, there is also inconsistent evidence about whether the effect of partners' relationship quality varies with a child's gender (Heinrichs, Cronrath, Degen, & Snyder, 2010).

In summary, much of the research in this area to date has largely been based on U.S. non-representative samples and typically has only controlled for a limited number of potential confounders, and rarely have prior child externalizing problems been taken into account (Schoppe-Sullivan et al., 2007). In this study, we aim to overcome some of these limitations by using data from the UK Millennium Cohort Study (MCS), a nationally representative sample of children from different ethnic and socio-demographic backgrounds, to address a number of issues. Firstly, we examine the extent to which parents' relationship quality is a risk factor for externalizing problems among young children. Secondly, we explore whether maternal representations of mother-child relationship, having a warm or conflictual relationship, mediates the effect of partnership relationship quality on children's externalizing problems. Finally, we ascertain which children are at greater risk of externalizing problems within the context of parents' relationship

problems by analysing the moderating role of mother-child interactions and several socio-demographic variables including the child's gender, parents' marital status and household income.

Methods

Data

This study uses data from the first three waves of the MCS. The first sweep (MCS1) was carried out in 2001–2002, and contained information on 18,819 babies aged between 9 and 11 months old in 18,533 families. The families have followed up when the children were aged 3, 5, 7 and 11 years old. Here we use data from the 9 month old and ages 3 and 5 years waves. The response rates achieved for the second and third waves were 78 and 79% respectively of the target sample and 13,234 families (69% of the total) responded at all three waves.

The MCS sample design allowed for over-representation of families living in areas with high rates of child poverty or high proportions of ethnic minorities, which increased the power of the study to describe effects for these groups of families. The study was weighted to take into account the initial sampling design, adjusting for non-response in the recruitment of the original sample and sample attrition during the follow-up period to age 5. The study results are broadly representative for the United Kingdom (Plewis, 2007). For our analyses, we restricted the sample to married and cohabiting couples present at all three waves, which provided a working sample of 9649 children.

Outcome Variable: Externalizing Problems

At the age 3 and age 5 interviews the main carer of the children (the vast majority were the child's mother) completed the 25-item Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997). The SDQ covers five different dimensions of children's behaviour: conduct problems, hyperactivity-inattention problems, emotional symptoms, peer problems, and prosocial behaviour. In this study, we focus on children's externalizing problems, derived from combining the conduct problems and hyperactivity-inattention scales (Flouri, Tzavidis, & Kallis, 2010; Goodman, Lamping, & Ploubidis, 2010). The items included at age 3 were: often fights, often has temper/tantrums, generally obedient, is restless/overactive, constantly fidgeting, easily distracted, can stop and think out before acting and sees tasks through to end, argumentative with adults, can be spiteful to others. At age 5, the final two items were replaced by often lies or cheats and steals from home, school or elsewhere. Each item was rated using a scale

from 0 to 2 (not true, somewhat true, and certainly true) and the coding was reversed for the positive attributes. The responses were added together to provide a total score for externalizing problems. Only children with complete answers for all items were included in our analysis. As

shown in Table 1, the age 3 measure had a mean of 5.89 a standard deviation of 3.49 and a range from a minimum of 0 to a maximum of 19 and the age 5 measure had a mean of 4.07 a SD of 3.05 and minimum of 0 and a maximum of 20.

Table 1 Descriptive statistics of dependent focal and covariates

	%	Mean	SD	Minimum	Maximum
Children's externalizing problems at age 3		5.89	3.44	0	19
Children's externalizing problems at age 5		4.07	3.05	0	20
Parents' relationship quality at age 3		12.52	2.89	0	16
Maternal warmth					
Lowest maternal warmth	9.62				
Low maternal warmth	6.12				
Medium warmth	10.83				
High maternal warmth	18.37				
Highest maternal warmth	55.06				
Maternal conflict					
Lowest maternal conflict	19.5				
Low maternal conflict	20.27				
Medium conflict	30.04				
High maternal conflict	16.23				
Highest maternal conflict	13.97				
Sex of cohort member					
Male	48.9				
Female	51.1				
Poverty ratio		2.26	1.32	0.08	6.81
Mother's educational qualifications					
No qualifications	4.42				
NVQ level 1	5.96				
NVQ level 2	28.92				
NVQ level 3	15.54				
NVQ level 4 and level 5	45.16				
Mother's ethnicity					
White	94.90				
Pakistani and Bangladeshi	1.60				
Indian	1.30				
Black	1.04				
Mixed	0.48				
Other	0.68				
Parents' marital status					
Married	77.13				
Cohabitants at 9 months, married at age 3 survey	7.11				
Cohabitants at 9 months and at age 3 survey	15.76				
Parental divorce in childhood					
Parents had a stable relationship	73.94				
Parents divorce	26.06				

Standard deviations and percentages presented in this section are computed with the sample used for the longitudinal analyses (N=6763) with the exception of the descriptive statistics of children's externalizing problems at age 3. The descriptive results computed with the sample used for the cross-sectional analyses (6169) were very similar. Percentages for categorical variables are computed excluding missing cases

Focal Variable: Relationship Quality

Relationship quality was derived from responses to the Golombok Rust Inventory of Marital State (GRIMS) (Rust, Bennun, Crowe, & Golombok, 1990) which is a psychometric instrument for the assessment of marital discord and the overall quality of a couple's relationship. The age 3 survey included four items from the GRIMS to which the mothers responded namely: my partner is usually sensitive to and aware of my needs; my partner doesn't seem to listen to me; sometimes I feel lonely even when I am with my partner; I suspect we may be on the brink of separation. There were several possible answers: (0) strongly agree; (1) agree; (2) neither agree nor disagree; (3) disagree; (4) strongly disagree and (5) can't say. "Can't say" responses were put to missing. We reversed the answers to the all question items—with the exception of the scores of the item "my partner is usually sensitive to and aware of my needs". The answers to the four items were summed creating a scale with mean of 3.52 and an SD of 2.89 and a range from a minimum of 0 and a maximum of 16 (see Table 1). Higher item scores corresponded to higher relationship quality.

Focal Variable: Mothers Relations with the Child

At the 3 year old survey, the main respondent (mainly the mother) completed a series of questions about their perceptions of the relationship with their child based on the Pianta child-parent relationship scale (Pianta, 1995). This scale evaluates the mothers' representations or perceptions of their relationship with their children. Seven items described the perceived level of warmth in the relationship and seven described the perceived level of conflict. The warmth items were: I share an affectionate, warm relationship with the Child; Child will seek comfort from me; Child values his/her relationship with me; when praised Child beams with pride; Child spontaneously shares information about himself/herself; It is easy to be in tune with what the Child is feeling; Child shares his/her feelings and experiences with me.

The conflict items were: Child and I always seem to be struggling with each other; Child easily becomes angry with me; Child remains angry or is resistant after being disciplined; dealing with the Child drains my energy; when the Child wakes up in a bad mood, I know we're in for a long and difficult day; The Child's feelings towards me can be unpredictable or can change suddenly; The Child is sneaky or manipulative with me. Each item was scored as 1 definitely does not apply, 2 not really, 3 neutral, 4 applies sometimes, or 5 definitely applies. Can't say responses were considered as missing information. Scores were summed for mothers who had completed all the warmth items, which had a minimum of 0 and a maximum of 27. As shown in Table 1, we created several categories of maternal warmth: lowest

warmth (values 0–23); low warmth (value 24); medium warmth (value 25); high warmth (value 26); highest warmth (value 27) and missing cases on maternal warmth (3%). Scores were also summed for parents who had completed all the conflict items, which had a minimum of 0 and a maximum of 28. Our categories of maternal conflict were: lowest conflict (values 0–3); low conflict (4–6); medium conflict (7–11); high conflict (values 12–15); highest conflict (values 15–28) and missing cases (1.6%). We also, tested other categories of maternal warmth and conflict in our analyses but our findings pertained. We used categorical variables for these variables as the value 27 for maternal warmth, the highest maternal warmth score, had over half the cases. Additionally, the use of categorical variables allowed the inclusion of a category for missing cases.

Covariates

To reduce potential sources of spurious correlation in our models, we controlled for a number of demographic, socio-economic and family variables that have been found to be associated with parents' relationship quality (Amato, Johnson, Booth, & Rogers, 2003; Amato, Loomis, & Booth, 1995) and children's externalizing problems (Kiernan & Huerta, 2008). Additionally, we wanted to ascertain whether our findings held for children from families with different characteristics.

The prevalence of the covariates is shown in Table 1. measured at the first survey when the child was 9 months old, included the sex of the cohort member; the mother's ethnicity [White, Pakistani or Bangladeshi, Indian, Black, Mixed, Other and missing cases (0.3%)]; mother's educational qualifications [no qualifications; NVQ level 1; NVQ level 2; NVQ level 3, NVQ level 4 or 5 and missing cases (0.08%)]. Data on household income came from the age 3 survey. Our measure is a poverty ratio for the household which compares a household's equivalized income relative to the income it would need to be above the poverty line. It was calculated by dividing the equivalized household income by the appropriate equivalized poverty threshold for a household of a given type. Thus a household living exactly on the poverty line would have a poverty ratio of one and a household with half the income required to be on the poverty line would have poverty ratio of 0.5. For this analysis we defined poverty as having < 60% of the national median equivalized household income. Poverty thresholds were taken from the Households Below Average Income report published annually by the UK government (Adams, Barton, Bray, Johnson, & Matejic, 2010). Parents marital status included the following categories: married at both the 9 month old and age 3 survey; cohabiting at the 9-month old survey but married by the time of the age 3 survey; cohabiting at the time of both surveys and missing cases (0.6%).

We also included a measure of whether or not the mother had experienced parental separation or divorce during her own childhood.

Analytical Strategy

Firstly, we investigated whether parents' relationship quality was significantly related to children's externalizing problems from both a cross-sectional and longitudinal perspective. To this end, we carried out a series of OLS regression analyses to test whether the effect of parents' relationship quality at age 3 on externalizing problems at age 3 (the cross-sectional effect) and at age 5 (the longitudinal effect) were significant when the socioeconomic characteristics of the family were taken into account. Additionally, we performed a stricter test of the longitudinal effect of parents' relationship quality at age 3 on children's externalizing problems at age 5 by considering children's externalizing problems at age 3.

The second aim was to test whether the effect of parents' relationship quality was mediated by the quality of mother-child relations. Following the formulation of Baron and Kenny (1986), a mediation effect is present if the independent variable (parents' relationship quality) influences the mediator variable (mother-child relations) and which in turn influences the outcome variable (children's externalizing problems). Additionally, the *b* coefficient of the independent variable (parents' relationship quality) must also show a decline after including the mediator variable (mother-child relations) in the model. Analysis of mediation was done in two steps. First we tested whether parents' relationship quality was associated with maternal warmth or conflict. We then analysed whether the magnitude of the effect of parents' relationship quality on externalizing problems decreased when maternal warmth and conflict were taken into account. We also compared the effect of parents' relationship quality on externalizing problems at age 3 and age 5 without maternal warmth and conflict in the model and then when included in the model, to test their mediating effect.

Finally, our third aim was to test for moderation effects i.e. namely whether the effect of a third variable influences the strength of the relationship between two variables (Schmidt & Schimmelman, 2015). We evaluated whether the association between parents' relationship quality and externalizing problems at age 3 and at age 5 varied according to mother-child relations and socio-demographic family characteristics. We analysed the moderating role of maternal warmth and conflict, child's gender, the parents' marital status, family poverty, the mother's experience of parental divorce, her educational attainment and ethnic background. We created several models that included the main effects of parents' relationship quality and the main effects of the

moderating variables and the interaction terms between them. In each model we only included one interaction term.

Study Sample

The sample was restricted to married or cohabiting couples who were present at all three waves, the 9 month old and ages 3 and 5 surveys, which gave a working sample of 9649 children. For the cross-sectional analyses, our sample was reduced to 6169 cases arising from missing cases on the continuous variables; externalizing problems at age 3, the family poverty ratio and parents' relationship quality. For the longitudinal analyses the sample consisted of 6763 cases after excluding missing cases on the continuous variables; externalizing problems at age 5, family poverty ratio and parents' relationship quality. When externalizing measures at age 3 were included in the longitudinal models, the sample size further reduced to 5820. Additional analyses of the missing cases (available upon request) showed that there were few differences on the focal variables between children with some missing values and those included in the analysis samples. Children with missing data were more likely to have parents with poorer relationship quality and more maternal conflict, and children with more disadvantaged backgrounds were more likely to be in the missing cases category.

Results

What is the Association Between Parents' Relationship Quality and Children's Externalizing Problems?

From Table 2, Model 1 we see that there is a negative and significant association between parents' relationship quality at age 3 and children's externalizing problems at this age. After taking into account the family and child characteristics, shown in Model 2, the effect of relationship quality is only reduced by around 12%, and remains statistically significant. Thus, this set of control variables explained only a small part of the effect.

Similar findings were seen for the longitudinal analyses. From Model 3 we see that the effect of parents' relationship quality at age 3 on children's externalizing problems at age 5 is negative and significant and this effect is only slightly reduced when the set of control variables are taken into account in Model 4. In Model 5 a stricter test of the effect of parents' relationship quality at age 3 on children's externalizing problems at age 5 takes into account children's previous externalizing problems scores. Model 5 shows that the coefficient of parents' relationship quality at age 3 falls sharply, by around 65%, when children's externalizing problems at age 3 are also taken into account, but it still remains

Table 2 Regression coefficients of the effect of parents' relationship quality on children's externalizing problems at ages 3 and 5

	Age 3		Age 5		
	1	2	1	2	3
Parents' relationship quality	-0.25***	-0.22***	-0.19***	-0.17***	-0.06***
Sex of cohort member: boy		0.73***		0.95***	0.58***
Poverty ratio		-0.23***		-0.13***	-0.02
Mother's educational qualifications					
No qualifications		Ref		Ref	
NVQ level 1		-0.09		0.35	0.37
NVQ level 2		-0.46		0.04	0.23
NVQ level 3		-0.60*		-0.16	0.10
NVQ level 4 and level 5		-1.17***		-0.64***	-0.13
Mother's ethnicity					
White		Ref		Ref	
Pakistani and Bangladeshi		1.08**		0.42	-0.13
Indian		0.82 ⁺		0.13	-0.40
Black		-0.41		-0.38	-0.21
Mixed		0.89		-0.03	0.38
Other		-1.06*		-0.26	-0.08
Parents marital status					
Married		Ref		Ref	
Cohabitants at 9 months, married at age 3 survey		0.74***		0.59**	0.13
Cohabitants at 9 months and at age 3 survey		0.26 ⁺		0.35**	0.25*
Parental divorce in childhood		0.32*		0.19*	0.06
Externalizing problems age 3					0.50***
Constant	9.00***	9.36***	6.41***	6.11***	1.40***
R square	0.04	0.10	0.03	0.09	0.38
Decrease of the effect of parents' relationship quality		12.0%		10.5%	64.7%
Sample size	6169	6169	6763	6763	5820

Missing dummies were included

⁺*p* < 0.10; **p* < 0.05; ***p* < 0.01; ****p* < 0.001

negative and significant. A reduction is to be seen in the number of cases when externalizing problems at age 3 is introduced in Model 5, but additional analyses (available upon request) show that the decline in the effect of parents' relationship quality was not due to the reduction in sample size.

Taking children's earlier emotional state into account reduces the possibility that pre-existing differences between families with respect to relationship problems explains the association between parental relationship quality at age 3 and children's externalizing problems at age 5. Nevertheless, it is important to note that in model 5, the effect of parents' relationship quality at age 3 is the direct effect of this variable, and it is reasonable to assume that children's externalizing problems at age 3 also mediates part of the effect of parents' relationship quality on children's externalizing problems at age 5. Similarly, the coefficients for most of the socio-demographic background variables such as, the poverty ratio, and mother's

educational level are also substantially reduced when children's previous externalizing problems scores are considered. Thus, externalizing problems at age 3 may also explain part of the effects of socio-demographic variables on externalizing problems at age 5. It is clear from both the cross-sectional and longitudinal analyses that children whose parents have poorer relationship quality have more externalizing problems than children whose parents have better relationship quality.

Figure 1 shows the scores of externalizing problems at age 3 and at age 5 for each value of parents' relationship quality and highlights that there are clear differences in children's externalizing problems depending on the level of parents' relationship quality. Children with the lowest level of parents' relationship quality have 3.52 points more externalizing problems at age 3 and 2.72 more at age 5 than those children who have parents with the highest level of relationship quality.

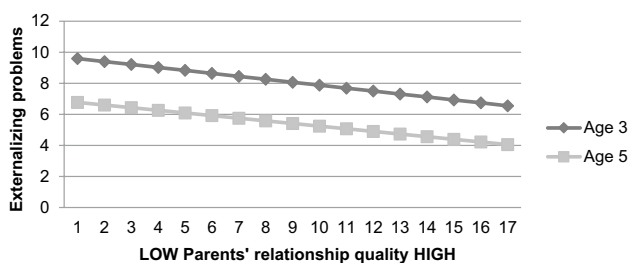


Fig. 1 Externalizing problems at age 3 and at age 5 by parents' relationship quality. Figure 1 is based on Models 2 and 4 in Table 1. Values are computed using the coefficient for boys, the reference category for the categorical variables and the mean level of the poverty ratio

Does the Quality of Mother–Child Relations Mediate the Effect of Parents' Relationship Quality on Children's Externalizing Problems?

Additional logistic regression analyses indicate that parents' relationship quality has a significant effect on the quality of the mother–child relationship (data not shown; available upon request) and the models in Table 3 show that maternal warmth and conflict have significant effects on children's externalizing problems. These findings suggest that mother–child relations have the potential to mediate the

effect of parents' relationship quality on children's externalizing problems. The question then arises as to what extent maternal warmth and conflict mediate the effect of parents' relationship quality.

For children's externalizing problems at age 3, the effect of parents' relationship quality decreases by around 18 and 64% when the degree of maternal warmth and conflict are included in Models 2 and 3 respectively. When both mediating variables are taken into account in Model 4, they explain a substantial part of the effect of parents' relationship quality (around 68%), but a cross-sectional direct effect at age 3 remains significant. Similar findings were obtained for children's externalizing problems at age 5. Models 6 and 7 in Table 3 show a decline in the effect of parents' relationship quality of around 18% when maternal warmth is considered and around 47% when maternal conflict is taken into account. Model 8 shows that both these factors mediate around 53% of the effect of parents' relationship quality at age 3 on externalizing problems at age 5, but a longitudinal direct effect also remains significant. In addition, Model 9 shows that this effect is still negative and significant even after taking into account maternal relations and children's earlier emotional well-being. Overall our findings show that maternal conflict mediates a greater proportion of the effects of parents' relationship quality than maternal warmth; and though both of these mediating factors explain a substantial

Table 3 Regression coefficients of parents' relationship quality and maternal warmth and maternal conflict on children's externalizing problems

	Age 3				Age 5				
	1	2	3	4	5	6	7	8	9
Parents' relationship quality	-0.22***	-0.18***	-0.08***	-0.07**	-0.17***	-0.14***	-0.09***	-0.08**	-0.04**
Maternal warmth									
Lowest maternal warmth		Ref		Ref		Ref		Ref	Ref
Low maternal warmth		-0.76**		-0.62**		-0.34***		-0.28	-0.00
Medium warmth		-0.83***		-0.68**		-0.71***		-0.55**	-0.33*
High maternal warmth		-1.49***		-1.07***		-0.87***		-0.63***	-0.16
Highest maternal warmth		-2.21***		-1.21***		-1.48***		-0.89***	-0.39**
Maternal conflict									
Lowest maternal conflict			Ref	Ref			Ref	Ref	Ref
Low maternal conflict			1.24***	0.05			0.82***	0.80***	0.18
Medium conflict			2.46***	-0.15			1.43***	1.33***	0.20*
High maternal conflict			4.02***	-0.40			2.16***	2.04***	0.18
Highest maternal conflict			5.76***	-0.97***			3.45***	3.25***	0.65***
Externalizing problems age 3									0.46***
Constant	9.00***	10.31***	5.36***	6.13***	6.41***	6.66***	3.80***	4.29***	1.51***
R square	0.10	0.15		0.37**	0.09	0.12	0.20	0.21	0.39
Decrease of the effect of parents' relationship quality		18.18%	63.63%	68.18%		17.65%	47.06%	52.94%	76.47%
Sample size	6169	6169	6169	6169		6763	6763	6763	5820

Background control variables and missing dummies were included in all models

+*p* < 0.10; **p* < 0.05; ***p* < 0.01; ****p* < 0.001

part of the effects of parents' relationship quality, cross-sectional and longitudinal direct effects of parents' relationship quality remain significant.

Does the Quality of the Mother–Child Relationship Moderate the Detrimental Effects of Parents' Relationship Quality?

To test whether maternal warmth and conflict moderate the effect of parents' relationship quality on children's externalizing problems, we included the main effects for maternal warmth and conflict and the interaction between maternal warmth and conflict and parents' relationship quality in our models. Table 4 shows that there is no significant interaction between parents' relationship quality and maternal warmth with respect to externalizing problems at ages 3 and 5 (Models 1 and 3). This indicates that both parental relationship

quality and maternal warmth have significant independent effects on children's externalizing problems and that they work additively, i.e. having difficulties in both is worse than having them in only one. It would appear from this analysis that having a mother who exhibits more warmth towards her child does not reduce the detrimental effects of parents' relationship problems on children's externalizing problems.

With regard to whether maternal conflict exacerbates the effect of parents' relationship problems we see from Models 2 and 4 in Table 4 that the interaction between the highest level of maternal conflict and parents' relationship quality is significant and negative for children's externalizing problems at ages 3 and 5 years but the interactions between parents' relationship quality and the other categories of maternal conflict are not significant in any of the models. In addition, we see that the interaction between parents' relationship quality and the highest level of conflict remains

Table 4 Regression coefficients of parents' relationship quality and maternal warmth and maternal conflict on children's externalizing problems

	Age 3		Age 5		
	1	2	3	4	5
Parents' relationship quality	-0.19***	-0.05*	-0.21***	-0.04 ⁺	0.00
Maternal warmth					
Lowest maternal warmth	Ref		Ref		
Low maternal warmth	-0.05		-1.10		
Medium warmth	-0.83		-1.46 ⁺		
High maternal warmth	-2.41**		-1.73*		
Highest maternal warmth	-2.13**		-2.26**		
Interaction: maternal warmth* parents' relationship quality					
Lowest maternal warmth	Ref		Ref		
Low maternal warmth*	-0.05		0.07		
Medium warmth*	0.00		0.07		
High maternal warmth*	0.07		0.08		
Highest maternal warmth*	-0.01		0.07		
Maternal conflict					
Lowest maternal conflict		Ref		Ref	Ref
Low maternal conflict		1.01 ⁺		1.61**	1.00 ⁺
Medium maternal conflict		3.01***		1.96***	0.78 ⁺
High maternal conflict		4.19***		2.47***	0.80
Highest maternal conflict		6.76***		4.88***	1.89***
Interaction: maternal conflict* parents' relationship quality					
Lowest maternal conflict*		Ref		Ref	Ref
Low maternal conflict*		0.02		-0.06	-0.06 ⁺
Medium maternal conflict*		-0.04		-0.04	-0.04
High maternal conflict*		-0.01		-0.02	-0.04
Highest maternal conflict*		-0.08 ⁺		-0.12**	-0.10*
Externalizing problems at age 3					0.47***
Constant	10.36***	4.95***	7.42***	3.15***	2.68***
R square	0.15	0.36	0.12	0.20	0.38
Sample size	6169	6169	6763	6763	5820

Background control variables and missing dummies were included in all models

⁺*p* < 0.10; **p* < 0.05; ***p* < 0.01; ****p* < 0.00

significant when earlier externalizing problems are included (Model 5). Taking into account that, in Model 4, the interaction effect of partners' relationship quality and highest level of maternal conflict is $b=0.12$ and the main effect of parents' relationship quality is $b=0.04$, the coefficient of parents' relationship quality is $b=0.16$ at the highest level of maternal conflict and $b=0.04$ at the lowest level. Thus the harmful effects of parents' relationship problems are stronger for children when there is a high level of reported conflict in the mother–child relationship.

In order to illustrate how the effects of parents' relationship quality can differ by maternal conflict, we present the interaction effects of parents' relationship quality and maternal conflict graphically in Fig. 2. This figure shows the score of externalizing problems at age 5 for each value of parents' relationship quality for children with the highest level of maternal conflict and for children with the lowest level. Among children with the highest level of maternal conflict, we see that those with the lowest level of parents' relationship quality have 2.56 points more externalizing problems at age 5 than those with the highest level. In contrast, among children with the lowest level of maternal conflict, the difference between those that have the lowest and the highest level of parents' relationship quality is only 0.64 points.

Figure 2 also shows that there are fewer differences in externalizing problems between children with the highest and the lowest level of maternal conflict where parents have a good relationship quality. Among children with the highest level of parents' relationship quality, those that have the highest level of maternal conflict have 3 points more externalizing problems at age 5 than children with the lowest level, whilst amongst children with the lowest level of parents' relationship quality there is a difference of 4.9 points. This suggests that the quality of the parents' relationship may be a protective factor for children's well-being when there is high-level of conflict in the mother–child relationship.

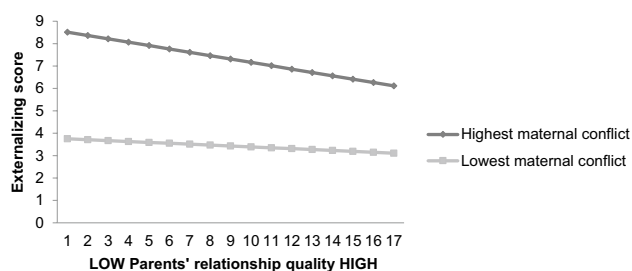


Fig. 2 Externalizing problems score at age 5 by parents' relationship quality and maternal conflict. This figure is based on model 4 in Table 3. Values are computed using the coefficient for boys, the reference category of the categorical variables and the mean level of the poverty ratio

Is the Effect of Parents' Relationship Quality at Age 3 Moderated by Background Characteristics?

Our analyses included controls for a range of background factors known to be related to partnership quality and parenting. In the next stage of our analysis we tested for interactions between parents' relationship quality and our set of control variables. Most relevant interactions (not displayed) between parents' relationship quality and family characteristics including mother's education, her ethnicity and the type of marital union, mother's experience of parental divorce and child's gender, were not significant in any of the models. This suggests that parents' relationship quality is an important determinant of well-being for children with different types of family backgrounds. In contrast, the interaction between parents' relationship quality and family poverty ratio was negative and significant in all the models for children's externalizing problems at age 3 (Model 1 in Table 5) and at age 5 (Model 2 in Table 5). These findings indicate the effect of parents' relationship quality is greater for poorer children than for richer children.

In order to illustrate the interaction between parents' relationship quality and family poverty ratio graphically, Fig. 3 shows the score of externalizing problems for each value of parents' relationship quality for children in three levels of the family poverty ratio: medium (mean value), poor (one standard deviation below the mean) and rich (one standard deviation above the mean). Figure 3 indicates that among poor children there are more differences in externalizing problems at age 5 depending on the degree of parents' relationship quality than there is among richer children. Poor children with the lowest level of parents' relationship quality have an externalizing score of 7.21 while poor children with the highest level have a score of 4.16; a 3 point difference. In contrast, among rich children, those with the lowest level of

Table 5 Main effects and interaction terms between parents' relationship quality and family poverty ratio

	Age 3	Age 5	
	1	2	3
Parents' relationship quality	−0.28***	−0.21***	−0.09***
Poverty ratio	−0.55**	−0.40**	−0.23 ⁺
Parents' relationship quality* poverty ratio	0.03*	0.02*	0.02 ⁺
Externalizing problems age 3			0.50***
Constant	10.05***	6.67***	1.84***
R square	0.10	0.09	0.38
Sample size	6169	6763	5820

Background control variables and missing dummies were included in all models

⁺ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

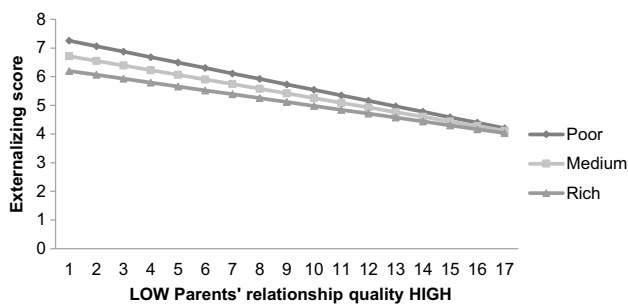


Fig. 3 Externalizing problems at age 5 by parents' relationship quality family poverty ratio. This figure is based on model 2 in Table 4. Values are computed using the coefficient for boys and the reference category of categorical variables

parents' relationship quality have an externalizing score of 6.16 and those with the highest level have a score of 4.01; a difference of 2.15 points.

Figure 3 also illustrates that poor and richer children have similar levels of externalizing problems if their parents have a good relationship quality. Among children with parents with the highest level of relationship quality, there is only a difference of 0.15 points on externalizing problems between rich and poor children while among children with the lowest level of parents' relationship quality this difference is around one point. Overall these results suggest that good relationship quality is a protective factor for children in a context of family poverty and that the harmful effects of poor relationship quality are exacerbated by family poverty.

Discussion

Most previous research on parents' relationship quality and young children's adjustment has not been based on a longitudinal nationally representative sample. An important contribution of this study is that by using the UK Millennium Cohort Study, our findings can be generalized to the population of UK young children living in two-parent families (Pendry & Adam, 2013). We found a clear association between parents' relationship quality and externalizing problems amongst young children, even after controlling for prior externalizing problems and other potentially confounding factors. Consistent with the emotional security theory, we also show that the emotional domains of parent-child relations explain a substantial part of the relationship between parents' relationship quality and children. Specifically, we found that the mother's perceptions of the conflict in the mother-child relationship is a very important mediator.

Another aim of this paper was to respond to the call for developmental research to move beyond main effects models and to take into account the role of moderators in high-risk groups (Goodman et al., 2011). Cummings and Davies

(2011) state that although "there is a wide variability in the outcomes of children who are exposed to similar levels of marital conflict, the task of identifying moderators in models of marital conflict is far from complete" (p. 953). We have tried to overcome this gap by identifying those children that are at a high risk of experiencing the negative consequences of problems associated with their parents' relationship by exploring the moderating role of socio-demographic variables and mother-child relations. Our findings concur with previous research, which documents that parent-child conflict and negative parenting behaviours can increase the risk of children's externalizing problems associated with problems in the parents' relationship (El-Sheikh & Elmore-Staton, 2004; Frosch & Mangelsdorf, 2001).

Moreover, contrary to the "compensatory hypothesis" which suggests that a positive parent-child relationship may be a protective factor for a child whose parents have problems in their relationship, we found that the effect of parents' relationship quality is similar for children exposed to high levels of parental warmth and for those exposed to low levels. This finding is consistent with that of Schoppe-Sullivan et al. (2007), but differs from that of Frosch and Mangelsdorf (2001). However, as various researchers have warned, it is very difficult in the context of marital problems, to distinguish to what extent the mother-child relationship is truly positive or to what extent the expressions of maternal warmth are only a reflection of triangulation, enmeshment and intrusiveness in this relationship. For this reason, we cannot rule out the possibility that we did not find evidence in favour of the compensatory hypothesis due to the fact that our measure of maternal warmth did not allow us to distinguish between truly and apparently positive mother-child relationships. However, to our knowledge no study has explored this particular point and Cummings and Davies (2011) suggest that it is necessary to provide "greater attention to the underlying meanings of different patterns of relations between marital conflict and parenting" (p. 117). Further research that explores the underlying significance of parent-child relationships should consider the four components of the relationship- the children's and parent's interactive behaviours and the children's and parent's internal representations- and the coherence between them.

This study also demonstrated that parents' relationship quality affects children similarly in families with differing socio-demographic characteristics. Thus the effect of parents' relationship quality is similar for children whose mothers have different levels of educational attainment and in line with earlier studies, we found no evidence that the association differed by the mother's ethnic background (Bradford et al., 2008; Buehler et al., 1997) or the gender of the child. Our study included a high proportion of children living in cohabiting families and, like the Goldberg and Carlson (2014) study of US families, found that the relationship

between parents' relationship quality and children's externalizing problems was similar for married and cohabiting couples amongst British couples.

Previous studies which have looked at the potential moderating role of family income and poverty on parental relations and children's externalising problems have obtained inconsistent results, which may be related to methodological limitations, such as being based on small samples or only including middle class families (Bradford et al., 2008). In this study, we were able to analyse the association between family poverty and parents' relationship quality in a large national sample, which included a high proportion of children living in disadvantaged families and found that the effect of parents' relationship quality is greater for poorer children than for children living in wealthier families which is in accord with the findings of Jouriles et al. (1991) and Buehler et al. (1997). The finding of a protective effect for poorer children of having parents with good relations is important as children in low-income families have a higher prevalence of externalizing problems (Qi & Kaiser, 2003) and inequality and poverty rates are increasing, especially among children, in most western countries (Wilkinson & Pickett, 2010). In the UK, for instance, the income poverty rate for children is 33%, while it is only 23% for adults (Main & Bradshaw, 2012). In addition to that, our findings also suggest that more research on the broader family context of when parents' relationship problems occur is necessary in order to understand the potential variability of this effect on children's well-being.

Limitations and Methodological Considerations

Although the current study has addressed several weaknesses of previous research, it also has its own limitations. We only explored the mediating and moderating role of one dimension of parent-child relations, i.e. the mother's assessment of the quality of the mother-child relationship. Our research design also did not take into account the possible reciprocal effects between the children's externalizing problems and parents' relationship quality, as some studies suggest that children's adjustment has an impact on a couple's functioning (Heinrichs et al., 2010). Other limitations relate to our measure of partners' relationship quality, which, due to constraints on interview time, included a reduced set of the of the items in the Golombok Rust Inventory of Marital State (Rust et al., 1990). Moreover, we have only examined maternal responses, which may be insufficient to capture the level of parents' relationship quality, since there are gender differences in the reporting of marital quality (Amato & Rogers, 1997). A more comprehensive assessment of partners' relationship quality, based on both parents' responses, and including information on the duration of any relationship problems, would have enhanced our study. Another

limitation is that the measurements of parents' relationship quality, mother-child relations and children's externalizing problems are all based on the mothers' reports. If the same person provides information for both the independent and dependent variables, there is shared-method variance (Marsiglio, Amato, Day, & Lamb, 2000) which tends to increase the correlation between variables, which may overestimate the results.

Furthermore, sample attrition is a common problem in longitudinal studies, which means that families of children from more disadvantaged backgrounds tend to be over-represented among the missing cases, which introduces biases. Nevertheless, we consider that our main finding, that parents' relationship quality has an important longitudinal and cross-sectional effect on children's externalizing problems, still stands, as our results show that the effect of the parents' relationship is similar for children from different socioeconomic backgrounds and is even greater for poor children, who are the most likely to be lost from the study.

Conclusions and Implications

Recent decades have seen an astonishing increase in research on the long term effects of early childhood conditions, which demonstrates that supporting children in the earliest years of their lives enhances their future development (Currie & Almond, 2011). During this period, early intervention programs have been developed in most Western countries (Currie & Almond, 2011; Frazer, 2016). In the UK, 20 years ago, the period between birth and primary school was largely seen as an issue for families to organise privately. The few initiatives that existed were restricted to those with severe problems which could often be stigmatising. In contrast, nowadays, there is an extensive network of children's centres around UK. These centres provide several services for families such as evidence based parenting programs which are typically free and open to all parents. Despite the growing attention of UK government about the importance of parents' relationship quality, a recent report suggests that supporting the relationship between the parents is not considered an explicit and specific focus of these programs.

The findings of our study challenge the mentioned policy framework and indicate that the quality of parents' relationship can not be considered a private concern anymore, since it has been shown that: (a) parents' relationship quality and maternal representations of the mother-child relationship have independent effects on externalizing problems among young children at age 3 and at age 5 years old; (b) the effects of parents' quality relationship are important for all children, no matter their socio-demographic background; (c) maternal representations of the mother-child relationship explains a substantial part of this effect; (d) that a good quality parent

relationship is protective for children when the mother perceive that there is a high-level of conflict in the mother–child relationship. Therefore, it is clear from this research that both parents' relationship quality and mother–child relations matter and, as a consequence, programs and interventions that only focus on one of these two dimensions are likely be less effective in improving children's externalizing problems. Our findings also indicate that these programs and interventions should be integrative and target both the representational and the behavioral components of parent–child relations (Dollberg et al., 2010).

Furthermore, we have also found that children from low-income families in which parents have relationship problems are a particularly high-risk group for externalizing problems. This finding is particularly important for the following reasons. The number of UK children living in absolute poverty has risen by 0.5 million since 2010 in spite of the fact that child poverty had reduced significantly between 1998 and 2010 (Acquah, Sellers, Stock, & Harold, 2017). Children in poverty are at greater risk of not having their mental health needs met (Haines, McMunn, Nazroo, & Kelly, 2002). Parents from disadvantaged backgrounds have also fewer opportunities to take part in parenting programs (Doherty, Stott, & Kinder, 2004). There are not many services to support inter-parental relationships in the UK and those that do exist are less likely to be used by families in or at risk of poverty due to several barriers such as cost (Callanan, Hudson, Husain, & Robert, 2017; Doubell, Stock, & Acquah, 2016). However, when these services are free or subsidized, there is evidence to show that they are in high demand (Callanan et al., 2017). Therefore, our study suggests that reducing economic barriers to parents' relationship services would be very beneficial for the future of children living in poverty today.

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Compliance with Ethical Standards

Conflict of interest The authors have no conflicts of interest to disclose.

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