

## ABSTRACT

Title of Dissertation: CHILDREN'S ADJUSTMENT TO PARENTS'  
BREAK UP: THE FAMILY SYSTEM  
MECHANISMS

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Research has shown that many aspects of family functioning are directly and indirectly linked to children's social development. One important aspect of how families function is family structure. In this regard, families have undergone tremendous change over the last decades resulting in increased cohabitation and divorce. These types of families are believed to be more unstable than married families. Instability creates more stress that can be difficult for children to cope with resulting in increased behavioral problems. Although past studies have shown an association between union instability and children's externalizing problem behaviors (EPB), the mechanism by which this occurs is less understood. Using Family Systems Theory and data from the Fragile Families and Child Wellbeing study ( $n = 3,387$ ), I examined whether family processes – father and mother involvement, co-parenting support, and maternal responsiveness –

explained the association between union instability and children's EPB at 9 years. I also examined whether marital status and children's temperament moderated this association. Using measured variable path analysis, I found that only co-parenting support mediated the association between union instability and child EPB, and only for children whose mothers experienced a divorce (not a nonmarital separation), controlling for known covariates of children's EPB. The association between union instability and children's EPB through co-parenting and parenting was not moderated by child temperament. These findings suggest that co-parenting rather than parenting explains children's social adjustment when families undergo a divorce.

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MECHANISMS

by

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## **Chapter 1: Introduction**

### **Statement of the Problem**

Externalizing problem behaviors (EPB) during early childhood generally refer to children who exhibit aggressive and hyperactive behaviors that stem from difficulty understanding and expressing emotions (Denham, Blair, DeMulder, Levitas, Sawyer, Auerbach-Major, & Queenan, 2003). The corresponding internally focused (e.g., withdrawn, anxious, depressed) problem behaviors – internalizing problem behaviors – often do not emerge developmentally until later childhood (Leve, Kim, & Pears, 2005). Researchers and practitioners have focused on EPB because mean scores of EPB - using large stratified and cohort samples in the United States (U.S.) and United Kingdom (U.K.) - have increased since the 1970s (Achenbach, Dumenci, & Rescorla 2003; Collishaw, Gardner, Maughan, Scott, & Pickles, 2012). Moreover, when EPB persist past the toddler years, they have longitudinal associations with children's ability to learn in the classroom, form long-lasting friendships, and maintain employment later in life (Campbell, Shaw, & Gilliom, 2000; Olson, Bates, Sandy, & Lanthier, 2000). The serious and long lasting consequences of EPB have shed the spotlight on families, which are most influential to children's development (Bornstein, 2002). While developmental scientists have focused on the family processes that are linked to EPB, sociologists have focused on the types of family structure that might be linked to children's maladjustment (e.g., Brown, 2010). A reason to be concerned about the link between family structure and EPB is that over the last 40 years there have been dramatic changes in family composition that have changed the living conditions of children (e.g., Bumpass & Lu, 2000; Kennedy & Bumpass, 2008). For example, in 1970, 11% of infants were born to

unwed mothers (i.e., single and cohabiting; Akerlof, Yellen, & Katz, 1996), whereas 40% of all children today are born to unwed mothers (CDC, 2013; Kennedy & Bumpass, 2008).

Compared to children living with two married parents who provide care and stability for their biological children, children living in other types of families (e.g. cohabiting, single parent) are more likely to live with parents who might not provide stable care for their children because they are more likely to experience change in their parents' residential, romantic relationship (union instability; Foster & Kalil, 2007, Fomby & Cherlin, 2007). For purposes of this dissertation and consistent with the sociological literature (e.g., Fomby & Cherlin, 2007; Fomby & Osborne, 2010), I define union instability as a change in parents' residential relationships (e.g., from single to cohabiting, married to divorced, cohabiting to single). Union instability reduces resources (e.g. money, time) available to the child, increases stress for the residential parent, and perhaps increases conflict between parents (Brown, Bulanda, & Lee, 2005; Hofferth, 2006; Kamp Dush, Cohen, & Amato, 2003; Jose, O'Leary, & Moyer, 2010). These conditions can change the way parents relate to one another and to their children, which can be difficult for young children to cope with resulting in increased EPB (Elgar, McGrath, Waschbusch, Stewart, & Curtis, 2004).

Despite the prevalence of EPB and the increase in the number of children living with parents who are not married, the way family processes such the co-parenting alliance (ability of parents to work together to jointly raise a child), father and mother involvement and child and parents' characteristics influence children's adjustment in the context of union instability is not well understood. That is, the gap in the literature about

the mechanisms by which union instability is related to children's behaviors is largely unexamined. Using a family systems framework, I address this gap and ask the following research questions: (1) does union instability in early childhood (between 3-5 years) predict children's EPB (aggressive and rule breaking behaviors) at 9 years? (2) Do co-parenting support, father and mother involvement, and maternal responsiveness (at 5 years) mediate the association between union instability from 3 to 5 years and children's EPB (aggressive and rule breaking behaviors) at 9 years (see Figure 1)? And, (3) do child temperament, maternal marital status at 3 years, and maternal depression at 5 years moderate this indirect association between union instability from 3 – 5 years and children's EPB (aggressive and rule breaking behaviors) at 9 years (see Figure 2)?

### **Theoretical background**

I frame my study with family systems theory, which stipulates that individuals' functioning and adjustment are influenced by the characteristics of the individual interacting with others in a network of relationships - a set of interrelated subsystems (e.g., mother-child, mother-father) - such that a change in one results in a change in another (Cox & Paley, 1997). That is, each member of the family cannot be understood outside of the context of the family. The theory explicitly stipulates that children's functioning is hierarchically related to other subsystems according to their proximity to the child. Further, the effects of the family on children's development are hypothesized to be both direct, from proximal influences such as parents, and indirect, from distal factors such as parents' socio-economic status (SES), which influences children through its effect on parenting. These direct and indirect effects are continuous and reciprocal, making the family system dynamic and influenced by time (Cox & Paley, 1997).

Within a family system framework, the child and parents have direct influences on children's EPB through their own characteristics as well as through their relationships with one another. The relational subsystems that entail specific dyads (e.g., the parent-child, mother-father) also exert direct and indirect influences on the children within a family. Family level characteristics (e.g., union instability) are hypothesized to influence the development of EPB through other family subsystems (e.g., father involvement, mother involvement, quality of mother-child interaction, co-parenting support). I examine how union instability influences children's EPB at 9 years through father and mother involvement, mother responsiveness, and co-parenting support, child temperament, marital status, and depression.

### **Study Rationale**

Children's EPB peak in toddlerhood around 3 years and typically decline as children enter school (NICHD Early Childcare Research Network, 2004). However, children who continue to exhibit problem behaviors in school are at risk for school failure and later behavioral problems (Campbell et al., 2000). Understanding the factors that contribute to persistent EPB in early childhood is an important step for early intervention and prevention of later problems in adolescence. Additionally, understanding what specific aspects of the early childhood context place children at risk for increased EPB is important because environmental risk experienced in the first years of life can be more detrimental than risk experienced later in childhood (Shonkoff & Phillips, 2000).

An extensive body of research shows that parenting is the most important influence on children's early development (Bornstein, 2002). Children who experience positive parenting (i.e., parents spend time with children, have nurturing and loving

relationships) are better adjusted than children who do not (Cabrera, Fagan, Wight, & Schadler, 2011; Deater-Deckard, Atzaba-Poria, & Pike, 2004). Environmental factors that disrupt positive parenting are, then, also likely to influence child development (Shonkoff & Phillips, 2000). Within a family systems framework, family characteristics - such as family structure (i.e., marital status) - are an important environmental factor that influences parenting because they determine the amount of time parents spend with children, the quality of parent-child interactions, and the resources available to them (Kamp Dush et al., 2003; Jose et al., 2010). In married families, children spend more time with both parents (Kalil, Ryan, & Chor, 2014), experience higher average levels of warmth, and responsiveness during interactions with their mothers (Watanura, Phillips, Morrissey, McCartney, & Bub, 2011), and have higher household incomes (Cancian & Haskins, 2014) than children living with cohabiting or single mothers.

Over the last decades, there has been a tremendous shift in family structure and consequently in the living environments of children with almost 40% living with unmarried cohabiting parents (Bumpass & Lu, 2000) and 26% living with single mothers (Krieder, 2008). Living in two-parent married households is considered optimal for children's well being because they are considered more stable and parents invest more time and resources in their children than in other types of families (Kamp Dush et al., 2003; Jose et al., 2010). Thus, living in cohabiting families is considered less optimal because they are less stable, which reduces parents' time and resources available to the child (Kalil et al., 2014; Avellar & Smock, 2005). In fact, a study using nationally representative data reports that 60% of unwed parents are cohabiting at their child's birth, but over 60% of these relationships dissolve within their child's first 5 years (Kamp

Dush, 2011), compared to 26% of married families (Copen, Daniels, Vespa, & Mosher, 2012). Therefore, practitioners, policy makers, and researchers are concerned about how children living in cohabiting families fare compared to children living in married households.

The answer to this question is just beginning to emerge. A study using the National Survey of America's Families (NSAF) dataset set found that children who live with cohabiting parents are more likely to exhibit EPB than children living in married families (Brown, 2004). Another study showed that the frequency with which partners move in or out of the home during the first 6 years of a child's life was related to children's EPB, controlling for socio-economic status (SES; Cavanagh & Huston, 2006). But, a later study based on data from the Fragile Families and Child Wellbeing study (FFCW) – a large study of 5,000 families (3/4 of which were non-marital) in 20 of the largest cities in the U.S. that collected survey data on mothers, fathers, and children from birth through 9 years – found that after controlling for union instability (mothers' relationship dissolution and re-partnering) and SES, children in cohabiting families exhibited similar levels of EPB as children living with married parents (Osborne & McLanahan, 2007). These findings suggest that cohabiting unions might result in negative outcomes for children not because parents are cohabiting but because these unions are more likely to dissolve. When unions dissolve and parents are no longer sharing the same residence, the amount of parental time and resources available to the child are reduced, which can result in increased behavioral problems as children try to cope with the change in living arrangements (Cavanagh & Huston, 2006; Fomby & Cherlin, 2007). Thus, *stable* cohabiting unions may not be linked to higher child EPB.

Other research has also shown that it is not just the frequency with which partners move out of the household that has a negative association with children's EPB, it is also the introduction of a new partner into the household. Using a nationally representative sample of children born in 2001, Fagan (2013) found that toddlers living with their mothers who remained single after a divorce had higher literacy scores than children living with their mother and her new cohabiting partner following a divorce. Presumably, a new partner competes with the child for the mother's attention and may further reduce paternal time spent with the child (Kalil et al., 2014). Collectively, these studies suggest that when parents dissolve their union and a new partner moves into the child's home (union instability), the quality of the relationships among biological family members also change for the worse, creating difficult conditions for children.

To date only a handful of studies have examined the association between union instability (i.e., the frequency of partners moving out of and into the household) and children's EPB. Even fewer have examined the mechanisms that explain this association, that is, why union instability is related to EPB. My dissertation contributes to the small body of work by examining why (i.e., mediation) and when (i.e., moderation) union instability is negatively associated with children's social adjustment. In particular, I examine the mediating and moderating pathways by which union instability is associated over time with children's EPB.

**Mediating effects.** According to an ecological perspective and consistent with family systems theory, children's wellbeing is directly related to proximal processes (e.g., co-parenting relationship, parenting) within the home (Bronfenbrenner, 1986). Union instability, a distal process, might influence children's behavior through its influence on

family processes more proximal to the child. From a family system theory, the most important proximal processes are co-parenting and parenting. There is strong empirical evidence supporting the association between co-parenting, father and mother involvement, and maternal responsiveness because of their influence on children's adjustment.

***Co-parenting.*** Co-parenting is defined as the ability of parents to work jointly together to rear their children (Feinberg, 2003). Parents who support each other in their roles as parents (co-parenting support) have children who have fewer behavioral problems (Feinberg, Kan, & Hetherington, 2007; Frosch, Mangelsdorf & McHale, 2000; Jia, Kotila, & Shoppe-Sullivan, 2012). In contrast, children whose parents undermine each other and are in conflict in their role as parents (co-parenting conflict) are at a high risk for behavioral and emotional problems (Belsky, Putnam, & Crnic, 1996; Margolin, Gordis, & John, 2001). The quality of the co-parenting relationship, that is, the ability of parents to get along and make joint decisions that promote child wellbeing, is a stronger predictor of children's adjustment than the quality of the marital relationship because of its proximity to the child (Feinberg et al., 2007; Frosch, Mangelsdorf, & McHale, 2000).

Studies have shown that the quality of the co-parenting relationship is similar for both cohabiting and married couples when parents remain together (Cabrera, Scott, Fagan, Steward-Streng, & Chien, 2012; Hohmann-Marriott, 2011), but it changes when couples separate. A review of the literature found that nonresident couples were, on average, less supportive of each other's parenting than were resident couples (Carlson & Högnäs, 2011). Moreover, co-parenting support declined when there was new partner in the household (Martin, Riina, & Brooks-Gunn, 2013). These findings suggest that union



instability is associated with EPB because it reduces co-parenting support and increases co-parenting conflict.

***Father involvement.*** Fathers influence their children through the quality of their relationship with them (Cabrera et al., 2012). Involved fathers spend time with their children, engage in positive interactions, and are responsible for their financial and emotional wellbeing (Lamb, 2000). Over the last few decades, an increasing body of research has shown that fathers make unique and independent contributions to children's development from early childhood to adolescence, over and above the contribution of mothers on these behaviors (Cabrera, Shannon, & Tamis-LeMonda, 2007; Sarkadi, Kristiansson, Oberklaid, & Bremberg, 2008; Carlson, 2006).

Developing nurturing and long-lasting positive relationships with children is easier when fathers reside with their children. When fathers become nonresident, as is the case when unions dissolve, father involvement is likely to decline (e.g., Carlson, 2006; Demuth & Brown, 2004; Fagan & Palkovitz, 2011; Tach, Mincy, & Edin, 2010). The reasons for the lower levels of involvement among nonresident fathers than resident fathers are multiple resulting in large variability in the amount of time fathers spend with their nonresidential children, and consequently in the type of relationship they have with them (Cabrera, et al., 2007; Cabrera, Mitchell, Ryan, Shannon, & Tamis-LeMonda, 2008; Fagan & Palkovitz, 2007). One source of variability in nonresident father involvement is whether or not there is a new partner in the household after the biological father has become nonresident. One study found that nonresident fathers' level of involvement decreased when the child's mother re-partnered; fathers' own re-partnering did not seem to influence their level of involvement (Tach et al., 2010). Based on this emerging evidence,

I hypothesize that union instability will be linked to children's EPB because it will reduce levels of father involvement.

***Mother involvement.*** Similar to fathers, theory and research suggests that the quality of the mother-child relationship predicts a number of developmental outcomes (e.g., Bronfenbrenner, 1986; Cabrera et al., 2011; Denham, Workman, Cole, Weissbrod, Kendziora, & Zahn-Waxler, 2000). Involved mothers, like fathers, spend time with their child engaged in positive interactions. Because mothers tend to be the primary caretaker (Census, 2011), it is assumed that their frequency of involvement in activities such as literacy, play, and caretaking is less variable than fathers who tend not to be the primary caretaker. However, a small ( $n = 92$ ) community sample of mothers and their elementary school children found that maternal reports of her frequency of involvement with her child (not specified what behaviors) were negatively associated with children's EPB at 9 years (Lengua & Kovacs, 2005), suggesting that there is variability in the amount of involvement mothers report with their children, which is associated with children's social development.

In the context of union instability, mothers are more likely to remain resident with their children than fathers, but maternal involvement may also change with changes in the family or environmental stress. Studies that use report measures of mother involvement, mostly with large, representative samples, find that maternal reports of the frequency of her involvement with her child are associated with union instability. Specifically, mothers who experience a divorce report less involvement in cognitive stimulating activities with their toddler (Fagan, 2013), and mothers who experience union instability are less likely to report high levels of involvement with their adolescent (frequent conversation,

engagement in activities together) than mothers who are continuously married or cohabiting (Carlson, 2006). These findings suggest that union instability will be linked to children's EPB because it reduces the frequency of mother involvement.

**Maternal responsiveness.** Research linking the mother-child relationship to externalizing behaviors in the toddler years generally finds that sensitive, warm, and responsive observed mother-child interactions are linked to fewer EPB in early childhood (Cabrera et al. 2011; Denham et al., 2000). These findings hold across ethnicity and SES. That is, using an observational protocol, a study found that White, Black, Latino, and Asian mothers in the U.S. ( $n = 4200$ ) who were observed to be responsive had toddlers who exhibited more positive affect and sustained attention, and less negative affect and aggression toward mothers during observed interactions (Cabrera et al., 2011). Thus, studies suggest that across samples positive parent-child interactions characterized by responsiveness promote social competence and protect against the development of EPB.

In the context of union instability, mothers who rate their relationships as high quality and stable are more likely to be rated as responsive during interactions with their toddlers than mothers who report relationship instability (Artis, 2007; Bonds & Gondoli, 2007). These findings suggest that union instability is linked to children's EPB because it reduces the quality of the mother-child interaction (maternal responsiveness).

**Moderating effects.** According to family systems theory, characteristics of the individual (the child or the parent) may change how they respond to flux within the system (the family). There are several maternal and child characteristics that may buffer (or exacerbate) the association between union instability and children's EPB.

Specifically, child temperament, maternal marital status, and maternal depression may moderate the way union instability influences children's EPB.

***Child temperament.*** Developmental scientists have consistently emphasized the importance of context in understanding how children's development unfolds. Important dimensions of the home environment, such as children's characteristics, are hypothesized to buffer or moderate the ways in which families influence children's outcomes (Belsky, 2005). Child temperament has been most extensively studied because of its relative stability over time and because it is related to children's behavior (Rothbart, Derryberry, & Hershey, 2000). Children with difficult temperament are more likely to exhibit later problem behaviors than children with easy temperaments (Miner & Clarke-Steward, 2008; Rubin, Burgess, Dwyer, & Hastings, 2003).

Children's temperament also reflects children's ability to cope with environmental change. A study found that children with low self-regulation, one aspect of difficult temperament, are less likely to cope with the change brought about when fathers become nonresident and exhibit more behavior problems than their counterparts (Cabrera, Hofferth, & Hancock, 2014). The emerging empirical evidence suggests that children with difficult temperaments might have a more difficult time than children with easy temperaments adjusting to changes in living arrangements that occur when either the biological father moves out or a new partner enters the family. Therefore, I model temperament as a child characteristic that can exacerbate (or buffer) the indirect association between union instability between 3 and 5 years and children's EPB at 9 years.

***Marital status.*** Research has consistently found that children living in married families have better social outcomes (more social competence and fewer EPB) than children living in unmarried families (cohabiting, single parent; Carlson & Magnuson, 2011; Foster & Kalil, 2007; McLanahan & Sandefur, 1994; Sigle-Rushton & McLanahan, 2004). Research also suggests that children from divorced families have more emotional and behavioral problems than children whose married parents do not divorce (Amato, 2000). However, it is unclear whether children of divorced parents have more emotional and behavioral problems than children of separated (never married) parents. Research from the divorce literature consistently finds that when biological parents divorce and children no longer reside with both parents, children's wellbeing suffers, and researchers argue that this is because divorce is such a stressful family change (i.e., more so than other union break ups; Carlson & Magnuson, 2011). Thus, it is possible that children from divorced parents fare worse than children from separated never married parents because the stress of a divorce is greater than that of a non-marital break-up. I model maternal marital status (1= married) as a maternal characteristic that can exacerbate the indirect association between union instability between 3 and 5 years and children's EPB at 9 years.

***Maternal depression.*** Maternal depression - feeling sad and disinterested over an extended period of time - has been robustly and directly linked to children's negative outcomes (Garstein & Fagot, 2003; Goodman et al., 2011). Given that maternal depression is associated with children's EPB, and that living with a depressed parent may make union instability more stressful for children, maternal depression may exacerbate the association between union instability and children's EPB. I hypothesize that maternal

depression will exacerbate the indirect association between union instability between 3 and 5 years and children's EPB at 9 years.

In summary, research has demonstrated that aspects of the family system, specifically father involvement, mother involvement, maternal responsiveness, and the co-parenting alliance change when families experience union instability. A growing literature has highlighted the important developmental context of a child's temperament; children do not experience family environments equally depending on their temperament. And, maternal marital status and depression may also change the way the family and children respond to union instability. However, no study found to date has examined how these aspects of the family system work together after a family experiences union instability to shape a child's developmental context. Systems theory highlights the reciprocal, fluid and multisystem influences of each family process or system on individual members of the family. Thus, the theory suggests that examining one subsystem does not provide a complete picture of the family processes altered by union instability that predict children's EPB. To address this gap in the literature, I examine how family subsystems (mother-child, father-child, mother-father, child, mother) work together to explain the association between union instability and children's EPB, and which influences are most important in the context of multiple aspects of the family system.

### **Current Study**

My dissertation uses data collected by Columbia and Princeton Universities, the Fragile Family and Child Wellbeing Study (FFCW), to examine the mechanisms that explain why changes to family structure (union instability) result in increased EPB for

children over the early and middle childhood period. In particular, father involvement, mother involvement, maternal responsiveness, and co-parenting support are expected to decrease when a family experiences union instability, thereby increasing a child's risk for more EPB. I also expect that a child's temperament, mother's marital status, and mother's depression are important contexts that determine when union instability is deleterious for children's social development.

These data are ideal for my study because the families are representative of the urban populations in the U.S. and the sample size is large enough to examine the systemic (i.e., familial, parental, and child) influences on children's behavior. Although there are limits to secondary data and this particular dataset, I cannot examine the family as a system without a large dataset. Moreover, this data provides a large sample of families at risk for union instability, a population to which I do not have access in large enough numbers without using secondary data. The FFCW data have reports of paternal involvement, maternal involvement, maternal responsiveness, co-parenting support, child temperament, marital status, and maternal depression, all of which are indicated in the literature as robust and important influences of children's behavior.

While father and mother involvement, maternal responsiveness, co-parenting support, maternal marital status and depression, and child temperament are identified in the literature as important predictors of children's EPB, they are not the only known covariates of union instability and children's EPB. Thus, I control for maternal poverty status, couple quality, new children with a new partner, union instability between 5 and 9 years; maternal and paternal education, race, and age; child EPB at 3 years, gender, and age. These covariates are discussed in detail in Chapter 3.

## **Research Aims and Hypotheses**

Rooted in a family system framework, the objective of this study is to assess the mechanisms that mediate or explain why changes in family structure (union instability) are linked to increased EPB in children over time and whether or not child temperament, maternal marital status, and maternal depression moderate this mediated association. I examine whether co-parenting support, father and mother involvement, and maternal responsiveness mediate the association between union instability from 3 until 5 years and children's EPB at 9 years. I also examine whether child temperament, maternal marital status, and maternal depression buffer the indirect association between union instability from 3 until 5 years and children's EPB at 9 years. I have three specific research aims:

**Research aim 1) to examine how union instability during early childhood is related to children's EPB at 9 years.** Researchers have examined the link between union instability in early childhood and EPB in early childhood (e.g., Fomby & Osborne, 2010), but few studies to date have examined the longitudinal effects of these associations. One study examining the association between mothers' reports of union instability (the dissolution of romantic residential partners from her child's birth to 9 years) and children's EPB found that union instability experienced from birth to 9 years predicted EPB at 9 years (Ackerman, Brown, D'Ermo, & Izard, 2002). However, Ackerman et al. (2002) used a small, non-representative sample and their findings have not been replicated with a larger or representative sample of families. Moreover, it is unclear at what developmental period union instability is most deleterious. That is, are Ackerman et al.'s (2002) results driven by the union instability children experience close to the time their EPB are assessed, or is union instability in early childhood associated with EPB



longitudinally at 9 years? Lastly, according to family systems theory, stress to the family should influence children indirectly through proximal family systems (e.g., father-child, mother child, mother-father, mother). This begs the question: are findings reporting that union instability is associated with children's EPB driven by more proximal mechanisms (mediators) that fully explain why union instability is associated with EPB? I hypothesize that 9-year-olds will exhibit more EPB when their mothers report greater union instability between child 3 and 5 years, but this association is indirect (there is no direct path) through co-parenting support, father and mother involvement, and maternal warmth.

**Research aim 2) to examine whether co-parenting support, father and mother involvement, and maternal responsiveness at 5 years mediate the association between union instability from 3 to 5 years and children's behaviors at 9 years.** The frequency and quality of mother and father involvement have been independently linked to children's behaviors (Crosnoe, Leventhal, Wirth, Pierce, & Pianta, 2010). However, controlling for maternal behaviors, positive co-parenting (e.g., support and communication) and father involvement (assessed as the amount of time fathers report engaged in play, caretaking, sensitive involvement) have been consistently linked to children's behavioral adjustment (Cabrera et al., 2007; Feinberg et al., 2007). Empirical evidence suggests that when parents dissolve their union, the way they interact with one another as parents (co-parenting) and the way that the nonresident parent, usually the father, interacts with his child changes in significant ways that directly influence children's behaviors (Cabrera et al., 2012). This is especially the case when mothers re-partner introducing another parental figure into the home (Martin et al., 2013). Moreover, while mothers tend to remain resident with their children following union

instability, mothers' reports of her quality and frequency of involvement in activities with her child declines when she reports union instability (e.g., Carlson, 2006). And, mothers may be less responsive in interactions with their children after experiencing a stress to the family system (i.e., union instability). Thus, I hypothesize that the positive association between union instability and aggressive and rule breaking behaviors will be explained by reduced co-parenting support, father and mother involvement and maternal responsiveness.

**Research aim 3a) to test the moderating influence of maternal marital status and depression on the indirect association between union instability between 3 and 5 years and children's EPB (aggressive and rule breaking behaviors) at 9 years.**

Maternal marital status and depression are consistently linked to children's EPB (Foster & Kalil, 2007; Goodman et al., 2011), but less consistently found to moderate the association between environmental or family stress and children's EPB. However, maternal depression and marital status may change the way the family responds to union instability. Therefore, I test whether the data support a model in which marital status and maternal depression are modeled as moderators of the indirect association between union instability and children's EPB, or as control variables. I expect that maternal marital status and depression have nonlinear associations with (or moderate) union instability. I expect that the indirect association between union instability and children's aggressive and rule breaking behaviors will be stronger for married mothers and for depressed mothers.

**Research aim 3b) to test the moderating influence of child temperament on the indirect association between union instability between 3 and 5 years and**

**children's EPB (aggressive and rule breaking behaviors) at 9 years.** Child temperament has consistently been found to buffer the association between negative maternal behaviors (e.g., maternal harshness) and children's EPB and to strengthen the association between positive maternal behaviors (e.g., sensitivity) and children's social competence (e.g., Miner & Clarke-Steward, 2008). Thus, it is possible that how a child responds to family change (i.e., union instability), and how the changes in the family system caused by union instability influence a child's EPB, depends on his/her temperament. I therefore expect that the indirect association between union instability and children's aggressive and rule breaking behaviors will be stronger for children with difficult temperaments than for children with easy temperaments.

### **Contribution to the Field**

This study builds upon the current literature by examining how the family as a system influences children's behavior. Several theoretical frameworks posit that a child is not understood outside of the context of the family (e.g., Cox & Paley, 1997; Feinberg, 2003), yet no studies found to date have examined the systemic influences on a child's behavior. One reason for this is that a large sample size is required to achieve such a study. The FFCW dataset is the only one to date that has data on familial, parental characteristics, and child characteristics with a large enough sample of unmarried (cohabiting and single-parent) families and outcomes on early and middle childhood development to design my study.

The findings from my study will help elucidate the multiple mechanisms that explain the association between union instability and children's EPB in middle childhood. This is important for several reasons. First, as it stands, the current literature

has identified several family system mechanisms that explain or buffer the association between union instability and children's EPB (e.g., co-parenting support, couple quality). Yet, how these family factors work together in multiplicative or additive ways to help or hinder children's development is unclear. A study suggests that when co-parenting support and father involvement are examined together in the same study as mediators of the association between union instability and children's EPB, co-parenting support overshadows the benefits of father involvement to explain children's EPB in the context of union instability. That is, reductions in co-parenting support and father involvement explain why union instability is associated with more EPB in early childhood independently, but together only co-parenting support explains the association (Karberg & Cabrera, 2014). These findings highlight the importance of examining multiple mediators and moderators within the same model to understand the whole family influences on children's behavior. Second, inequalities stemming from the family matter more for children's outcomes than inequalities stemming from economic circumstances (Mead, 1991). That is, developmentalists and political scientists agree that a child's relationship with his father is more integral to his long-term trajectory than his father's income. This argument points to the importance of the family and family processes for children, rich and poor, who experience family instability.

## Chapter 2: Review of the Literature

### Overview

Externalizing problem behaviors (EPB), including aggression, hyperactivity, and delinquency, are the most common and persistent form of social maladjustment in early childhood (Campbell et al., 2000). When EPB persist over time they raise concerns because they are concurrently and longitudinally linked to a host of adjustment problems, including difficulties forging and maintaining friendships (Pedersen, Vitaro, Barker, & Borge, 2007), succeeding in school (Campbell et al., 2000; Denham et al., 2003), engaging in criminal behaviors (Bongers, Koot, Van der Ende, & Verhulst, 2004; King, Iacono, & McGue, 2004; Krueger, Hicks, Patrick, Carlson, Iacono, & McGue, 2004), and maintaining employment in adulthood (Lynam, Caspi, Moffitt, Loeber, & Southamer-Loeber, 2007).

A corresponding set of behavioral problems – internalizing problem behaviors (IPB; withdrawn, anxious, depressed behaviors) – is often studied as another form of social maladjustment. However, large studies tracking the developmental trajectories of externalizing and internalizing behaviors using the same scale (the Child Behavior Checklist) find that IPB begin to rise around 10 years of age where as EPB peak in toddlerhood and are higher throughout early and middle childhood than IPB (Bongers et al., 2004; Leve et al., 2005). Thus, in contrast to internalizing problem behaviors that are less common in early life, EPB are commonplace and on the rise. Since the 1970s the incidence of EPB has significantly increased in severity from mean scores of 18 to 24.3 on the Child Behavior Checklist, a commonly used assessment tool (CBCL; Achenbach, 1992; Achenbach et al., 2003; Collishaw et al., 2012). The increased incidence in EPB

has resulted in a richer conceptualization, empirical history, and better understanding of the etiology of EPB than internalizing behaviors (Rubin & Burgess, 2002). Moreover, policymakers, and school officials have noted that the consequences of EPB for children and society as a whole is alarming because it impedes learning, depletes limited resources, and interrupts overall family functioning and children's developmental trajectories over time (Bongers et al., 2004; Campbell et al., 2000; NICHD, 1999). Because of the attention within the research, policy, and program communities and the nature of externalizing behaviors as disruptive to classrooms and the home environment, children who demonstrate EPB are targeted early and often for intervention (Bierman, Coie, Dodge, Greenberg, & McMahon, 1992).

Research focusing on the etiology of EPB has identified multiple factors that may result in persistent EPB in childhood. Salient among efforts to understand the causes of children's EPB are studies focusing on family level factors because the family is most influential to children's development, especially during early childhood. Framed within a family systems perspective, such studies suggest that children are embedded in a network of familial relationships that are mutually influential and thus the development of children's social competence, for example, is the result of these dynamic family relationships (e.g., Cabrera et al. 2012; McClain, 2011). This literature is particularly helpful in shedding light on the family processes by which children's development of social competence might become compromised. At the core of the family system paradigm is the idea that children's characteristics (e.g., gender, temperament) influence the way mothers and fathers interact with them, and that those interactions in turn influence children's developmental contexts (Cox & Paley, 1997). This view is also

consistent with ecological and transactional models that account for development as a dynamic process between children and their environment (e.g., Bronfenbrenner, 1986; Sameroff, 1983).

Given the importance of understanding how families are implicated in children's EPB, I use a family systems framework to examine the direct associations as well as the pathways by which the family system influences children's social adjustment during early childhood. I organize this review as follows: (1) incidence and prevalence of EPB during early childhood, (2) predictors of EPB, (3) summary, and, (4) directions for research.

### **Incidence and Prevalence of Externalizing Problem Behaviors During Early Childhood**

One of the most important goals that parents have for their children is for them to learn to be social, get along with others, have friends, and exhibit socially appropriate behaviors (Grusec, 2011). These behaviors are components of the broader construct of social competence, which children develop in the context of social relations where they learn not only to understand and express emotions, but also to regulate them to achieve personal goals (Denham et al., 2003; Rose-Krasnor, 1997). Learning to read emotions and to act accordingly requires cognitive skills including language, self-regulation and emotional regulation (Rose-Krasnor, 1997; Rubin & Burgess, 2002). Social competence is also related to children's reasoning about social issues of justice, fairness, and morality (Killen, Lee-Kim, McGlothlin, & Stangor, 2002). Thus, social competence entails cognitive, regulatory, linguistic, moral, and emotional skills that collectively help

children integrate thoughts, behaviors, emotions and cultural norms while effectively interacting with others (Cabrera, 2010; Killen, et al., 2002; Rose-Krasnor, 1997).

The development of social competence begins at birth through parents' socialization, but children do not tend to show evidence of social competence until the toddler years (Cabrera, 2010; Southam-Gerow & Kendall, 2002). Problematic behaviors normative in the toddler years include lying, disobedience, clumsiness, hyperactivity, and talking too much, with boys showing a higher incidence of these behaviors than girls (Keiley, Bates, Sandy, & Lanthier, 2000). National studies based on European, New Zealand, Canadian, and American children find nearly 80% of children have not developed social competence skills and exhibit some type of behavior problem, either aggressive or delinquent behaviors, in toddlerhood (Bongers et al., 2004; Leve et al., 2005; Prinzie, Onghena, & Hellinckx, 2006; Broidy et al., 2003). One reason for behavior difficulties during toddlerhood is that children in this age group are more likely than older children to misread emotions and might be unable to regulate them effectively (Denham et al., 2000; Rubin & Burgess, 2002). Over time, as children learn to read emotional expressions, develop language, learn to navigate social interactions, and learn to specify what they want from others, aggression towards others diminishes (Bongers et al., 2004; Prinzie et al., 2006). In fact, by 5 years, most children's problem behaviors decline substantially and only 13% of toddlers show either increasing or persistently high levels of EPB from toddlerhood through adolescence (Bongers et al., 2004).

**Children's EPB in early childhood.** Scholars have noted that the term externalizing refers to behaviors and emotions that are outwardly focused because of psychological undercontrol (Rubin & Burgess, 2002). That is, the behaviors (e.g.,



aggression) that define externalizing problems are expressed overtly and toward others. An essential aspect of EPB conceptually is that there are deficits in understanding the perspectives, feelings, and intentions of others during social interactions as well as what constitutes socially acceptable interactions (Rubin & Burgess, 2002; Rose-Krasnor, 1997). Although there is a general consensus on what behaviors comprise EPB, there is also significant variation in the nature of aggressive, hyperactive, and delinquent behaviors partly because these constructs differ by scale and by developmental period and thus change over time. Generally, designators of behavioral problems describe behaviors that are antisocial and directed toward others as opposed to toward oneself.

Another reason that might explain why there is so much variation in the behaviors that constitute EPB is related to measurement. Although there is a rich and extensive development of observational measures to assess EPB (e.g., Rubin, Hasting, Chen, Stewart, & McNichol, 1998) and a healthy debate in the field regarding how to best measure it (Heubeck, 2000), the bulk of the studies on EPB use the CBCL (for ages 1.5 - 18; Achenbach, 1992), a paper and pencil test. The CBCL is a parental and teacher report measure composed of 5 scales in the early childhood period including, delinquency, aggression, hyperactivity, anxiety, and depression, and a 6th for somatic symptoms in the middle childhood and adolescent years. These 5 scales are compiled into externalizing (aggressive, delinquent, hyperactive behaviors;  $\alpha = .86$ ) and internalizing (anxious and depressed behaviors;  $\alpha = .75$ ) problem behaviors. The delinquency scale assesses lying or cheating, running away from home, stealing, swearing, setting fires, not feeling guilty after misbehaving, and socializing with other children who get into trouble. The aggressive scale includes arguing, bragging, bullying, destroying things, disobedience,

jealousy, physically attacking someone, talking too much, and moodiness. Questions of hyperactive behaviors assess fidgetiness, impulsivity, and poor coordination (Achenbach, 1992). Although the CBCL is valid and reliable for use with children across ethnic and racial groups (Achenbach et al., 2003), it does not overtly assess psychological undercontrol, which underlies CBCL constructs such as aggression and hyperactivity. Developmental psychologists argue that to capture the underlying construct of EPB, measures of psychological undercontrol, not the observed behaviors of this developmental process, are needed (Rubin & Burgess, 2002).

However, in many ways the CBCL has become synonymous with EPB because the *behaviors* are what are linked to disruptive family and classroom relations and poor developmental outcomes. If a child with psychological undercontrol does not exhibit aggressive, antisocial behaviors, his undercontrol may not be linked to later problems. In fact, researchers have linked aggressive behaviors to underlying deficits in other areas of social development. Specifically, toddlers with persistent and increasing EPB are unable to read emotions when interacting with others, do not “use their words” to get what they want, and are unable to resolve conflict in social contexts. Toddlers who exhibit EPB are more likely to use hitting, biting, and other agonistic behaviors to negotiate social situations (Rubin et al. , 2003), which place them at risk for later social maladjustment.

### **Predictors of Externalizing Behavior Problems**

Guided by family systems theory, a large body of research has examined multiple levels of influence on children’s EPB. Because of the importance of the family to children’s development, extant research has focused on the family context, parent-child subsystem, parent-parent subsystem, and child characteristics to explain the prevalence of

EPB during early childhood. I organize this section by presenting an analytical description of the most distal influence on children's EPB, the family context, and then examine how each family subsystem has been implicated in the development of EPB. To this end, I review the literature on the mechanisms of influence that explain why family context (i.e., union instability) is linked to children's EPB. This review of the literature reveals that union instability is directly and indirectly linked to children's poor social adjustment through the co-parenting relationship, father and mother involvement, maternal warmth, and child temperament.

**Family context.** In family systems theory, family characteristics encompass a set of predictors that are removed from children and work indirectly through their direct interactions with family members. This section focuses on one family characteristic that is robustly linked to children's EPB in the literature: family structure/union instability (e.g., Black, Dubowitz, & Starr, 1999; Feldman & Masalha, 2010; Foster & Kalil, 2007).

***Family structure and union instability.*** Family structure is a relevant predictor of children's externalizing behaviors because there is a correlation between the changing marital demographic of the U.S. from 1970-2010 and increasing externalizing behaviors in early childhood. There is debate over the causality of this correlation, but the co-occurring trends are striking. Demographically, America in the 1950s and 1960s was marked by high rates of marriage, and marriage was considered the only socially acceptable institution for having children (Cherlin, 2012). However, since the 1970s there have been simultaneous trends of increased divorce and less universal marriage (more cohabitation or people living together romantically without marrying), as well as a shift toward social acceptance of child bearing outside of marriage (Cherlin, 1992;

Lesthaeghe, 2010). This means that more children are growing up outside of marriage than in the past.

Researchers have looked for reasons why changes in family structure (i.e., union instability) correspond to changes in children's EPB. One of the leading consequences of union instability and correlates of children's behavioral outcomes is father residence, but this is likely a result of the variability in involvement among non-resident fathers (Cabrera et al., 2007, 2008; Fagan & Palkovitz, 2007). A meta-analysis of 63 studies that (1) had a sample of children in father-absent households, (2) had quantitative data on measures of paternal involvement and child well-being, and (3) had enough information to calculate an effect size, found that children exhibited fewer externalizing behaviors (a variety of aggressive and delinquent behavior at home or school grouped together) when their non-resident fathers were more involved, specifically when their interactions reflected authoritative parenting, accounting for between 5 and 15% of the variance in children's EPB across studies (Amato & Gilbreth, 1999). A more recent meta-analysis of 82 studies that (1) were peer-reviewed, (2) tested quantitative associations between at least one type of non-resident father involvement and one type of child well-being, (3) differentiated analyses for resident and non-resident fathers, and (4) provided effect sizes, found that nonresident father involvement in activities and father-child relationship quality were most strongly associated with children's social well-being compared to academic and psychological outcomes. Moreover, contact and financial provisions were not associated with social well-being or any of the other child outcomes (Adamsons & Johnson, 2013). These findings collectively reflect other research that suggests father absence (not being involved in activities, poor quality interactions), not necessarily father

non-residence, is associated with disruptions in the father-child subsystem and children's social development (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000). Thus, union instability per se is not a direct predictor of children's EPB, but may be linked to children's EPB through father involvement.

In addition to the stress caused by reduced father involvement, researchers have found that changes in the co-parenting relationship explain some of the association between union instability and children's EPB. A study of 2,394 using FFCW data found that mothers' reports of co-parenting support with her child's father declined when she had a new partner (Martin et al., 2013), suggesting that a change in family structure (union instability) might influence children through parent's co-parenting. Also using FFCW data, a study found that maternal reports of co-parenting support are comparable across family structures when parents' relationship is stable (Hohmann-Marriott, 2011). A study using a national sample of 5,650 children born in the U.S. found that children from married and cohabiting homes have comparable mother reported social competence when their mothers also report high levels of co-parenting support (Cabrera et al., 2012). These findings collectively suggest that positive co-parenting may buffer the socio-demographic stress associated with union instability. This evidence identifies co-parenting as an important mediator between distal subsystems like union instability and children's outcomes.

Mothers are more likely to remain resident with their children than fathers following a separation, but maternal involvement may also change with changes in the family or environmental stress. A large ( $n = 6,450$ ), nationally representative sample of children and their mothers found that, re-coupled divorced mothers (mothers reporting a

dissolution *and* a re-partnering) report less involvement in cognitive stimulating activities with their toddler than single divorced mothers (mothers reporting only a dissolution; Fagan, 2013). Another large ( $n = 2,733$ ) national study of adolescents found that adolescents who report that their mothers experience union instability are less likely to report high involvement (frequent conversation, engagement in activities together) from their mothers than adolescents who report that their mothers are continuously married or cohabiting (Carlson, 2006). Moreover, high quality and quantity of mother-child interactions (e.g., highly responsive, sensitive, and engaged in play and care giving activities) are positively associated with social competence and negatively associated with EPB in early childhood (e.g., Cabrera et al., 2007; Denham et al., 2000). These findings identify maternal involvement as an important mediator between distal subsystems like union instability and children's outcomes.

In summary, there have been co-occurring trends in changing family composition and increasing EPB in U.S. over the last 40 years. Thus, much attention has been paid to how family structure and changes in the family (e.g., union instability) influences children's EPB. Father residence, involvement of non-resident fathers, co-parenting support, and mother involvement explain some of the association between union instability and children's EPB. One limitation of the reviewed studies is that the effect sizes of each family characteristic are difficult to discern; according to family systems theory each distal factor has spillover effects into other subsystems, thereby producing widespread influence on children and potentially having large effects on children's EPB. However, most studies do not provide effect sizes of each variable, but rather a model as

a whole. Thus, how much of children's EPB is explained by union instability is unclear. This is the focus on my research.

***Marital status.*** While many proximal mechanisms may explain why changes in family structure – or union instability – are associated with children's EPB, whether or not mothers are married *before* their change in family structure may change the strength of the association between union instability and children's EPB. One would expect marital status to moderate the association between union instability and children's EPB if the stress of a divorce is different from the stress of a non-marital break up.

Marital status is more than just residence. Residence is important, especially for subsystems related to the father (e.g., father-child subsystem, child adjustment), as research shows children are more likely to have consistent access to and involvement from their residential fathers than non-residential fathers regardless of marital status (Tach, Edin, Harvey & Bryan, 2014). However, children have better social outcomes when they live with married parents versus cohabiting parents. One reason is that married parents are more likely to live with their children longer, providing longer and more consistent emotional support to their children. Research from the past four decades finds that children who *consistently* live with two biological parents (in most studies these are married parents) have better social outcomes than children who live with only one biological parent (Carlson & Manguson, 2011).

Another reason children have better social outcomes when they live with married parents is that married parents have greater economic resources (Census, 2014). In 2013 married households (the census does not differentiate two-biological married or step married households) had an average annual income of \$98,000, whereas in the same year

single-mother (cohabiting or single) households had an average annual income of \$42,000 (Census, 2014). Breaking these numbers down further by educational attainment, couples without a college degree earned significantly less when unmarried compared to their married counterparts, although this association between marital status and income did not hold when couples had a college degree (Fry & Cohn, 2011).

However, greater economic resources do not necessarily translate to better outcomes when children experience their parents' divorce (union instability for married parents). While married couple households earn more than cohabiting or single family households, cohabiting couples are less likely to pool their incomes than married couples, which Tach and Eads (2013) argue makes the economic cost of relationship dissolution proportionally less for cohabiting versus married mothers. Therefore, the economic opportunities lost from a divorce may be greater, and therefore more stressful, than the economic losses from a non-marital separation (Kelly & Emery, 2003).

In addition to this collective evidence suggesting divorce is more economically stressful for children than a cohabiting breakup, there is evidence that the association between union instability and young children's behavioral problems, specifically, is stronger for children born to married parents than for children born to cohabiting parents (Ryan, Claessens, & Markowitz, 2013). A nationally representative sample of 3,492 U.S. youths (aged 3-12) found that children born to married mothers had lower initial mother-reported externalizing behaviors than children born to cohabiting or single mothers, but they had a steeper increase in EPB than their unmarried counterparts following their parents' divorce. This study supports the hypothesis that the association between union instability and children's EPB may be stronger for children of married parents than



children of unmarried parents. However, it does not assess whether the mechanisms that explain why union instability is bad for children are the same for children of married versus unmarried parents. Considering marital status is an inherent context of any family, more research is needed that addresses how marital status may change the association between union instability and children's EPB.

**Mother-father subsystem: Quality of co-parenting.** The mother-father subsystem (e.g., co-parenting alliance – parents' relationship as joint caregivers) has direct and indirect links to children. It should be noted that the co-parenting relationship does not need to be examined only between two biological parents; it can be assessed of any two people who jointly care for a child (Feinberg, 2003). However, most of the research to date has explored the co-parenting alliance between two biological parents and therefore are the focus of this review. Family systems theory posits that the subsystems *within a household* will have an effect on children, not simply the subsystems including biological relatives.

Research on the quality of the co-parenting relationship has suggested that it might be more important for children than the quality of the mother-father relationship because of the proximity to the child (Feinberg, 2003). In fact, studies repeatedly find that observed positive co-parenting (e.g., support) is associated with fewer EPB in childhood (Jia et al., 2012) whereas reports of negative co-parenting (e.g., conflict) are associated with higher EPB (Lee, Beauregard, & Bax, 2005). A study of 122 two-parent White, middle-class families with toddlers found that maternal reports of disagreement about child-rearing is correlated with mother's reports of children's CBCL externalizing scores. The authors suggest that because their sample is low-risk, their findings have

important implications for low- and high-risk populations; if children with few risk factors have higher aggressive and delinquent CBCL scores when their parents' have a conflictual co-parenting relationship, then children with other risk factors will also have higher EPB when their parents' are hostile co-parents. Moreover, these direct links hold after accounting for the indirect associations of harsh and negative maternal behaviors and affect during mother-child observed interactions, supporting the direct association between co-parenting to children's behaviors (Lee et al., 2005). While the findings from this study support the theoretical importance of the direct links from co-parenting alliance to children's behaviors, the findings need to be replicated in diverse samples. It is possible that when children experience multiple sources of risk, the effects of the co-parenting alliance is overshadowed by other family systems in predicting children's EPB. Moreover, this study did not use a longitudinal design, thus the long-term effects of co-parenting conflict on children's behavior have not been tested.

Ultimately, conflict in the co-parenting relationship is associated with more EPB whereas support in this relationship is associated with fewer EPB. Moreover, the co-parenting alliance is likely to change when a family experiences union instability, suggesting it is an important mediator of the association between union instability and children's EPB. However, no study reviewed in this section reported effect sizes, so the quantitative impact of the mother-father subsystem on children's EPB is unknown. Consequently, in this study I model co-parenting support as a mediator that explains the association between union instability and children's EPB.

**Parent-child subsystem.** Much of the research conducted to date on parenting in the U.S. has been conducted with White, middle-class mothers; consequently less is

known about fathers, ethnic minorities, and low-income families. This section reviews the literature on the direct associations between mother-child and father-child subsystems and children's EPB, focusing on parental involvement with their child.

***Father-child subsystem: paternal involvement.*** Generally, how fathers' behaviors, interactions, and involvement influence children's social competence and peer relationships is relatively understudied (Flouri, 2010). However, growing evidence suggests that fathers contribute uniquely to children's social outcomes above the influence of mothers. A study of 96 Black and Latino fathers and their children enrolled in Head Start programs found that father involvement, measured by self-report of the frequency of engagement in activities such as cognitive stimulating, care giving, and play activities with his toddler, is negatively associated with mother-reported externalizing behaviors (measured with the Social Skills Rating Scale - SSRS - externalizing behaviors subscale) 2 years later (Fagan & Iglesias, 1999). Another study of 1,147 mostly White, middle-class adolescents found that adolescent report of his/her father's involvement was associated with fewer adolescent-rated bullying behaviors (Flouri & Buchanan, 2003). While the direct link between self-reported father involvement and children's social competence does not elucidate what about a father's engagement with his child protects against EPB, these studies illustrate the importance of examining how fathers contribute to their children's social development.

While self-reports of fathers' involvement with their children are linked to fewer EPB longitudinally and cross-sectionally, effect sizes are not disentangled from the effect of included covariates, thus making it difficult to discern fathers' unique influence on children's behaviors. Moreover, there is growing evidence that father's involvement

depends on contextual factors. For example, a large study ( $n = 4,898$ ) using FFCW data found that fathers' reports of their involvement with their infant varied by SES (Castillo, Welch, & Sarver, 2011). Another study found that fathers who are more involved and engage in more physical play with their children have children with fewer EPB than less involved fathers, but this association may depend on paternal intrusiveness during play (Flanders et al., 2010). These findings collectively suggest that father involvement, and the link between father involvement and children's EPB may depend on context.

***Mother-child subsystem: maternal involvement.*** Generally, mothers' behaviors (involvement) and the quality of those behaviors provide an integral aspect of a child's developmental context. The literature on the link between maternal involvement and children's behaviors has a long history and is robust. For example, a community sample of 92 ethnically and socioeconomically diverse elementary school children and their mothers found that higher maternal and child reports of involvement (not specified which behaviors were probed) and acceptance were associated with fewer EPB (measured with the CBCL) one year later (Lengua & Kovacs, 2005).

Conversely, research with diverse samples finds direct, positive links between mother's reports of harsh mothering and children's EPB (e.g., Deater-Deckard, Dodge, Bates, Pettit, 1996; Deater-Deckard & Dodge, 1997; Lansford, Deater-Deckard, Dodge, Bates, & Pettit, 2004). Specifically, a study of 336 mother-child dyads (children ranged in age from 6-17 years) across 6 countries found that mother and child reports of physical discipline (e.g., spanking, slapping, grabbing, and beating) were correlated with mother reports of children's CBCL externalizing scores (Lansford et al., 2005). Another study of 453 White and Black families in the U.S. with children followed from pre-kindergarten to

11th grade found, controlling for SES, that maternal reports of physical discipline when children were 5-years-old was positively associated with maternal reports of CBCL externalizing scores at 16 years for White children, but was negatively related to externalizing scores for Black children (Lansford et al., 2004). That is, White children had more aggressive and delinquent behaviors at the end of high school than their mothers reported physical discipline in pre-kindergarten, but Black children had fewer aggressive and delinquent behaviors when their mothers used physical discipline in early childhood. These findings collectively suggest that maternal reports of their behaviors predict children's behavioral problems across diverse samples. Moreover, maternal reports of their positive (involvement in play, literacy), and negative (spanking, discipline) activities are negatively and positively, respectively, associated with children's EPB, which mirrors findings from observational studies of positive and negative mothering. This suggests that maternal reports of their frequency of behaviors with their children can be reliable measures of their involvement.

***Mother-child subsystem: maternal responsiveness.*** Much of the research on maternal involvement has been conducted using observational paradigms of mothers and their toddlers playing or reading. Such research reports similar findings to studies of mothers' reports of their behavior; more involvement in sensitive, warm, and responsive behaviors is linked to early social competence, whereas involvement in intrusive, harsh behaviors is linked to EPB in early childhood (Cabrera et al., 2011; Denham et al., 2000). These findings hold across ethnicity and SES. That is, using an observational protocol, a study finds that White, Black, Latino, and Asian mothers in the U.S. ( $n = 4200$ ) who are observed to be sensitive have toddlers who exhibit more positive affect and sustained

attention, and less negative affect and aggression toward mothers during observed interactions (Cabrera et al., 2011). Another study of 125 British and Indian mothers and fathers with a child between 7 to 9 years of age found similar results; observed parent-child (both mother and father) interactions high in mutually warm and responsive behavior predict lower mother reported CBCL externalizing behaviors (Deater-Deckard et al., 2004). Thus, multiple studies suggest that across samples positive parent-child interactions promote social competence and protect against the development of EPB.

Conversely, mother-child interactions low in observed sensitivity, warmth, and responsiveness are linked to higher EPB in early childhood (Propper, Willoughby, Halpern, Carbone, & Cox, 2007). This association is found within the toddler years and longitudinally (Beyers, Bates, Pettit, & Dodge, 2003; Propper et al., 2007). For example, in a sample of 143 White, middle-class, two-parent families, Denham and colleagues (2000) found that when mothers were rated low on observed measures of positive mothering during interactions with their toddlers (i.e., they did not praise the child, nor did they explain what behaviors they expected, but were not necessarily negative) their children had higher mother reported externalizing problems at 7 years. This study highlights the importance of positive mothering behaviors, not simply the absence of negative mothering, for children's adjustment; children exhibited more externalizing behaviors when their mothers were less sensitive and warm in interactions with them. However, because of the relatively small sample of White, middle-class two-parent families, it is unclear if these results extend to children living in ethnic minority, poor, and single parent households. It is possible that in some contexts where mothers are often stressed (e.g., poverty) children are more sensitive to maternal behaviors. Conversely,

these children may be more affected by their poverty context than the degree of positive parenting they experience.

Overall, the research suggests that high quality mother-child interactions and positive mothering behaviors predict children's social competence in early childhood. While observational measures (e.g., of maternal warmth, responsiveness) are considered the gold standard, researchers also find that maternal reports on the frequency of positive (e.g., reading, playing) and negative (e.g., harsh or physical discipline) involvement also are positively linked to children's social competence and EPB, respectively. One limitation of the reviewed literature is that samples are not diverse, thus it is unknown if these associations are consistent across samples. In this study I model father and mother involvement and maternal responsiveness as mediators that explain the association between union instability and children's EPB.

**Child characteristics: Temperament.** Temperament, broadly defined as the constitutionally based differences in behavior visible from infancy, is directly linked to EPB in early and middle childhood (Rubin et al., 2003; Sanson, Hemphill, & Smart, 2004). Many studies - using a differential susceptibility framework, which suggests that infants with difficult temperaments or certain genetic predispositions are more susceptible to rearing influence than infants of easy temperaments - examine how temperament is a mechanism of influence on a child's EPB development. For example, a study of 1,364 White, middle-class, children followed longitudinally from 2 to 9 years found that children with difficult temperaments are more likely than children with easy temperaments to exhibit problem behaviors in childhood when their mothers reported

more harsh discipline (not defined in this study) compared to children with difficult temperaments whose mothers reported mild discipline (Miner & Clarke-Steward, 2008).

Another study examined two longitudinal samples of children from early to middle childhood, one assessing temperament at the onset of the study and the other assessing temperament retrospectively. The first sample ( $n = 142$  White, middle-class families with infants) followed children from birth to 10 years. The second sample ( $n = 156$  ethnically and economically diverse families with 5-year olds) followed children from the fall of their kindergarten year until they were 11 years old. The procedures for each study were the same; mothers were asked to report on their child's temperament using a common questionnaire, and teachers and mothers reported on children's EPB using the CBCL. Despite differences in samples, the patterns of association were the same for each study explaining between 20-30% of the variance in CBCL scores; maternal reports of children's difficult temperament predicted CBCL scores (average of the teacher and mother reports) at 10 years old. Moreover, when mothers were observed to be low in restrictive control (e.g., warnings, scolding's) during interactions with their child, there was a stronger link between early difficult temperament and EPB in middle childhood (Bates, Pettit, Dodge, & Ridge, 1998). These findings suggest that children of difficult temperaments may need more limitations set by parents and parental control than children of easy temperaments to develop optimally. Moreover, temperament is a robust moderator of the link between observed maternal behaviors and children's EPB longitudinally; the same patterns of association were seen in demographically different samples, and held when temperament was measured concurrently or retrospectively. Lastly, in Bates and colleagues' (1998) study, teacher and mother reports of EPB were



highly correlated and thus were averaged; the researchers suggest that this illustrates the validity of the CBCL and that the pattern of association is evident no matter how EPB are measured.

These studies collectively suggest that temperament is an important context that can heighten or buffer the association between the family context and child EPB. Temperament is robustly and consistently linked to later EPB, and is found to moderate the association between mothering (one source of environmental stress) and children's EPB. The research summarized does not suggest that children with easy temperaments will thrive in neglectful environments, but they may not be at an increased risk of EPB in a suboptimal environment. One limitation of the current literature is that few studies examine how temperament may change the association between family context (e.g., union instability) and children's EPB. A recent study of nearly 5,000 ethnically and socioeconomically diverse families found that children's self-regulation (an aspect of temperament) moderated the association between family structure and children's EPB in early childhood (Cabrera et al., 2014). Thus, temperament may also be an indicator of when the stress of union instability will affect some children more than others.

Another limitation of the extant research is that that temperament as a moderator of the link between parenting and children's EPB is limited to research with mothers. Research has found that mothers and fathers have different pathways of influence on their children (e.g., Cabrera et al., 2007). Yet, if fathers' involvement with their toddlers interacts with temperament is unknown. Theoretically, using family systems and differential susceptibility theories, father-child interactions should be a context to which some children are differentially susceptible.

**Maternal characteristics: Depression.** Parental depression has been robustly and directly linked to children's negative outcomes (Garstein & Fagot, 2003; Goodman et al., 2011). In a sample of 159 White, middle-class, two-parent families, mothers who reported a higher number of depressive symptoms when their child was 5-years old reported more EPB in their children 3 months later than mothers with fewer depressive symptoms (Garstein & Fagot, 2003). Other studies with more generalizable samples also suggest that maternal depression is linked to children's EPB, but that the influence of maternal depression on EPB is small. A meta-analysis of 134 studies revealed that clinician rated maternal clinical thresholds of depression was significantly associated with EPB at all ages (2-18 years considered), accounting for between 1 and 6% of the variance in children's behaviors (Goodman et al., 2011). However, this meta-analysis does not specify if the studies they examined were cross-sectional or longitudinal. Thus, the results support correlational, direct relations, but the directions of association cannot be determined.

Although less extensively studied, there is also evidence that maternal depression may change the way the family or child responds to other stress within the family system. A large ( $n = 7,677$ ), national sample of young children between 2 and 4 years old found that compared to low-income mothers who report higher externalizing behaviors in their toddlers despite their own depressive symptoms, high-income mothers reported fewer behavioral problems in their toddlers only when maternal reports of her depressive symptoms were low. When mothers reported depressive symptoms above the clinical cut off (the same criterion used for the FFCW depression variable), children from both low-income and high-income families had similarly high levels of EPBs (Peterson & Albers,

2001). While no studies were found that examined how maternal depression may buffer the association between union instability and children's EPB, a similar moderating mechanism can be expected. Thus, these findings suggest that when mothers are depressed, their children may have higher EPBs whether or not they experience union instability.

**Control variables.** The literature identifies multiple causes of externalizing behaviors. To isolate the effect of union instability on EPB, and how co-parenting support, father involvement, and mother involvement explain - and child temperament, mother's marital status, and maternal depression changes - the association between union instability and EPB, I control for a host of variables related to EPB.

**Socio-economic status.** Union instability might have links to children's behaviors because it is associated with other distal subsystems that are stressful to children and alter the family subsystems in their everyday life, such as SES. Children living with a single *or* cohabiting mother are more likely to be socioeconomically disadvantaged than their counterparts in married families (Jiang, Ekono, & Skinner, 2014; Manning & Brown, 2006; McLanahan & Sandefur, 1994). Moreover, SES is associated with mother reported CBCL scores (Atzaba-Poria, Pike, & Deater-Deckard, 2004). These studies collectively suggest that SES is correlated with union instability, but also has unique associations with children's EPB; thus I control for SES.

**Race/Ethnicity.** Race is also associated with EPB; minority children are rated, on average, higher on EPB by teachers and parents than their white peers (e.g., Deater-Deckard et al., 1998). Therefore, I control for maternal and paternal race.

***Mother's multipartner fertility (i.e., children with another partner).*** Sociologists use the term multipartner fertility to indicate when a man or woman has more than one child with more than one partner or spouse (Carlson & Meyer, 2014). Multipartner fertility is linked to father involvement, although its direct association with children's EPB has not yet been examined (Tach et al., 2010). Thus, I control for mother's multipartner fertility because it is an important family context that has spillover effects into other subsystems, namely father involvement.

***Mother's couple quality.*** Both the positive aspects of couple quality (e.g., satisfaction, commitment, intimacy, trust, love; Fletcher, Simpson, & Thomas, 2000) and the negative (e.g., conflict, stress; Hendrick, 1988) are associated with young children's adjustment. Moreover, the extant literature suggests that couple quality has spillover effects into other subsystems (e.g., the mother- and father-child subsystems) and can exacerbate the stress of the family context (e.g., Kaczynski, Lindahl, Malik, & Laurenceau, 2006). Thus, children who experience their parents' couple conflict alone may not have more EPB than their peers with harmonious parents, but parents' relationship conflict coupled with other stresses in the family system is linked to children's EPB. Because all children in the study live with their mothers (and not necessarily with their fathers) I control for mothers' relationship quality with her current partner.

***Child gender.*** Lastly, I control for child gender. Gender socialization theory suggests that boys act more confident, are louder, more hyperactive, and aggressive than girls because they see these behaviors in men around them and are encouraged to act this way (Maccoby, 2000). And, research finds that parents and teachers expect externalizing

behaviors from boys more than from girls and therefore are more likely to tolerate it or even view aggressive behaviors from boys in a positive light (Dishion, Duncan, Eddy, Fagot & Fetrow, 1994; Dodge, Pettit, & Bates, 1994). These gender differences in socialization are reflected in mother reports of children's behavior. Boys on average have higher EPB than girls (mostly maternal reports; Keiley et al., 2000; Mokrue, Chen, & Elias, 2011).

### **Summary**

My review of the literature on how union instability is related to children's EPB revealed several gaps and offered several directions for research. Overall, the reason why family change (i.e., union instability) is associated with EPB, a key issue of concern to policymakers interested in promoting child wellbeing, is unclear. Emerging data on the influence of union instability, or family structure, provide compelling evidence that changes in the demographic composition of families in the U.S. are an important source of influence on children's social development. However, my literature review revealed mainly direct associations between union instability and children's EPB and little on the mechanisms that explain this association. Research on family structure has until recently been dominated by sociologists who tend not to examine the mechanisms by which family structure influences children's development. Developmental scientists interested in change over time bring this perspective to instability research and ask, what is the mechanism that explains why union instability is associated with children's behavioral maladjustment? Research is needed that brings together population studies and developmental psychology so that scholars have a more complete understanding of how

broader social constructs that influence children's daily lives and routines are actually impacting children's development.

Developmental scientists have highlighted several family systems that are important and robust predictors of children's behaviors, and also change in the context of union instability. Specifically, co-parenting support, father involvement, mother involvement, and maternal responsiveness are the most proximal processes to a young child, strongly shaping his or her development. When the mother-father romantic and residential relationship changes, these family systems experience spillover effects, often resulting in lower quality interactions between mothers and fathers (e.g., co-parenting) and each parent and the child (father and mother involvement, mother-child relationship quality). Yet, these systems have not been examined explicitly as mediators of the association between union instability and children's EPB.

Maternal characteristics may also change the association between union instability and children's EPB by buffering or exacerbating the stress of union instability on children. For example, research finds that children have better social outcomes when they spend their entire childhood living with both biological parents (mostly married), and researchers have argued that resident (again, mostly married) fathers' commitment to their children is what promotes their social wellbeing (Carlson & Magnuson, 2011). Thus, a divorce may be more disruptive to the family and child than the breakup of a cohabiting relationship, exacerbating the positive association between union instability and children's EPB. Moreover, mother's psychosocial characteristics, specifically depression, may exacerbate the positive association between adverse environments or stress (such as union instability) and children's EPB. Interdisciplinary research that

bridges demography with developmental science may start to unpack the familial mechanisms that explain why demographic characteristics of the family influence children's development.

Along these lines, it would also behoove us to include children into studies of family change. Children are not passive observers; they are changed and also cause change to family process through their temperaments (i.e., how they respond to parenting). Studies that examine temperament find important interactions that elucidate why parenting and family contexts are not associated with developmental outcomes for all children.

### **Directions for Research**

An important conclusion from this review is that family change has consequences not just for mothers and children but also for fathers. In particular, changes in family are linked to how fathers relate to mothers in their parenting role (co-parenting) and how fathers relate to children as parents (father involvement). There is also a demographic imperative to study fathers, as family composition is changing in the U.S. and not all children can expect to live with their fathers throughout childhood. Researchers need to understand when father involvement, particularly with nonresident fathers, benefits children and when it does not. Understanding how a father's involvement promotes social competence in his children in the context of father nonresidence and other family processes (e.g., mothering, co-parenting) will help this agenda.

Moreover, the literature suggests children account for much of the variability in their own behaviors (e.g., behaviors are stable over time), and that how they respond to their environments shapes their developmental context. Specifically, temperament is a

strong predictor of social outcomes because it is an early constitutional indicator of a child's behavior. Yet, many studies do not account for children's influence in their development. Future research should consider the child as an important mechanism of influence when studying social outcomes.

There is also the need for future research that combines multiple sources of influence to provide a more complete picture of the family systems that influence children's social development. Family systems theory emphasizes the interrelated nature of each family subsystem and the idea that children cannot be understood outside of their family context. For example, the parent-parent and parent-child subsystems influence the child, and the environment also can have profound effects on each subsystem and the child. Yet few studies examine multiple subsystems at once. While more research is needed within each individual subsystem, particularly with minority and low-income populations, research is also needed that provides information about how each subsystem works in tandem to influence a child's development.

Lastly, research is needed that examines the longitudinal predictors of externalizing behaviors. Family systems theory stipulates that the family system is dynamic, reciprocal and changes over time. The family system in toddlerhood is not expected to be the same family system in middle childhood or adolescence. Most of the studies reviewed utilize longitudinal data, but few studies explore how the early family system predicts middle childhood EPB. Research is needed that goes beyond correlating retrospective reports of toddlerhood aggressive behaviors to later childhood outcomes. I conducted a study that addresses these gaps in the literature and directions for research. The next chapter details the methods for my study.



## Chapter 3: Methods

### Data Source

I used data from the Fragile Families and Child Wellbeing (FFCW) study, a national study that follows a cohort of 4,898 children born between 1998 and 2000 in 20 U.S. cities with populations of 200,000 or more (Bendheim-Thoman Center for Research on Child Wellbeing, 2014a). The FFCW uses a stratified random sample of 77 cities. Stratified sampling divides the population into smaller groups (strata), which are formed based on members' shared characteristics. A random sample from each stratum is taken in a number proportional to the stratum's size when compared to the population. Therefore, it produces sample characteristics that are proportional to the overall population (Reichman, Teitler, Garfinkel, & McLanahan, 2001).

To recruit the sample, hospitals were identified in each city by their rank order of number of nonmarital births and then recruited until 75% of nonmarital births in each city were sampled (i.e., the researchers oversampled nonmarital births). This led to three stages of sampling: first cities, then hospitals within the cities, then births within hospitals. Within each recruited hospital, a hospital clinician working with the study researchers identified all recent mothers, and a random sample of them was approached for participation. Mothers who agreed to participate in the study were screened with a set of 8 questions to determine their eligibility prior to administering the baseline survey. The set of questions included information about mothers' marital status, age, their plans to keep their baby or give it up for adoption, and the status of their baby's father (e.g., whether he was alive). Mothers who were younger than 18 years of age, planned to give up their baby for adoption, who did not speak English or Spanish, and whose baby's

father was deceased were excluded from the study. Once their eligibility was determined, mothers were asked to sign a consent form at the hospital. Baseline interviews with mothers were completed until the quotas for married ( $n = 1,100$ ) and unmarried ( $n = 3,800$ ) mothers were reached. Fathers were considered eligible once mothers signed the consent form. At the hospital, mothers were asked to help locate the fathers, but fathers were recruited without the mothers' help if necessary. Twenty-nine mothers reported that their baby's father was unknown (.6%). Researchers attempted to recruit the remaining fathers (99.4%). Fathers were approached in the hospitals or by phone to participate unless their circumstances (e.g., if they were incarcerated) dictated they were interviewed elsewhere (Bendheim-Thoman Center for Research on Child Wellbeing, 2005).

Mathematica Policy Research (MPR) was contracted to train field researchers, recruit mothers, and complete all data collection. Data collection at each wave consisted of interviewing mothers and fathers (separately, at birth and 1, 3, 5, and 9 years), direct child assessments (at 3, 5, and 9 years) children's reports of their own behaviors (9 years), and teachers' reports of the school environment and children's classroom behaviors (5 and 9 years).

## **Procedures**

**Interviewing mothers and fathers.** The mother of the focal child was interviewed in person at the hospital within 48 hours of the child's birth (baseline survey) and again by telephone when the child was 1, 3, 5 and 9 years old. Fathers were interviewed in person at the hospital or by phone within one week of their child's birth (baseline survey), depending on the father's preference. Mothers and fathers completed surveys by phone for 1, 3, 5 and 9 year interviews (lasting on average 42 minutes). If

mothers or fathers could not be reached by phone, field researchers attempted to interview them in person. Starting at 3 years, mothers were also interviewed about their child's development and their child was assessed in the home. Seventy-eight percent of mothers who completed the year 3 survey also agreed to the in-home assessment. Participants were paid \$30 for completing surveys (by telephone or in person), and \$50 for completing in-home assessments. The response rate at baseline (i.e., mothers on whom there are *complete* data) was 82% for unmarried mothers and 87% for married mothers, which was calculated as the percentage of all eligible mothers ( $n = 4,898$ ) who provided complete interviews ( $n = 4,212$ ). Eighty-seven percent of all mothers participated in the first four waves. For fathers, the response rate at baseline was 75% for unmarried fathers and 80% of married fathers; 70% of all fathers participated in the first four waves (Bendheim-Thoman Center for Research on Child Wellbeing, 2005).

At each wave, trained researchers interviewed mothers and fathers about the following topics (same for mothers and fathers): socio-demographic information (e.g., education, income, employment, race, country of origin, who the parent lives with, who the child lives with), child well-being (e.g., child's physical health), parenting behaviors (e.g., frequency of care giving), parents' perceptions of their relationship with their child's other parent *and* their current partner (e.g., quality of couple relationship, co-parenting), parent's support from family and friends (e.g., social and economic support), program participation and receipt of welfare (e.g., housing, participation in welfare, incarceration), and health and health behavior (e.g., health problems, drug and alcohol use).

**Children's in-home assessments.** Children's in-home assessments included maternal reports, researcher reported and assessed measures, and children's own reports of their behaviors (Bendheim-Thoman Center for Research on Child Wellbeing, 2014b). All child assessments were conducted in the home and lasted on average 60 minutes.

*Maternal reports of children's behaviors* were collected at 1 year (temperament) and at 3, 5, and 9 years (e.g., nutrition and health, behaviors, emotional development, attachment, discipline practices, and family routines).

*Children's assessments* (e.g., "walk-a-line", Woodcock-Johnson, Peabody Picture Vocabulary Test, and LEITER-R; Dunn & Dunn, 1997; Kochanska, Murray, & Harlan, 2000; Roid & Miller, 1997; Woodcock & Johnson, 1990) were conducted at 3 and 5 years by trained researchers. These assessments measured language and regulatory development.

*Researchers reported on the home environment* using the Home Observation for Measurement of the Environment (HOME) scale (Caldwell & Bradley, 1984). The HOME scale provides researchers' report of the quality and quantity of emotional, social and cognitive support available to the focal children in their home.

*Children's reports of their own behaviors* were collected at 9 years. Children were interviewed about their relationship with their parents, discipline, sibling relationships, routines, school, and their own behaviors and health.

**Teacher interviews.** Teachers were interviewed at 5 and 9 years about childcare and early education including children's academic skills, classroom behavior and social skills, classroom characteristics, class resources and activities, school environment and their background as teachers.

## **Appropriateness of FFCW to Address my Research Questions**

The FFCW dataset is ideal for my study for at least three reasons: (1) it is comprised of a large sample of low-income families, providing the power I need to carry out statistical analyses while controlling for a host of variables. The ability to control for covariation between my variables of interest (change in family structure or union instability) and children's behaviors allows me isolate the influence of union instability from the influence of a myriad of contextual variables that may also play a role in children's behaviors. (2) It includes a wealth of data on socio-demographic characteristics (e.g., residential romantic relationships), family processes (e.g., father and mother engagement in activities with their children, co-parenting support), and children's social adjustment (temperament, CBCL externalizing problem behaviors) over the early childhood period (birth to 9 years). Concurrent associations between family structure and children's outcomes are well documented. What has been less examined is how experiencing union instability in the early years influences children's behaviors at 9 years (entry into middle school), an important developmental period. And, (3) it allows me to ask a policy-relevant question about how low-income fathers matter for their children's development using family structural data that are difficult to collect with small-scale studies. The FFCW data are publically available and were collected through a collaboration between Columbia and Princeton Universities.

### **Sample**

Of the total baseline (at child's birth) sample of  $n = 4,898$  mothers (with 4,898 children and 3,851 fathers), I excluded  $n = 1,428$  (29%) cases because they did not have national sample weights. Thus, they could not be included in analyses that use weights to

make the sample representative (see weights, p. 68). Additionally, I excluded  $n = 26$  (<1%) cases because these mothers reported that they never planned to live with their child and  $n = 57$  (1.16%) cases because the Mahalanobis distance computation (Hair, Anderson, Tatham, & Black, 1995) identified them as multivariate outliers (i.e., they had an unusual combination of scores on union instability, co-parenting support, father involvement, mother involvement, maternal responsiveness, child temperament, maternal marital status, maternal depression, and child EPB). The final analytic sample included 3,387 children who resided with their biological mothers at birth. Thus, my findings generalize to children who were living with their biological mothers after birth in large U.S. cities.

## **Measures**

Table 1 contains a list of all study measures, including method of assessment, scale, and how it is used in the model (independent, dependent, mediators, moderator, and controls). Figures 1 and 2 show how these variables are theoretically linked to one another.

**Dependent variable.** *Children's externalizing behavior problems (EPB)* at 9 years were measured with the externalizing subscale of the Child Behavior Checklist (CBCL; Achenbach, 1992). The CBCL is widely used in research and has acceptable validity and reliability ( $\alpha = .87$ ) in population samples (Rescorla et al., 2007). EPB include aggressive and rule breaking items. Mothers were asked to rate 19 aggressive items and 18 rule breaking items on a 3 point scale: 1 = *not true*, 2 = *somewhat true*, 3 = *very true*. Examples of aggressive behaviors include "Child is cruel, bullies, or shows meanness to others," "Child physically attacks people," and "Child has temper tantrums

or a hot temper.” Examples of rule breaking behaviors include “Child drinks alcohol without parents’ approval,” “Child doesn’t seem to feel guilty after misbehaving,” and “Child breaks rules at home, school, or elsewhere.” The aggressive and rule breaking items were then summed for a composite measure of each aspect of EPB (see Figure 1).

**Independent variable.** *Union instability* (measured between 3 and 5 years) was operationalized as the number of times mothers reported transitioning from one relationship status (e.g., single, cohabiting, married) to another (e.g., single/married, single/cohabiting, cohabiting/single, married/single; Fomby & Osborne, 2010). For a change in relationship status to be counted it needed to involve a change in romantic *and* residential status of the relationship (i.e., a change from cohabitation to marriage is not considered to be a transition because the couple did not change residence). Thus, union instability was assessed as the frequency with which mothers reported a change in their residential and romantic relationship between child 3 and 5 years.

At 3 and 5 years, mothers were asked whether they were residing with their child’s biological father and whether they were residing with a new partner. To code for union instability, each maternal reported change in residential/romantic partnership (e.g., father moves out, new partner moves in) was given a value of one. At 5 years, mothers were coded “0” if they reported no change in their residential/romantic relationships since 3 years. Mothers were coded “1” if they reported one new residential/romantic arrangement (e.g., biological father moved out) since the last wave (when their child was 3 years). Mothers were coded “2” if they reported two changes to their residential/romantic arrangement (e.g., biological father moved out *and* a new partner moved in).

At 5 years, mothers were also asked how many romantic partners they have lived with for more than one month since the last wave (3 years). This information was incorporated into the coding described above. For example, if mothers reported at 3 years that they lived with the biological father, at 5 years they lived with a new partner, and also reported at 5 years that they lived with 3 partners since 3 years for at least 1 month, they were coded “4”. This code comes from the mother-biological father dissolution (1), re-partnering (2), new partnership dissolution (3), and currently living with a romantic partner (4). The resulting code yields a highest value of 6 family structure (union) changes between 3 and 5 years.

**Mediating variables.** *Co-parenting support* (measured at 5 years) was hypothesized to explain the association between union instability (measured between 3 and 5 years) and children’s EPB at 9 years. To assess co-parenting support, at 5 years mothers were asked 6 questions about whether they felt supported by their child’s biological father in their role as mother using a 4-point scale: 1 = *always*, 2 = *sometimes*, 3 = *rarely*, or 4 = *never*. The six questions addressed the mothers’ trust that the child will be cared for by the father, whether the father respects and supports the decisions the mother makes regarding the child, and about the communication between parents about raising a child. The six questions were reverse coded so that higher scores indicate more co-parenting support; they were summed and then averaged for a composite score of co-parenting support. Alpha for this scale is .85.

*Father involvement* and *mother involvement* (measured at 5 years) were also hypothesized to explain the association between union instability (between 3 and 5 years) and children’s EPB at 9 years. Father and mother involvement were measured with 8



questions that ask each parent how many days per week (0-7) (s)he plays games, sings songs, tells or reads stories, takes child to visit relative, puts child to bed, or shows physical affection when the child is 5 years old. The 8 questions gather information on activities parents do with their children such as engaging in play, engaging in cognitive stimulating activities (e.g., reading), and care giving (e.g., putting child to bed). The 8 questions were summed and then averaged for a composite score of father and mother involvement. Alpha for father involvement is .76; alpha for mother involvement is .80.

*Maternal responsiveness.* Maternal responsiveness was hypothesized to explain the association between union instability and children's EPB. Maternal responsiveness was measured with the HOME (Home Observation for Measurement of the Environment; Caldwell & Bradley, 1984). The HOME consists of several subscales – parental responsiveness, lack of hostility, verbal skills, home interior environment, condition of surrounding block, and home exterior environment. For this study I used the parental responsiveness subscale, which consists of 8 questions answered yes/no that assessed how warm and responsive the observed mother-child interaction was. Sample questions include “parent encourages child to contribute,” “parent caresses, kisses, or hugs child,” and “parent praises child twice during visit”. The HOME parental responsiveness scale was summed then averaged for a composite score of maternal responsiveness. Alpha for maternal responsiveness is .81.

**Moderating variables.** At 1 year, *child temperament* was measured using the Emotionality, Activity, and Sociability Temperament Survey for Children (EAS; Buss & Plomin, 1984). The EAS is commonly used in large-scale studies (e.g., Russell, Hart, Robinson, & Olsen, 2003) because of its robust psychometric properties (Mathiesen &

Tambs, 1999; Rowe & Plomin, 1977). It is intended to assess the degree of behavioral difficulty children display (e.g., getting upset easily, fussing, reacting strongly; Rowe & Plomin, 1977). Mothers were asked to use a 5-point scale (1 = *not at all like my child*; 5 = *very much like my child*) to answer a set of six questions including “[My child] reacts strongly when upset,” “[My child] gets upset easily,” and “[My child] often fusses and cries.” Higher scores indicate more difficult temperament and lower scores indicate less difficult temperament. The EAS has two subscales: shyness ( $\alpha = .45$ ) and emotionality ( $\alpha = .60$ ). Because the shyness subscale has a very low alpha, for this study, I used the emotionality subscale. The three items were summed then averaged for a rating between 1 and 5 indicating how emotional children are, with higher scores indicating more emotionality/ difficult temperament.

A robust body of research shows that children who might be described as having difficult temperament (i.e., are easily upset or have difficult soothing themselves) are more likely to experience difficulties in coping with new changes such as when father moves out (e.g., Cabrera et al., 2014; Lengua, Wolchik, Sandler, & West, 2000). To understand how child temperament changes the association between union instability and EPB, I ran a moderated mediation analysis centering the continuous variable of *child temperament* and computing an interaction between co-parenting support and temperament, father involvement and temperament, mother involvement and temperament, and maternal responsiveness and temperament. As my research question is how children’s temperament buffers (or exacerbates) the *indirect* association between union instability and children’s EPB, I assessed how temperament moderates the direct paths to aggressive and rule breaking behaviors within a larger mediation model. The

interaction term indicates how the association between union instability and children's aggressive and rule breaking behaviors through co-parenting and parenting changes when children's temperament is one standard deviation above the mean (because children's temperament was mean centered).

*Maternal depression* was derived from the Composite International Diagnostic Interview - Short Form (CIDI-SF), which was administered when the child was 5 years old. Mothers were asked two screener questions to determine whether they met criteria for depressed mood and/or anhedonia (lack of pleasure), then were asked follow up questions about further symptoms. Mothers were coded as depressed (1 = meets criteria for clinical depression) if they endorsed three or more additional symptoms (out of 7). The FFCW researchers coded participants based on the CIDI-SF criteria (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998), and included a variable in the data set coded 1 = meets criteria for clinical depression.

To understand how maternal depression changes the indirect association between union instability and EPB, I ran a moderated mediation analysis by computing an interaction between maternal depression and union instability. As my research question is how maternal depression exacerbates (or buffers) the *indirect* association between union instability and children's EPB, I assessed how maternal depression moderated the direct paths from union instability to each mediator (co-parenting support, mother involvement, father involvement, maternal responsiveness) within the larger mediation model. The interaction term indicates how the associations between union instability and co-parenting and parenting (father involvement, mother involvement, and maternal

responsiveness) change when mothers are depressed (because the variable was dummy coded), which explains children's rule breaking and aggressive behaviors.

*Maternal marital status* was also dummy coded (1 = married), and was derived from mother's reports of her relationship status. Mother's reports of her relationship status when the child was 3 years old were used, as this captures mother's relationship status before the measured union instability. Married mothers are less likely to experience union instability (Cavanagh & Huston, 2006; Fomby & Cherlin, 2007), which may make a divorce more stressful than a nonmarital break to the family system.

To understand how marital status changes the indirect association between union instability and EPB, I ran a moderated mediation analysis by computing an interaction between marital status and union instability. As my research question is how marital status exacerbates (or buffers) the association between union instability and children's EPB, I assessed how marital status moderated the direct paths from union instability to each mediator (co-parenting support, mother involvement, father involvement, maternal responsiveness) in the larger mediation analysis. The interaction term indicates how the associations between union instability and co-parenting, father involvement, mother involvement, and maternal responsiveness change when mothers are married (because the variable was dummy coded), which explains children's rule breaking and aggressive behaviors.

**Control variables.** To isolate the association of union instability to children's EPB, I controlled for 3 sets of variables known to be related to children's EPB: demographic, child, and family characteristics. These covariates are related to children's EPB in the literature (Cabrera et al., 2011; Tach et al., 2010). *Demographic controls*

include mother and father ethnicity (measured categorically: White, Black, Latino, other), education (measured categorically: no formal schooling, 8<sup>th</sup> grade or less, some high school, high school diploma, some college, technical or trade school, college degree, graduate or professional school), age (measured continuously), mothers' poverty status (1 = meets criteria for poverty), and whether mothers had a new child with a new partner since the focal child's birth (1 = new child).

*Child level controls* included gender, age (in months) when their mothers rate their behaviors, and 3 years CBCL scores. I controlled for child gender as boys on average have higher EPB than girls (Campbell et al., 2000), and child age at the time of assessment because children's EPB tend to decline with age (NICHD, 2004). I also controlled for externalizing scores at 3 years because early behavior is strongly related to later behavior (stable over time, Bongers et al., 2004); thus controlling for early behaviors can help determine the amount of variance in 9 year EPB due to union instability.

*Family level control variables* included couple quality and union instability between child 5 and 9 years because both have been linked to EPB (Cabrera et al., 2012; Fomby & Osborne, 2010). In the FFWC couple quality was assessed by asking mothers 5 questions about their current relationship quality (summed and averaged for a single composite measure of couple quality). Union instability was constructed based on mother's reports of her romantic, residential relationships at 5 and 9 years (she was asked whether she lives with her current partner at both waves, and whether that partner is the same as from the last wave), and a question about how many residential relationships she had between waves. Union instability between 5 and 9 years ranges from 0-6.

## **Analytic Plan**

To test the model (see Figures 1 and 2), I ran a *measured variable path analysis*. *Path analysis* is appropriate because it tests a theoretical model and allows me to assess the theoretical causality of the longitudinal associations between union instability in early childhood, co-parenting support, father and mother involvement, maternal responsiveness at 5 years, child temperament at 1 year, maternal marital status at 3 years, maternal depression at 5 years and child EPB at 9 years. Moreover, path analysis is preferred to regression when there are multiple predictor variables (in this case the independent variable, multiple mediators, and a moderator) and when there is a sufficiently large sample size. Path analysis output separates the structural (i.e., direct and indirect effects) and nonstructural paths (i.e., unanalyzed effects between my variables of interest, such as the path from union instability to EPB through the control variables; Alwin & Hauser, 1975). This analysis provides more detailed information about the unique effects among the variables of interest than regression, as well as total effects of how family change influences EPB.

*Measured variable path models* test the association between endogenous variables, in this case union instability between 3-5 years (independent variables in regression parlance) and children's EPB at 9 years through its association with co-parenting support, father involvement, mother involvement, maternal responsiveness (5 years), interactions between marital status and union instability, maternal depression and union instability, and child temperament and the mediators (co-parenting, mother/father involvement, and maternal responsiveness), and controlling for exogenous variables (control variables; measured at birth, 3, 5 or 9 years) including mother and father

ethnicity, education, age, mother poverty status, new child status, couple quality with her current partner, union instability between 5 and 9 years, child age, gender and year 3 externalizing CBCL score.

I compared several measured variable path models. To address research question 1, I compared the model in Figure 1 with and without a direct path from union instability to children's aggressive behaviors, and a direct path from union instability to children's rule breaking behaviors. This comparison tested the hypothesis that union instability was *indirectly* associated with children's aggressive and rule breaking behaviors through co-parenting support, mother/father involvement, and maternal responsiveness. I assessed which model had better fit indices by comparing the  $\chi^2$  of each model. The model with the lower  $\chi^2$ , if statistically significant, or the more parsimonious model if the  $\chi^2$  was not statistically significant, was used in subsequent analyses.

To address research question 2, I then tested the direct paths from union instability to my mediators (co-parenting support, father involvement, mother involvement, and maternal responsiveness), and the direct paths from my mediators to children's aggressive and rule breaking behaviors. These paths multiplied together determine whether *these specific mediators* explain the association between union instability and children's aggressive and rule breaking behaviors. According to recent statistical research (Hayes, 2009; Zhao, Lynch, & Chen, 2010), a statistically significant direct association between independent variable and dependent variable is not needed to test a mediated association. This is contrary to the commonly used Baron and Kenny (1986) test of mediation. However, as this statistical evidence is more recent and supported by multiple statisticians, I test the mediational research question with tests of

the indirect paths regardless of the outcome from the model comparison testing the direct paths from union instability to children's aggressive and rule breaking behaviors.

Next to address research question 3, I compared the model in Figure 2 with and without marital status as a moderator and maternal depression as a moderator. Child temperament is robustly indicated as a characteristic that can buffer or exacerbate a child's response (i.e., their EPB) to stress. Thus I consistently modeled it as a moderator. However, maternal marital status and depression are less robustly indicated as moderators of this association. The data may fit a model better where marital status and maternal depression are not modeled as moderators, but rather included as linear controls or predictors. I assessed which model had better fit indices by comparing the  $\chi^2$  of each model. The model with the lower  $\chi^2$ , if statistically significant, or the more parsimonious model if the  $\chi^2$  was not statistically significant, was used.

Then to test whether marital status, depression, and child temperament moderated the indirect association between union instability and children's EPB (if determined through model comparisons to be moderators and not linear controls), I interacted maternal marital status and depression with union instability and I interacted child temperament with the mediating variables. Because there is no direct path between union instability and children's EPB, to test whether maternal depression, marital status and child temperament moderated this association I had to interact maternal depression, marital status and child temperament with the paths from union instability to the mediators, or the mediators to children's EPB. Because union instability is expected to be more stressful for depressed mothers and married mothers (and therefore influence children through parents' altered co-parenting or parenting), I modeled mothers'



depression and marital status as interacting with union instability. However, children's temperament is expected to change the way children *respond* (e.g., their EPB) to changes within the family. Therefore, I modeled children's temperament as interacting with the mediating variables (i.e., co-parenting, father involvement, mother involvement, and maternal responsiveness) to predict children's EPB.

**How does path analysis work?** Path analysis is an extension of multiple regression and provides estimates of the magnitude and significance of hypothesized causal pathways between sets of variables. It does this by comparing the *sample* covariance matrix to the estimated *population* covariance matrix. The difference between the sample and population covariance matrices gives an indication of model fit. If the model's data fit is good, it suggests that the sample and population covariance matrices are very similar (Hu & Bentler, 1999). To test model fit, I used the comparative fit index (CFI), the root mean squared error of approximation (RMSEA), and the standardized root mean square of the residual (SRMR) as indicated by Hu and Bentler (1999). The CFI is an incremental index of fit that compares the hypothesized model to a null model (one in which there are no causal paths between variables). A CFI  $\geq .95$  is ideal. The RMSEA is a parsimonious index of fit that determines how well the hypothesized model fits the data while taking into account the degree of parsimony of the model. Thus, if the model fits well compared to a null model (CFI  $\geq .95$ ) but there are multiple variables in the model that do not explain children's behavior (i.e., were not significant), the RMSEA reflects the fact that the model is unnecessarily complex. RMSEA values get worse as models get more complex. Ideal RMSEA values are  $\leq .06$ . The SRMR is an absolute fit index. An

SRMR  $\leq$  .06 is ideal (Hu & Bentler, 1999). The CFI is not available when replicate weights are used in Mplus; therefore it is reported when possible.

The model was estimated using Full Information Maximum Likelihood (FIML) in Mplus version 7.3 (Muthén & Muthén, 2012). FIML adjusts for missing data on all variables by quantifying the relative probability of a participant's vector of values given a particular model-implied covariance matrix. The goal of the estimation is to identify the population parameter values that are most probable given the sample covariance matrix (Enders, 2013). I adjusted standard errors using bootstrapping to ensure the standard errors, and therefore significance tests, were not biased.

**Preliminary analyses.** In preparation for the analysis, I ran descriptive analyses on all study variables. This process revealed that all continuous variables are normally distributed. Analyses of categorical variables revealed that there was very little variability in mother's reports of her current relationship quality at 5 years (over 99% of mothers were reporting the highest possible relationship quality, or refusing to answer the questions). At 3 years there was sufficient variability, but further analyses revealed that mothers relationship quality was highly correlated with her marital status ( $r = .78$ ). Thus, in this sample mothers who were married were the ones overwhelmingly reporting high relationship quality. Mother's relationship quality (at 3 years) was therefore omitted as a control variable in the model as it was acting as a proxy for relationship status, which is modeled as a moderator.

It is possible that not every linear combination of the variables of interest is normal (multivariate normality; Finney & DiStefano, 2013). To adjust for *multivariate* non-normality I used robust standard errors as recommended by Finney and DiStefano

(2013). I also confirmed the validity of the father involvement, mother involvement, maternal responsiveness (HOME), and co-parenting support scales using confirmatory factor analysis and calculating coefficient  $H$  – a measure of construct reliability (Hancock & Mueller, 2001), before I completed the measured variable path analysis (see results section). I also confirmed the validity of the CBCL – aggressive and rule breaking behavior scales – by calculating Cronbach’s alpha and McDonald’s omega for my sample.

**Weights.** One of the benefits of using representative data is that the resulting analysis can say something meaningful about the population from which the sample was drawn. To be able to generalize, path analysis must include sample weights. Sample weights adjust for the non-independence of sample members. Using sample weights enables me to generalize the findings of this analysis to the population of children born in the 77 U.S. cities with populations above 200,000 between 1998 and 2000. FFCW researchers have calculated 3 national sample weights, with 33 replicate weights for each of the 3 sample weights to be used in analysis (Bendheim-Thoman Center for Research on Child Wellbeing, 2008). For this analysis, I used the mother sample weights<sup>1</sup> from the baseline (child birth) survey because it weights all mother survey questions and has the largest sample size (which minimizes missing data). The FFCW researchers suggest using weights from the wave in which the highest response rate is available (Bendheim-Thoman Center for Research on Child Wellbeing, 2008). The FFCW researchers also suggest using couple weights when mother and father survey data are used, however recent research suggests that the use of weights with the highest response rates (in this

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<sup>1</sup> I refer to the 34 weights (1 sample weight and 33 replicate weights) as “weights” throughout the rest of the paper.

case the mother weights) and auxiliary variables to help explain variance in the father survey data (I control for fathers' demographic characteristics) is an acceptable alternative to retain as many cases as possible (Stapleton, 2013).

I addressed the categorical and count nature of some of the variables (e.g. EPB) with code in Mplus that identified my non-continuous variables so that the program adjusted its estimation according to the expected distribution of each type of variable (Muthén & Muthén, 2012).

**Setting covariances.** Because fathers and mothers were asked the same set of questions to gauge their involvement with their children, there was reason to suspect that a proportion of the error variance in each involvement variable was co-related. Thus, I allowed the error terms of these variables to covary. I also allowed co-parenting, father involvement, mother involvement, and maternal responsiveness to covary. I modeled all control variables except for children's age at their EPB assessment (modeled as a predictor, but conceptually a control variable) to covary with all endogenous variables (i.e. union instability, father and mother involvement, maternal responsiveness, co-parenting support, child temperament, maternal marital status, maternal depression, and children's EPB). I modeled child's age at their EPB assessment to covary only with children's EPB. Lastly, the error terms of children's aggressive and rule breaking behaviors were allowed to co-vary.

I frame this study using family systems theory that the family context (e.g., union instability) influences children's adjustment (e.g., EPB) because stress from the family context spills over into more proximal family systems (e.g., mother-father, mother-child, and father-child subsystems). Family systems theory also stipulates that context

moderates the association between systems. Thus, I analyze the aims in the following way:

**Analysis for Aim 1.** Aim 1 examines the association between union instability in early childhood (between 3-5 years) and children's aggressive and rule breaking behaviors in middle childhood (9 years).

H1: Children of mothers who report high levels of union instability in early childhood will have more aggressive and rule breaking behaviors in middle childhood (9 years) than children of mothers who report lower levels of union instability, controlling for known covariates.

I will assess this hypothesis by comparing my model with and without a direct path (see Figure 1) from union instability (maternal reports) to children's aggressive and rule breaking behaviors to determine whether the association between union instability and children's aggressive and rule breaking behaviors is indirect. I will compare the  $\chi^2$  of the two models and determine whether the data fit the model with or without a direct path from union instability to children's aggressive and rule breaking behaviors better.

**Analysis for Aim 2.** Aim 2 examines whether co-parenting support, father and mother involvement, and maternal responsiveness mediate the association between union instability and children's aggressive and rule breaking behaviors at 9 years.

H2: Union instability during early childhood (3 –5 years) will be associated with more aggressive and rule breaking behaviors in middle childhood (9 years) *because* it will reduce co-parenting support, father and mother involvement, and maternal responsiveness (mediators).

I will assess this hypothesis with an indirect path from union instability to children's aggressive and rule breaking behaviors through co-parenting support, mother and father involvement, and maternal responsiveness. By multiplying the paths from union instability to the mediators and from the mediators to child aggressive and rule breaking behaviors, Mplus will produce an estimate of the indirect path through the mediators.

**Analysis for Aim 3.** Aim 3 examines whether child temperament, maternal marital status, and maternal depression moderate the indirect association between union instability and child behaviors at 9 years.

H3a: The association between union instability during early childhood (3 – 5 years) and children's aggressive and rule breaking behaviors (at 9 years) will be stronger for children with difficult temperament than for children with less difficult temperament because of reduced co-parenting and parenting.

I will test this hypothesis with interaction terms that evaluate whether children's temperament changes how they respond (their aggressive behaviors) to co-parenting support, father involvement, mother involvement, and maternal responsiveness (see Figure 2). The interaction term will indicate how the associations between co-parenting, father involvement, mother involvement, and maternal responsiveness and children's aggressive behaviors change when children's temperament is one standard deviation above the mean (because children's temperament is mean centered) within the larger mediation model. I expect the interaction terms to be negative, indicating that co-parenting, father involvement, mother involvement, and maternal responsiveness will have a stronger negative association with children's aggressive behaviors when children

have difficult temperaments (1 SD higher than the mean) than when they have easy temperaments (1 SD lower than the mean). Co-parenting support, father involvement, mother involvement, and maternal responsiveness are expected to matter *more* for children of difficult temperaments, but the overall model hypothesizes that union instability will *reduce* co-parenting support, father involvement, mother involvement, and maternal responsiveness. Thus, children of difficult temperaments will be more affected by union instability than children of easy temperaments, because they will be less adaptive to change when family processes are reduced.

H3b: The association between union instability during early childhood (3 – 5 years) and children’s aggressive and rule breaking behaviors (at 9 years) will be stronger for children with depressed mothers than for children whose mothers are not depressed because of reduced co-parenting and parenting.

I will test this hypothesis with an interaction term between union instability and maternal depression (see Figure 2). The interaction term will predict co-parenting support, father involvement, mother involvement, and maternal responsiveness within the larger mediation model. The interaction term will test whether the association between union instability and co-parenting, father involvement, mother involvement, and maternal responsiveness changes when mothers are depressed (because the variable is coded 1 = depressed). I expect the interaction term to be negative, indicating union instability will have a stronger negative effect on co-parenting, father involvement, mother involvement, and maternal responsiveness when mothers are depressed than when they are not, which will explain why the indirect association between union instability and children’s aggressive behaviors is stronger for children of depressed mothers. I will compare the  $\chi^2$

of two models (one estimating the interaction paths in Figure 2 and one with the interaction paths set to 0) to determine whether the data fit the model with or without maternal depression modeled as a moderator.

H3c: The association between union instability during early childhood (3 – 5 years) and children’s aggressive and rule breaking behaviors (at 9 years) will be stronger for children with married mothers than for children with cohabiting or single mothers because of reduced co-parenting and parenting.

I will test this hypothesis with an interaction term between union instability and maternal marital status (see Figure 2). The interaction term will predict co-parenting support, father involvement, mother involvement, and maternal responsiveness within the larger mediation model. The interaction term will test whether the association between union instability and co-parenting, father involvement, mother involvement, and maternal responsiveness changes when mothers are married (because the variable is coded 1 = married). I expect the interaction term to be negative, indicating union instability will have a stronger negative effect on co-parenting, father involvement, mother involvement, and maternal responsiveness when mothers are married than when they are not, which will explain why the indirect association between union instability and children’s aggressive behaviors is stronger for children of married mothers. I will compare the  $\chi^2$  of two models (one estimating the interaction paths in Figure 2 and one with the interaction paths set to 0) to determine whether the data fit the model with or without maternal marital status modeled as a moderator.



## Chapter 4: Results

I organized this chapter in the following way: (1) missing data, (2) testing the assumptions of normality, (3) descriptive statistics, (4) confirmatory factor analyses, and (5) path analyses.

### Missing Data

There was an average of 22.4% missing data on all study variables, ranging from 0% on demographic variables such as age and race to 58% on maternal responsiveness. This level of missingness can be handled successfully with various imputation methods (e.g., FIML; Graham, 2009). The percent of missing data on study variables is as follows: union instability 31%, co-parenting support 30%, father involvement 56%, mother involvement 18%, maternal responsiveness 58%, aggressive behaviors 35%, rule breaking behaviors 35%, mothers' marital status 14%, mothers' depression 16%, child temperament 12%.

The most amount of missing data were on father involvement and maternal responsiveness. The reason for the large amount of missing data on father involvement is because most of the men were nonresident and difficult to locate. The missingness on maternal responsiveness is because fewer mothers (61%) completed the in-home assessment (when observers coded maternal responsiveness) than the telephone interviews (79%). Of the 61% with any available data on the in-home assessment ( $n = 1819$ ), 20% did not complete all of the in-home assessments ( $n = 1450$ ; Bendheim-Thoman Center for Research on Child Wellbeing, 2008).

## Testing the Assumption of Normality

Missing data in Mplus, the statistics software that is used to run structural equation modeling, is handled by using FIML (full information maximum likelihood). FIML is considered an acceptable technique to handle data that are missing at random (Raykov, 2011). Thus, the first step in handling missing data is to determine whether the data are missing at random. If the data are not missing at random, it can introduce bias in the estimates because it suggests that an unobserved variable might be at play that can explain the findings (Graham, 2009).

As per FIML conditions, I first assessed the assumption that the data were missing at random with the analyze patterns function in SPSS and sensitivity analyses. Not surprisingly given the amount of missing data, maternal responsiveness and father involvement showed concerning patterns of missingness suggesting that the data may not be missing at random. Because there were no missing data on measures of ethnicity for mothers and fathers, I conducted  $\chi^2$  tests to determine whether missingness on maternal responsiveness and father involvement were related to mother's and father's ethnicity, respectively. These analyses revealed that mother's ethnicity was significantly related to the likelihood that she was missing data on maternal responsiveness ( $\chi^2(3) = 10.13, p = .02$ ). *Post hoc* analyses revealed that Black mothers were significantly less likely to have a score for maternal responsiveness than White, Latina, and "other" ethnic mothers. There were no significant differences among White, Latina, and "other" ethnic mothers on missingness. Father's ethnicity was also significantly related to the likelihood that he was missing data on father involvement ( $\chi^2(3) = 168.29, p < .001$ ). *Post hoc* analyses revealed that Black fathers were significantly less likely to have reported on their

involvement, than White, Latino, and “other” ethnic fathers. There were no significant differences among White, Latino, and “other” ethnic fathers on missingness. Thus, the missing data on mother responsiveness and father involvement were not missing completely at random, suggesting that the participating sample may be different than the population from which the study sample was drawn. Because for the other ethnic groups the data are missing at random on these variables, overall the data met the assumption for missing at random.

Mplus can use FIML to handle missing data with a few simple commands in the syntax. Essentially, Mplus constructs a likelihood function that accounts for each variable’s contribution to the joint probability of each possible observation. The variables with missing data then are given a value that maximizes (makes as large as possible) the likelihood function (Allison, 2012).

### **Descriptive Statistics**

I ran descriptive statistics and correlations on all study variables. I ran each of these analyses first unweighted and then weighted. The unweighted results provide descriptive information about the analytic sample (see appendix for Table 12 of unweighted descriptive results). The weighted results provide descriptive information for the sample that is representative of children who live with their mothers and were born between 1998-2000 in U.S. urban centers with populations over 200,000. As stated in chapter 3, The FFCW study sampled urban births and oversampled low-income, unmarried births (75% of the sample) in 20 urban centers. The results I present in the sections below are based on weighted data, which means that the results are generalizable to children living with their mothers at birth in large U.S. cities. The only time I used

unweighted data was when I ran analyses to compare models to assess which model fit the data better (e.g., see p. 75 section *path analysis*). Using unweighted data allowed me to compute the statistics ( $\chi^2$ ) I needed to compare models;  $\chi^2$  is not available when using weighted data.

Table 2 shows the weighted descriptive statistics. At the child's birth, mothers and fathers, on average, were 27 and 28 years old, respectively. In terms of education, the percentages for mothers and fathers (respectively) were: 28% vs. 27% had less than a high school degree; 30% vs. 28% had a high school degree, and 42% vs. 45% had at least some college.

The plurality of mothers and fathers were White (38%), followed by Latino (31%), then Black (23%). Twenty percent of mothers reported incomes that fell below the poverty line.

At 3 and 5 years, nearly 60% of mothers were married at both ages (see Table 2), 17% vs. 15% were cohabiting, and 23% vs. 25% were single or in a non-residential relationship (results not shown). The percentage of mothers reporting any union instability decreased from 21% between 3-5 years ( $M = .29$ , range 0-6) to 6% between 5-9 years ( $M = .21$ , range 0-8). Two percent of mothers reported having a new child with a new partner (i.e., not the focal child's biological father) by 5 years (Table 2).

Table 3 shows the bivariate correlations among all study variables. Overall, all study variables were correlated with each other ( $p < .001$ ). Union instability (ages 3-5) was significantly and positively correlated with children's aggressive and rule breaking behaviors at 9 years ( $r = .19$  and  $r = .16$ , respectively) and father and mother involvement ( $r = .08$  and  $r = .05$ , respectively) involvement. Union instability was negatively

correlated with co-parenting support ( $r = -.41$ ) and maternal responsiveness ( $r = -.15$ ). Co-parenting support and maternal responsiveness were negatively associated with aggressive ( $r = -.18$  and  $r = -.30$ , respectively) and rule breaking behaviors ( $r = -.14$  and  $r = -.29$ , respectively). Mother and father involvement were positively associated with aggressive ( $r = .09$  and  $r = .13$ , respectively) and rule breaking behaviors ( $r = .05$  and  $r = .17$ , respectively).

Moreover, all study variables were also significantly correlated ( $p < .001$ ) with all control variables with a few exceptions. Mothers' marital status at 3 years was not significantly correlated with father involvement at 5 years. Maternal depression at 5 years was not significantly associated with child gender or with maternal education at the child's birth. Children's rule breaking behaviors score was not significantly associated with their age at assessment.

### **Confirmatory Factor Analysis**

To determine whether the measures of father and mother involvement, maternal responsiveness, and co-parenting support were good indicators of these constructs, I ran a confirmatory factor analysis (CFA). Running a CFA before the measured variable path analysis also identified whether model misfit (i.e., when the data do not statistically support the associations specified in the conceptual model) was due to individual survey items that were not strongly related to their purported latent constructs.

I conducted a CFA on the following variables: 1) father sings songs, reads stories, tells stories, plays inside with toys, praises, plays outside, takes child on an outing, and watches TV together; 2) mother sings songs, reads stories, tells stories, plays inside with toys, praises, plays outside, takes child on an outing, and watches TV together; 3) mother

talks, verbally answers, encourages, scaffolds, spontaneously praises, uses some term of endearment, conveys positive feelings with voice, and kisses child; 4) mothers' reports that the father acts like the father she wants, is trusted to take good care of the child, respects schedules and rules, supports her in the way she wants to raise the child, talks to her about problems about the child, and can be counted on to look after the child; 5) and, child is fussy, gets upset easily, and reacts strongly when upset. The factors or latent variables corresponding to these items were labeled as follows: (1) father involvement, (2) mother involvement, (3) maternal responsiveness, (4) co-parenting support, and (5) child temperament. All factors were allowed to covary with each other. The error terms of the same indicators (e.g., sings songs) of mother and father involvement were allowed to covary, as the root questions were the same. The model was overidentified with 477 *df*.

The sample variance-covariance matrix underlying the path analysis was analyzed using FIML within Mplus version 7.3. Goodness of fit was evaluated using the RMSEA and its 90% confidence interval (90% CI) and the CFI. The SRMR is not available in Mplus when one or more outcome variables (the items) are categorical (Muthén & Muthén, 2012). Each of the overall goodness-of-fit indices, except the chi-square which can be large due to the large sample size and not data-model misfit (Bagozzi, 1981; Bentler & Bonett, 1980), suggested that the five factor model fit the data well:  $\chi^2(477) = 1677, p < .001$ , RMSEA = .023 (90% CI = .022 - .025), CFI = .96. Standardized parameter estimates are presented in Table 4. All standardized and unstandardized estimates were statistically significant ( $p < .001$ ). Factor loading estimates revealed that the indicators of child temperament (range of loadings = .46 - .71; coefficient  $H = .62$ ), co-parenting support (range of loadings = .86 - .95; coefficient  $H = .96$ ), and maternal

responsiveness (range of loadings = .73 - .90; coefficient  $H = .96$ ) were strongly related to their purported latent factors. Father involvement (range of loadings = .17 - .72; coefficient  $H = .75$ ) and mother involvement (range of loadings = .14 - .66; coefficient  $H = .70$ ) had some weak factor loading estimates, but all indicators were significantly related to their purported latent factors (see Table 4).

I did not conduct a CFA on several variables (e.g., union instability, maternal depression, and the CBCL aggression and rule breaking scales) for the following reasons. First, union instability (i.e., maternal report of the frequency of her instability) is a count variable and thus there is no indicator of a latent construct of “union instability.” Second, maternal depression is a dummy variable (1 = depressed, 0 = not depressed) and cannot be included because it is only one variable. To run a CFA, multiple indicators are needed to assess the latent construct of “depression”. Third, the CBCL is an established measure with strong reliability and validity (e.g., Achenbach et al., 2003) thus it is not necessary to model it as a latent variable as the validity of the scale has already been established. To confirm that the CBCL has acceptable reliability within my sample, following convention in the field, I report two measures of reliability, namely Cronbach’s alpha and McDonald’s omega (Starkweather, 2012). In my sample, Cronbach’s alpha and McDonald’s omega for the aggressive subscale was .89 and .88, respectively, and for the rule breaking subscale was .78 and .59. Although the reliability of the rule breaking behavior is low with McDonald’s omega, I include it in the study because the Cronbach’s alpha is acceptable but will note it as a limitation or reason for caution when interpreting results in the discussion.

## **Path Analysis**

I ran three path models to identify the associations among study variables. Model 1 assessed research question 1 (direct), model 2 assessed research question 2 (mediation), and model 3 assessed research question 3 (moderation). Running the three models separately enables me to test the research questions separately, but more importantly it enables me to identify the associations that may be causing any misfit in the final model (model 3). For example, if model 3 (moderation) did not fit the data well, it could have suggested that the mediational model (model 2) did not fit the data or that the moderational model (model 3) did not fit the data because the model 3 built upon model 2. It would be impossible to determine which associations caused misfit unless I tested the models separately.

Models 1 and 2 included the following set of variables: (1) union instability (ages 3-5); (2) at 5 years: mother and father involvement, maternal responsiveness, co-parenting support; (3) at 9 years: child aggressive and rule breaking; and, (4) at birth and 3, 5, and 9 years: control variables (see Figure 1 and Table 1). The control variables (father and mother race, education, and age, mother household poverty status, union instability (5-9 years), and new children with a new partner, child gender, aggressive behaviors (3 years), and age) were modeled as exogenous variables and union instability, the set of mediators (co-parenting support, mother and father involvement, maternal responsiveness), and the dependent variables (child aggressive and rule breaking behaviors) were modeled as endogenous.

Model 3 included all variables from models 1 and 2 and the moderating variables (co-parenting x child temperament, father involvement x child temperament, mother



involvement x child temperament, maternal responsiveness x child temperament, union instability x maternal depression, and union instability x marital status), which were modeled as endogenous variables.

**Testing direct path.** To test research question 1 and to ensure the testability of the conceptual model that hypothesizes that union instability is indirectly linked to children's aggressive and rule breaking behaviors, I first compared two models. The first model hypothesized only indirect associations between union instability and children's aggressive and rule breaking behaviors and the second model hypothesized both direct and indirect paths. Comparing these models statistically allowed me to determine whether the first model (only indirect paths) fits the data better than the second model (direct and indirect paths), which is a necessary first step to determine whether the hypothesized mediators (co-parenting support, mother and father involvement, and maternal responsiveness) fully mediate the association between union instability and children's EPB (research question 2). I compared the first model to the second model by examining the difference between the  $\chi^2$  (measure of fit of the model).

The results comparing the first model (indirect path) to the second model (direct and indirect path) are shown in Table 5. The first path model fits the data well<sup>2</sup>:  $\chi^2(11) = 3.99, p = .97, RMSEA = .00$  (90% CI = .00 - .00), CFI = 1.00, SRMR = .003. The data also fit the second model well:  $\chi^2(9) = 2.38, p = .98, RMSEA = .00$  (90% CI = .00 - .00), CFI = 1.00, SRMR = .003. The  $\chi^2(2)$  cut off value is 5.99. The difference between the  $\chi^2$  of the models is 1.61, which is not statistically significant, suggesting that either model is appropriate but the direct path in model 2 does not significantly explain variance in

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<sup>2</sup> I used unweighted data for model comparisons because the CFI and  $\chi^2$  tests are not available when replicate weights are used

children's aggressive or rule breaking behaviors. This supports the hypothesis that the association between union instability and children's aggressive and rule breaking behaviors is indirect. Conventionally the more parsimonious model is preferred, in this case the indirect model (Marsh et al., 2009). Moreover, there is a statistically significant correlation between union instability and children's aggressive ( $r = .19, p < .001$ ) and rule breaking ( $r = .16, p < .001$ ) behaviors, which is sufficient to test the mechanisms that explain this association (see Table 3).

**Testing mediation.** To test the second research question that co-parenting support, father and mother involvement, and maternal responsiveness mediate the association between union instability and children's aggressive and rule breaking behaviors I ran a mediational analysis.

Tables 6 and 7 show the path coefficients for the mediational analysis. The data fit the model well<sup>3</sup> (RMSEA = .03 (90% CI = .02 - .04), SRMR = .01). The association between union instability (ages 3-5) was significantly and negatively associated with co-parenting support at 5 years ( $\beta = -.33, p < .001$ ), which, in turn, was negatively associated with children's aggressive behaviors at 9 years ( $\beta = -.12, p = .01$ ) but not with rule breaking behaviors ( $\beta = -.09, p = .14$ ). Union instability was not significantly associated with any of the other mediators (i.e., maternal responsiveness and mother and father involvement at 5 years). For aggressive behaviors, the indirect effect from union instability to aggressive behaviors through all cumulative family processes (co-parenting support, mother and father involvement, and maternal responsiveness) was significant ( $\beta = .07, p = .04$ ). However, the specific indirect path through co-parenting support was not

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<sup>3</sup> The CFI and  $\chi^2$  tests were omitted because I used weighted data.

significant ( $\beta = .04, p = .07$ ). For rule breaking behaviors, the indirect effect from union instability to rule breaking through all cumulative family processes (co-parenting support, mother and father involvement, and maternal responsiveness) was significant ( $\beta = .06, p = .05$ ) but none of the specific paths were. The mediation between union instability and children's aggressive and rule breaking behaviors through co-parenting support, mother and father involvement, and maternal responsiveness was not statistically significant. The standardized paths are shown in Figure 3.

**Testing moderation.** To test the third research question that children's temperament moderates the indirect association between union instability and children's aggressive and rule breaking behaviors, I ran moderated mediation analyses interacting child temperament with the mediators (co-parenting support, mother and father involvement, and maternal responsiveness). The third research question also addressed whether maternal depression and marital status moderated the indirect association between union instability and children's aggressive and rule breaking behaviors.

I first tested whether marital status and maternal depression moderated the association between union instability and the mediating variables with model comparisons. Model comparisons test whether the associations between mother's depression and marital status and union instability are nonlinear, that is, whether they change the association between union instability and the mediator variables. If they do not change the association, they are used as linear controls and not moderators.

Model 3, in addition to including all paths specified in model 2, included the following moderating terms: co-parenting x child temperament, father involvement x child temperament, mother involvement x child temperament, and maternal

responsiveness x child temperament (at 1 year; mean centered). To test whether marital status had a linear association with union instability, I compared model 3.1 (adding maternal depression (1 = depressed) and marital status (1 = married) as moderators) to model 3.2 (adding only maternal depression as a moderator). Similarly, to determine whether maternal depression had a linear association with union instability, I compared model 3.1 to model 3.3 (adding only maternal marital status as a moderator). By comparing models with and without marital status and depression, I determined whether the data fit a model better when marital status and depression were modeled as linearly or nonlinearly associated with union instability (see Tables 8 and 9).

Model 3.1 showed the data fit the model well<sup>4</sup>:  $\chi^2(63) = 188.14, p < .001$ , RMSEA = .024 (90% CI = .020 - .028), CFI = .97, SRMR = .02. The data also fit model 3.2 well:  $\chi^2(67) = 218.74, p < .001$ , RMSEA = .026 (90% CI = .022 - .030), CFI = .97, SRMR = .02. The  $\chi^2(4)$  cut off value is 9.49. The  $\chi^2$  difference between model 2.1 and model 2.2 was 30.6, which is statistically significant suggesting that marital status is not a linear control, that is, it interacts with union instability and thus it can be modeled as a moderator.

Model 3.3 also showed that the data fit the model well:  $\chi^2(67) = 192.07, p < .001$ , RMSEA = .023 (90% CI = .020 - .027), CFI = .97, SRMR = .02. The  $\chi^2(4)$  cut off value is 9.49. The  $\chi^2$  difference between model 3.1 and model 3.2 was 3.93, which is not statistically different, suggesting that maternal depression is a linear control, that is, it does not interact with union instability to predict the mediating variables (co-parenting support, mother and father involvement, and maternal responsiveness).

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<sup>4</sup> The models were compared using unweighted samples so that the  $\chi^2$  could be compared.

Based on the comparison of the models, the subsequent results of model 3 included maternal depression (1 = meets cut off for clinical symptoms) at 5 years as a control and maternal marital status (1 = married) at 3 years as a moderator. Thus I tested whether, controlling for maternal depression, maternal marital status and child temperament moderated the indirect association between union instability and children's aggressive and rule breaking behaviors with the following moderation terms: union instability x marital status, co-parenting x child temperament, and parenting (mother and father involvement, maternal responsiveness) x child temperament. The fit of model 3 was adequate (RMSEA = .055, 90% CI = .051 - .059), SRMR = .03). Tables 10 and 11 and Figure 4 show the results from model 3.

Marital status at 3 years moderated the association between union instability (3-5) and co-parenting support ( $\beta = -.16, p = .003$ ), which was significantly related to children's aggressive and rule breaking behaviors ( $\beta = -.15, p < .001$ ;  $\beta = -.13, p = .03$ ). The calculated indirect effect through the cumulative family processes was significant for aggressive ( $\beta = .05, p = .05$ ) but not rule breaking behaviors. That is, mothers who reported high frequency of union instability that resulted in a divorce rated their children higher on aggression because of reduced co-parenting support at 5 years. Marital status did not moderate the association between union instability and the other mediators: father and mother involvement, or maternal responsiveness. The full model explained 30% of the variance in aggressive behaviors ( $R^2 = .311$ ) and 25% of the variance in rule breaking behaviors ( $R^2 = .258$ ).

Table 10 shows that children's temperament did not moderate the association between co-parenting support, maternal responsiveness, and mother and father

involvement and children's aggressive behaviors. Children's temperament also did not moderate the association between co-parenting support, maternal responsiveness, and mother and father involvement and children's rule breaking behaviors (see Table 10).

## Chapter 5: Discussion

I explored how multiple aspects of the family system (e.g., co-parenting support, father and mother involvement, maternal responsiveness, marital status, and child temperament) worked together to explain why family change, such as when couples or unions dissolve (union instability), is negatively associated with children's social adjustment, controlling for earlier behavioral problems. In particular, studies have shown that children living in families that undergo a lot of change are more likely to exhibit EPB (measured in this study as aggressive and rule breaking behaviors), however not all studies control for earlier behaviors so it is unclear whether findings from the existing literature can speak to the unique effects of union instability on children's EPB. I focused on EPB and not IPB because children with externalizing behavioral problems are more likely to perform poorly in school, engage in risky behavior and have worse outcomes than children who are more socially competent (Campbell et al., 2000). The association between family change and children's EPB is an important topic of research because in the United States over the last decades the probability of children living in non-married families has increased dramatically (Bumpass & Lu, 2000; Kennedy & Bumpass, 2008). For example, in 2015 40% of children were born to unmarried mothers, 60% of whom were cohabiting (Child Trends Data Bank, 2015). The break up rates for cohabiting families are high; nearly 50% within 2 years of the formation of that union (Kennedy & Bumpass, 2008). The break up rates for married families are lower; 26% divorce by their child's 5<sup>th</sup> birthday (Copen et al., 2012). Thus, children living in cohabiting families are at a higher risk for changes in family structure than children living in married households (Foster & Kalil, 2007). Moreover, cohabiting families are more likely to be poor and

disadvantaged than married families (Cancian & Haskins, 2014). Overall, these statistics suggest that children in the United States, in particular low-income children, are growing up in what appear to be unstable families that may have deleterious effects on their development. Developmental theory suggests that children do best under conditions of stability and when these conditions are violated, children's wellbeing may be at risk. Under conditions of union instability such as when there is divorce or separation, parents are less likely to be supportive of each other's parenting behaviors, which creates hostility and a negative emotional climate that is difficult for children to cope with resulting in increased behavioral difficulties.

Correlational and longitudinal studies have shown that union instability is associated with children's EPB (e.g., Cavanagh & Huston, 2006; Foster & Kalil, 2007, Fomby & Cherlin, 2007). With some exceptions (e.g., Fomby & Osborne, 2010; Karberg & Cabrera, 2014), this literature has not systematically explored the mechanism or *why* children's social development is disrupted when their parents separate. The main motivation for my study was to examine the mechanisms by which family (union) instability is negatively related to children's adjustment. To address this issue I first tested whether there was a direct link between union instability and children's EPB and found that the model that best fit the data was an indirect model. In other words, contrary to past findings, I found a significant correlation, but no direct link in path analysis between union instability and children's EPB. Grounded in family systems theory, I then tested the indirect or mediational model to examine whether the indirect pathways from union instability to children's EPB was channeled through family processes (e.g., co-parenting and parenting). This analysis showed that there was no mediational link for the



full sample, but a moderation analysis revealed that union instability was negatively related to children's EPB only when there was a divorce not a nonmarital separation. Overall, findings from this study suggest that mothers who report family change, in particular a divorce, but not a nonmarital separation, during the early childhood years have children with higher EPB in middle childhood, and reduced co-parenting support explains this association.

An important goal of this study was to understand why family change (e.g., union instability) has deleterious consequences for children. The underlying assumption of this question is that family change or union instability is particularly salient among low-income urban families. Indeed, studies using nationally representative samples and samples of low-income families find that 50-60% of cohabiting parents break up by their child's 5<sup>th</sup> birthday (Bendheim-Thoman Center for Research on Child Wellbeing, 2007; Kamp Dush, 2011). But this finding is based on samples of cohabiting families, which are more likely to break up. When cohabiting, married, and single families are included in the sample, as they are in my study, the rates of union instability are not as high. In the sample of "fragile" married, cohabiting, and single-mother families in my study, 27% of mothers report any union instability (i.e., mothers report that a change in marital status occurred: either the father/partner left, a new person came into the household, or a combination of the two) between 3-5 years and only 9% report union instability between 5-9 years. Overall, these findings suggest that the prevalence of union instability very much depends on how it is measured, who is included in the samples, and how it is presented.

To examine why family change has deleterious implications for children's social competence, I ran a path analysis that tested whether family processes (i.e., co-parenting support, father and mother involvement, and maternal responsiveness) explained this association. I found support for the hypothesis that family processes explain the positive association between union instability and children's EPB. However, I did not find support for the hypothesis that disrupted co-parenting and parenting, specifically, explain this association. In other words, for the full sample of families in my study union instability is not channeled through parenting or co-parenting specifically, but through cumulative family processes (the total indirect effect). This finding is inconsistent with research on the effects of risk (e.g., parents' marital status, poverty) on children's development. For example, a study of a nationally representative sample of babies born in 2001 found that maternal risk is longitudinally related to children's social skills because it reduces positive parenting (Cabrera et al., 2011). It is difficult to explain why union instability, a form of risk, did not have long-term effects on children's behaviors through parenting and co-parenting individually. However, the combination of family processes is more important to explain the longitudinal association between union instability and children's EPB than any one family process individually. Perhaps co-parenting in early childhood is too removed from children's family environment in middle childhood to explain the association between family change early in life is associated with social maladjustment in middle childhood, but co-parenting and parenting in early childhood together explain this association. Another possible explanation is that there is another mechanism that was not tested in this study but that might be worth exploring in future research. For example, new findings report that lack of parental resources, such as education, have a negative

impact on children's behavior through executive function skills (Lawson, Hook, Hackman, & Farah, 2014). It is possible that union instability has a deleterious effect on children's EPB through its impact on early children's skills such as executive function. Thus future research should explore how union instability is channeled through the child to influence behaviors longitudinally.

Another goal of this study was to examine whether the association between union instability and children's EPB might depend on other aspects of the family system such as marital status. Marital status has been established as a strong predictor of parenting and children's behaviors (Sigle-Rushton & McLanahan, 2004). Based on family systems theory, I hypothesized that the positive association between union instability and children's EPB would be stronger for children living with married families than for children living in non-married households. Because the path analysis showed that the indirect model was the best model for the data, I only tested moderated mediation. I expected reduced co-parenting and parenting to explain why divorced mothers have children with more EPB. My findings partially support the hypothesis. I found that marital status did not moderate the association between union instability and parenting, suggesting that when families break up or divorce, parents' relationship with their children may not be significantly altered. However, I found that the indirect path from union instability to children's aggressive behaviors (not to rule breaking behaviors) through co-parenting was significant ( $\beta = .05$ ), and was significant only for children whose mothers reported a divorce.

In other words, change in family structure is detrimental for children's social adjustment only when their parents divorce not when they separate from a cohabiting

union, and reduced co-parenting support, not parenting, explains this association.

Although the effect size was small, this is a new finding, at least in the family instability literature. This is also an important finding because cohabiting parents drive the rates of union instability in the analytic sample yet this type of break up does not result in poor outcomes for children.

Why is union instability more disruptive to children among divorced mothers? It is possible that parents and children view divorce as more traumatic and dramatic than breaking up from a cohabitation union. There is certainly a lot of social stigma associated with divorce. Cohabiting unions are viewed from the start as being less stable and therefore their dissolution surprises no one. Indeed, past studies have shown that divorce is more stressful than a non-marital separation for children (Carlson & Magnuson, 2011). It is possible that children in cohabiting unions are “more used to” union instability or are more likely to expect their parents’ potential break up than children in married families.

Another possibility is that other factors besides the family are important mechanisms that explain the association between union instability and children’s EPB in cohabiting and single families. For example, cohabiting and single families tend to be of lower SES than their married counterparts (Aughinbaugh, Robles, & Sun, 2013), and the stress from living in or near poverty may matter more for children’s outcomes and parents’ separation than family functioning (Gennetian & Miller, 2004). Future research should explore this possible explanation.

Lastly, I hypothesized that reduced co-parenting and parenting would explain why parents who break up would have children with more EPBs, and that this association would be stronger for children with difficult temperament. This hypothesis was not

supported for any of the mediators. This finding is inconsistent with past studies that have found that family processes such as parenting have more of a negative effect on children's behaviors for children who exhibit difficult temperament (e.g., Bates et al., 1998; Cabrera et al., 2014; Miner & Clark-Stewart, 2008). One explanation for my finding is that the FFCW measure of child temperament is not robust enough to capture any effect it has on the family system or children's behaviors. Cronbach's alpha and coefficient *H* were low (.60 and .62, respectively) for children's emotionality, the measure used in this study for temperament. Given the robust literature finding that temperament moderates the association between multiple family systems (e.g., mother's depression, mothering, family stress) and children's EPB, my non-significant finding should be interpreted with extreme caution.

There are several limitations to my study. First are the measures of mother and father involvement, and child temperament. As mentioned in previous sections, the items used in the FFCW to assess parent involvement are not doing an adequate job. This could be the reason for findings that union instability was not significantly channeled through co-parenting. The items for child temperament also had low reliability. Thus, the finding that temperament did not change the association between co-parenting support, father and mother involvement, maternal responsiveness and children's EPB may be an artifact of a poor measure.

Second, there is no observed measure of the father-child relationship in the FFCW data. Maternal responsiveness is available and is reported by trained observers, which helps assure some level of objectivity and reduces the shared variance that can occur

when the same participant reports all data. Not having a measure of father-child relationship quality is a significant limitation of this study.

Third, co-parenting support is only one facet of the co-parenting alliance (Feinberg, 2003). The FFCW does not measure the conflict, shared decision making, or communication aspects of co-parenting. Yet, researchers have found that co-parenting conflict, for example, is negatively associated with children's social skills. As co-parenting support was the only significant moderator, it would be preferable to be able to examine other aspects of the co-parenting alliance in my study.

Another limitation is the way the union instability variable is measured. Mothers are asked to report retrospectively how many men they lived with for at least 1 month over the last 2 years. If mothers had a relationship that ended around the last interview, they may have trouble remembering when the last interview was in relation to that relationship. It is also possible, although unlikely, that mothers may not remember everyone they lived with romantically over a two-year period. Thus, while this measure is better than those available in the first three waves of the FFCW study, it may underestimate mothers' union instability. Lastly, the child assessments are limited in this data set. Researchers have identified the importance of regulatory behaviors in shaping parent-child interactions and children's outcomes. For instance, emotion regulation has been identified as an important mediating variable explaining the association between maternal depression and child internalizing behaviors (Silk, Shaw, Forbes, Lane, & Kovacs, 2006). There are no measures of regulatory behavior available from the FFCW data 3 or 5 years old.

Lastly, despite the multi-system approach of this study, there are family systems and associations that may be important for children's EPB that were not examined in this study. There are other several associations that should be explored in future studies that were outside of the scope of this study. For example, how union instability is channeled through the child (e.g., executive functioning) is an important question. That is, understanding how children themselves explain the association between union instability and their social adjustment (e.g., through executive functioning or cognitive development) is important in addition to understanding how children respond differently to this association (what I did in this paper). Future studies should also explore how other demographic factors besides marital status (e.g., ethnicity) interact with union instability to predict children's social maladjustment, and how each model may differ for children coming from married vs. unmarried families or different ethnicities.

Despite these limitations, this study makes a significant contribution to the literature. First, it is one of the few studies that examines multiple family systems at once. This approach provides strong evidence that co-parenting support is an important channel through which stress due to family change reaches children, but only for divorce parents. Divorced parents who are unable to work together to raise their child may not provide a secure and harmonious environment for their children. These children may feel insecure, anxious and aggressive. Another salient finding is that change in family structure is not channeled through parenting behaviors to influence children's behaviors.

My findings generalize to children from the 77 U.S. cities with populations of 200,000 or more who live with their mothers at their birth. While this is not a nationally representative sample, it is representative of the large urban populations in the U.S.,

which gives power to these findings. Thus, these findings have clear implications for programs and policies. Supporting the co-parenting relationship should be a priority, especially among divorced parents. There are interventions that target co-parenting to strengthen relationships and improve child wellbeing longitudinally (e.g., Feinberg et al., 2008, 2010), but the co-parenting relationship has received less attention within larger family policies than the couple relationship, for example. The Responsible Fatherhood Program - funded by the U.S. Health and Human Services - aims to target healthy marriage as one of its goals (USHHS, 2011). This goal includes among its activities promoting marriage, enhancing relationship skills, and providing marriage preparation and divorce education and reduction. While some programs include co-parenting skills in their relationship skills repertoire, co-parenting is not an explicit goal of the Responsible Fatherhood Programs. This may be because the target is the father, not children. However, this study suggests that improving co-parenting support may be more important for children in the context of union instability than other family processes.



**Tables**

Table 1. *List of measures*

| <b>Constructs</b>                  | <b>Periodicity</b> | <b>Method of Assessment/ Scale</b>  | <b># of Items</b> | <b>Scale range</b> |
|------------------------------------|--------------------|---|-------------------|--------------------|
| <b><i>Dependent variable</i></b>   |                    |   |                   |                    |
| Externalizing Problem Behaviors    | 9 years            | CBCL – mother reports   | 37                | 1-3                |
| <b><i>Independent variable</i></b> |                    |   |                   |                    |
| Union instability                  | 3 – 5 years        | Mother report of the frequency with which she changes residential relationship status | 2                 | 0-6                |
| <b><i>Mediators</i></b>            |                    |   |                   |                    |
| Co-parenting support               | 5 years            | Mother report   | 6                 | 1-4                |
| Father involvement                 | 5 years            | Father report   | 8                 | 0-7                |
| Mother involvement                 | 5 years            | Mother report   | 8                 | 0-7                |
| Maternal responsiveness            | 5 years            | Observed  | 8                 | 0-1                |
| <b><i>Moderators</i></b>           |                    |   |                   |                    |
| Child temperament                  | 1 year             | EAS – mother reports  | 6                 | 1-5                |
| Marital status                     | 3 years            | Mother report   | 1                 | 0-1                |
| Depression                         | 5 years            | Constructed   | 1                 | 0-1                |
| <b><i>Control variables</i></b>    |                    |   |                   |                    |
| Mother Ethnicity                   | Birth              | Mother report   | 1                 | 1-4                |
| Father ethnicity                   | Birth              | Father report   | 1                 | 1-4                |
| Mother education                   | Birth              | Mother report   | 1                 | 1-8                |
| Father education                   | Birth              | Father report   | 1                 | 1-8                |
| Mother age                         | Birth              | Mother report   | 1                 | --                 |
| Father age                         | Birth              | Father report   | 1                 | --                 |
| Mother household poverty status    | Birth              | Constructed   | 1                 | 0-1                |
| Mother new child with new partner  | 5 years            | Mother report   | 1                 | 0-1                |
| Child gender                       | Birth              | Birth certificate   | 1                 | 0-1                |
| Child age                          | 9 years            | Mother report   | 1                 | --                 |
| Child early childhood EPB          | 3 years            | CBCL – mother reports   | 30                | 1-3                |

Table 2. *Descriptive Statistics (N = 3,387)*

| Variable                           | <i>n</i> | %  | <i>M(SD)</i> |
|------------------------------------|----------|----|--------------|
| Mother age                         |          |    | 27.05(6.23)  |
| Father age                         |          |    | 27.93(7.02)  |
| Mother years of education          |          |    |              |
| < HS degree                        | 961      | 28 |              |
| HS degree                          | 1016     | 30 |              |
| Some college                       | 639      | 19 |              |
| College degree                     | 771      | 23 |              |
| Father years of education          |          |    |              |
| < HS degree                        | 920      | 27 |              |
| HS degree                          | 953      | 28 |              |
| Some college                       | 875      | 26 |              |
| College degree                     | 639      | 19 |              |
| Mother race                        |          |    |              |
| Black                              | 763      | 23 |              |
| Latina                             | 1052     | 31 |              |
| White                              | 1290     | 38 |              |
| Other                              | 267      | 8  |              |
| Father race                        |          |    |              |
| Black                              | 863      | 26 |              |
| Latino                             | 1043     | 31 |              |
| White                              | 1242     | 37 |              |
| Other                              | 227      | 7  |              |
| Mother poverty at 5 years          | 653      | 19 |              |
| Mother married at 3 years          | 1768     | 60 |              |
| Mother married at 5 years          | 1677     | 59 |              |
| Child gender                       |          |    |              |
| Male                               | 1273     | 56 |              |
| Female                             | 1003     | 44 |              |
| Child age in months                |          |    | 110.01(3.32) |
| Mother UI 3-5 years                |          |    | .29(.70)     |
| Mother UI 5-9 years                |          |    | .21(.60)     |
| Co-parenting at 5 years            |          |    | 3.53(.63)    |
| Father involvement at 5 years      |          |    | 4.03(1.18)   |
| Mother involvement at 5 years      |          |    | 4.70(1.24)   |
| Mother responsivity at 5 years     |          |    | 6.55(2.04)   |
| CBCL aggression at 9 years         |          |    | 5.33(5.55)   |
| CBCL rules at 9 years              |          |    | 1.89(2.72)   |
| Mother new child between 3-5 years | 40       | 2  |              |

Mother depression at 5 years

284

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*Note.* CBCL Aggression = aggression scale of the CBCL.

CBCL Rules = Rule breaking scale of the CBCL.

< HS degree = Completed less than high school/did not complete high school.

Mother new child = new child with a new partner. UI = union instability.

Table 3. *Intercorrelations of model variables*

|                       | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20  | 21 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|----|
| 1. UI (3-5)           | 1    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |    |
| 2. UI (5-9)           | .13  | 1    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |    |
| 3. Co-parenting (5)   | -.41 | -.06 | 1    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |    |
| 4. Mother Involve (5) | .05  | .01  | .23  | 1    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |    |
| 5. Responsivity (5)   | -.15 | -.08 | .09  | -.02 | 1    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |    |
| 6. F involve (5)      | .08  | -.02 | .06  | .31  | -.02 | 1    |      |      |      |      |      |      |      |      |      |      |      |      |      |     |    |
| 7. Temperament        | .08  | .08  | -.11 | -.09 | -.13 | .01  | 1    |      |      |      |      |      |      |      |      |      |      |      |      |     |    |
| 8. CBCL Agg           | .19  | .09  | -.18 | .09  | -.30 | .13  | .17  | 1    |      |      |      |      |      |      |      |      |      |      |      |     |    |
| 9. CBCL Rules         | .16  | .04  | -.14 | .05  | -.29 | .17  | .12  | .76  | 1    |      |      |      |      |      |      |      |      |      |      |     |    |
| 10. C boy             | -.07 | -.01 | -.05 | .03  | -.07 | .08  | -.04 | -.02 | .05  | 1    |      |      |      |      |      |      |      |      |      |     |    |
| 11. C age             | -.05 | .02  | .09  | -.06 | .03  | -.07 | .08  | -.01 | .00  | -.05 | 1    |      |      |      |      |      |      |      |      |     |    |
| 12. M ed              | -.23 | -.12 | .13  | .03  | .24  | .04  | -.15 | -.10 | -.13 | .09  | -.08 | 1    |      |      |      |      |      |      |      |     |    |
| 13. F ed              | -.20 | -.12 | .13  | .06  | .17  | -.04 | -.08 | -.09 | -.12 | .03  | -.05 | .69  | 1    |      |      |      |      |      |      |     |    |
| 14. M age             | -.26 | -.10 | .22  | -.14 | .19  | -.03 | -.18 | -.16 | -.12 | .03  | .00  | .49  | .36  | 1    |      |      |      |      |      |     |    |
| 15. F age             | -.23 | -.07 | .12  | -.17 | .21  | -.11 | -.13 | -.12 | -.13 | -.02 | .04  | .34  | .28  | .76  | 1    |      |      |      |      |     |    |
| 16. M race            | -.01 | -.05 | .08  | -.15 | -.18 | .04  | .06  | -.02 | .09  | .06  | .19  | -.22 | -.19 | -.08 | -.05 | 1    |      |      |      |     |    |
| 17. F race            | .02  | .07  | .03  | -.16 | -.14 | -.10 | .10  | -.01 | .08  | .10  | .20  | -.36 | -.31 | -.14 | -.09 | .64  | 1    |      |      |     |    |
| 18. M poverty         | .12  | -.01 | -.16 | -.02 | -.11 | .04  | .04  | .11  | .18  | -.02 | -.03 | -.34 | -.32 | -.24 | -.16 | .15  | .21  | 1    |      |     |    |
| 19. M Married (3)     | -.33 | -.13 | .38  | .04  | .15  | .00  | -.09 | -.09 | -.12 | .03  | .02  | .40  | .43  | .36  | .30  | -.04 | -.14 | -.30 | 1    |     |    |
| 20. M new child       | .27  | .09  | -.17 | -.06 | -.05 | .04  | .11  | .05  | .07  | -.02 | .02  | -.11 | -.14 | -.12 | -.06 | -.05 | .01  | .13  | -.13 | 1   |    |
| 21. M depression      | .18  | .04  | -.15 | .04  | -.10 | .04  | .02  | .19  | .09  | .02  | .01  | -.01 | .01  | -.07 | -.05 | -.02 | -.07 | .04  | .02  | .04 | 1  |

*Note.* Child age in years indicated in (). M = mother. F = father. C = child. UI = union instability. Involve = involvement. CBCL = Child Behavior Checklist. Agg = aggression subscale. Rules = Rule breaking subscale. Ed = education. HH = household. Rel qual = relationship quality. All correlations are significant ( $p < .001$ ) except the correlation between M depression and M ed, M depression and C boy, M married and F involve, CBCL Rules and C age, M age and C Age

Table 4. *Parameter estimates from the five-factor CFA model*

|                      | Estimates | S.E. | Est./S.E. | StdYX | R <sup>2</sup> |
|----------------------|-----------|------|-----------|-------|----------------|
| FI by                |           |      |           |       |                |
| sings songs          | 0.70      | 0.04 | 15.83     | 0.51  | 0.26           |
| reads stories        | 1.00      | 0.00 | 999.00    | 0.72  | 0.52           |
| tells stories        | 1.02      | 0.06 | 16.88     | 0.69  | 0.48           |
| plays inside         | 0.45      | 0.04 | 10.76     | 0.38  | 0.15           |
| praises              | 0.36      | 0.03 | 10.50     | 0.36  | 0.13           |
| plays outside        | 0.45      | 0.04 | 12.11     | 0.39  | 0.15           |
| outing               | 0.37      | 0.03 | 12.07     | 0.35  | 0.13           |
| TV                   | 0.18      | 0.04 | 4.90      | 0.17  | 0.03           |
| MI by                |           |      |           |       |                |
| sings songs          | 1.00      | 0.00 | 999.00    | 0.48  | 0.23           |
| reads stories        | 1.40      | 0.09 | 15.03     | 0.66  | 0.44           |
| tells stories        | 1.54      | 0.10 | 16.13     | 0.65  | 0.42           |
| plays inside         | 0.80      | 0.06 | 12.54     | 0.39  | 0.15           |
| praises              | 0.44      | 0.04 | 12.69     | 0.34  | 0.12           |
| plays outside        | 0.73      | 0.06 | 11.91     | 0.35  | 0.13           |
| outing               | 0.46      | 0.05 | 9.81      | 0.25  | 0.06           |
| TV                   | 0.27      | 0.05 | 5.55      | 0.14  | 0.02           |
| Responsivity by      |           |      |           |       |                |
| talks                | 1.00      | 0.00 | 999.00    | 0.87  | 0.76           |
| verbally answers     | 0.98      | 0.03 | 33.38     | 0.86  | 0.73           |
| encourages           | 1.01      | 0.03 | 40.72     | 0.88  | 0.77           |
| scaffolds            | 1.01      | 0.03 | 40.12     | 0.88  | 0.78           |
| spontaneously praise | 1.03      | 0.02 | 42.67     | 0.90  | 0.81           |
| endearment           | 0.94      | 0.02 | 40.11     | 0.81  | 0.66           |
| verbally positive    | 1.01      | 0.03 | 36.00     | 0.88  | 0.78           |
| kisses               | 0.85      | 0.03 | 31.99     | 0.74  | 0.54           |
| Co-parenting by      |           |      |           |       |                |
| acts like father     | 1.00      | 0.00 | 999.00    | 0.88  | 0.77           |
| trusted              | 1.09      | 0.01 | 97.37     | 0.95  | 0.90           |
| respects             | 1.04      | 0.01 | 105.50    | 0.91  | 0.82           |
| supports             | 1.04      | 0.01 | 102.51    | 0.91  | 0.83           |
| talks                | 0.99      | 0.01 | 91.53     | 0.86  | 0.75           |
| counted on           | 1.01      | 0.01 | 96.26     | 0.89  | 0.79           |

*Note.* FI = father involvement. MI = mother involvement. *p* for all loadings < .001.

Table 5. Model 1 comparison of direct and indirect path from union instability to EPB

|                                | Model with direct path |      |         |                          |       |         |       | Model without direct path |         |      |                          |         |       |      |       |    |
|--------------------------------|------------------------|------|---------|--------------------------|-------|---------|-------|---------------------------|---------|------|--------------------------|---------|-------|------|-------|----|
|                                | Children's Aggression  |      |         | Children's Rule Breaking |       |         |       | Children's Aggression     |         |      | Children's Rule Breaking |         |       |      |       |    |
|                                | B                      | SE B | $\beta$ | B                        | SE B  | $\beta$ | B     | SE B                      | $\beta$ | B    | SE B                     | $\beta$ |       |      |       |    |
| Direct effects                 |                        |      |         |                          |       |         |       |                           |         |      |                          |         |       |      |       |    |
| UI 5-9                         | 0.46                   | 0.17 | 0.06    | **                       | 0.09  | 0.07    | 0.03  |                           | 0.46    | 0.17 | 0.06                     | **      | 0.09  | 0.08 | 0.03  |    |
| Other child                    | 1.06                   | 0.92 | 0.04    |                          | 0.85  | 0.67    | 0.06  |                           | 1.09    | 0.88 | 0.04                     |         | 1.01  | 0.64 | 0.08  |    |
| M race                         | -0.37                  | 0.17 | -0.06   | *                        | -0.01 | 0.07    | 0.00  |                           | -0.36   | 0.17 | -0.06                    | *       | -0.01 | 0.07 | 0.00  |    |
| F race                         | -0.02                  | 0.17 | 0.00    |                          | -0.05 | 0.07    | -0.02 |                           | -0.02   | 0.17 | 0.00                     |         | -0.05 | 0.07 | -0.02 |    |
| M educ                         | 0.23                   | 0.14 | 0.04    |                          | -0.10 | 0.07    | -0.04 |                           | 0.23    | 0.14 | 0.04                     |         | -0.10 | 0.07 | -0.04 |    |
| F educ                         | -0.10                  | 0.13 | -0.02   |                          | -0.01 | 0.07    | 0.00  |                           | -0.10   | 0.13 | -0.02                    |         | -0.01 | 0.07 | 0.00  |    |
| M age                          | -0.03                  | 0.03 | -0.03   |                          | 0.02  | 0.02    | 0.04  |                           | -0.03   | 0.03 | -0.03                    |         | 0.02  | 0.02 | 0.03  |    |
| F age                          | 0.00                   | 0.03 | 0.00    |                          | -0.01 | 0.01    | -0.03 |                           | 0.00    | 0.03 | 0.00                     |         | -0.01 | 0.01 | -0.04 |    |
| M poverty                      | 0.72                   | 0.28 | 0.06    | **                       | 0.48  | 0.15    | 0.08  | **                        | 0.71    | 0.28 | 0.06                     | **      | 0.48  | 0.15 | 0.08  | ** |
| C boy                          | 0.45                   | 0.23 | 0.04    | *                        | 0.59  | 0.14    | 0.11  | **                        | 0.45    | 0.23 | 0.04                     | *       | 0.59  | 0.14 | 0.11  | ** |
| C age                          | 0.02                   | 0.02 | 0.02    |                          | -0.01 | 0.01    | -0.01 |                           | 0.02    | 0.03 | 0.02                     |         | -0.01 | 0.02 | -0.01 |    |
| C aggression (3)               | 6.01                   | 0.39 | 0.39    | **                       | 1.89  | 0.22    | 0.25  | **                        | 6.01    | 0.39 | 0.39                     | **      | 1.90  | 0.22 | 0.25  | ** |
| UI 3-5                         | -0.02                  | 0.18 | 0.00    |                          | 0.08  | 0.11    | 0.02  |                           |         |      |                          |         |       |      |       |    |
| Co-parenting                   | -0.68                  | 0.20 | -0.09   | **                       | -0.26 | 0.11    | -0.07 | *                         | -0.68   | 0.20 | -0.09                    | **      | -0.27 | 0.10 | -0.07 | *  |
| M involve                      | -0.04                  | 0.10 | -0.01   |                          | -0.02 | 0.05    | -0.01 |                           | -0.04   | 0.10 | -0.01                    |         | -0.02 | 0.05 | -0.01 |    |
| F involve                      | 0.15                   | 0.12 | 0.03    |                          | -0.02 | 0.06    | -0.01 |                           | 0.15    | 0.12 | 0.03                     |         | -0.02 | 0.06 | -0.01 |    |
| M responsiveness               | -0.25                  | 0.07 | -0.10   | **                       | -0.13 | 0.04    | -0.10 | **                        | -0.25   | 0.07 | -0.10                    | **      | -0.14 | 0.04 | -0.10 | ** |
| Indirect effects               |                        |      |         |                          |       |         |       |                           |         |      |                          |         |       |      |       |    |
| union (3-5)-> co-parenting (5) | 0.14                   | 0.05 | 0.02    | **                       | 0.05  | 0.02    | 0.01  | *                         | 0.13    | 0.05 | 0.02                     | **      | 0.05  | 0.02 | 0.01  | *  |
| union (3-5)-> M involve(5)     | 0.00                   | 0.01 | 0.00    |                          | 0.00  | 0.00    | 0.00  |                           | 0.00    | 0.01 | 0.00                     |         | 0.00  | 0.00 | 0.00  |    |
| union (3-5)-> F involve (5)    | 0.00                   | 0.01 | 0.00    |                          | 0.00  | 0.00    | 0.00  |                           | 0.00    | 0.01 | 0.00                     |         | 0.00  | 0.00 | 0.00  |    |
| union (3-5)-> M responsive (5) | 0.02                   | 0.02 | 0.00    |                          | 0.01  | 0.01    | 0.00  |                           | 0.02    | 0.02 | 0.00                     |         | 0.01  | 0.00 | 0.00  |    |
| sum of indirect effects        | 0.15                   | 0.05 | 0.02    | **                       |       |         | 0.02  | *                         | 0.15    | 0.05 | 0.02                     | **      | 0.06  | 0.03 | 0.02  | *  |

|                |      |      |      |      |
|----------------|------|------|------|------|
| R <sup>2</sup> | 0.21 | 0.14 | 0.21 | 0.14 |
| $\chi^2$       | 2.38 |      | 3.99 |      |

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\*  $p < .05$ , \*\*  $p < .01$

*Note.* Unweighted data used. UI = union instability. M = mother. F = father. C = child. Child age in years indicated in (). Educ = education. Involve = involvement. Responsive = responsiveness.

Table 6. Model 2 direct and indirect effects on children's aggressive and rule breaking behaviors

|                               | Children's Aggression |      |         | Children's Rule Breaking |       |         |       |    |
|-------------------------------|-----------------------|------|---------|--------------------------|-------|---------|-------|----|
|                               | B                     | SE B | $\beta$ | B                        | SE B  | $\beta$ |       |    |
| Direct effects                |                       |      |         |                          |       |         |       |    |
| UI (5-9)                      | 0.23                  | 0.26 | 0.02    | -0.07                    | 0.12  | -0.02   |       |    |
| Other child                   | 0.63                  | 1.71 | 0.02    | 0.69                     | 1.00  | 0.04    |       |    |
| M race                        | -0.40                 | 0.65 | -0.07   | -0.02                    | 0.26  | -0.01   |       |    |
| F race                        | 0.07                  | 0.53 | 0.02    | 0.08                     | 0.21  | 0.03    |       |    |
| M educ                        | 0.06                  | 0.37 | 0.02    | -0.12                    | 0.18  | -0.05   |       |    |
| F educ                        | 0.10                  | 0.42 | 0.03    | 0.06                     | 0.17  | 0.02    |       |    |
| M age                         | -0.03                 | 0.12 | -0.04   | 0.02                     | 0.06  | 0.06    |       |    |
| F age                         | 0.03                  | 0.11 | 0.03    | -0.01                    | 0.06  | -0.03   |       |    |
| M poverty                     | 0.54                  | 1.06 | 0.04    | 0.54                     | 0.58  | 0.08    |       |    |
| C boy                         | -0.81                 | 0.69 | -0.07   | -0.06                    | 0.37  | -0.01   |       |    |
| C age                         | 0.09                  | 0.09 | 0.06    | 0.02                     | 0.03  | 0.03    |       |    |
| C aggression (3)              | 6.27                  | 1.17 | 0.38    | **                       | 1.26  | 0.46    | 0.27  | ** |
| Co-parenting                  | -1.05                 | 0.41 | -0.12   | *                        | -0.37 | 0.25    | -0.09 |    |
| M involve                     | 0.20                  | 0.32 | 0.04    |                          | -0.01 | 0.16    | 0.00  |    |
| F involve                     | 0.54                  | 0.52 | 0.12    |                          | 0.38  | 0.33    | 0.16  |    |
| M responsivity                | -0.63                 | 0.27 | -0.23   | *                        | -0.26 | 0.11    | -0.18 | *  |
| Indirect effects              |                       |      |         |                          |       |         |       |    |
| UI (3-5)-> co-parenting (5)   | 0.37                  | 0.20 | 0.04    |                          | 0.13  | 0.10    | 0.03  |    |
| UI (3-5)-> M involve(5)       | 0.02                  | 0.06 | 0.00    |                          | 0.00  | 0.02    | 0.00  |    |
| UI (3-5)-> F involve (5)      | 0.14                  | 0.19 | 0.02    |                          | 0.10  | 0.14    | 0.02  |    |
| UI (3-5)-> M responsivity (5) | 0.14                  | 0.20 | 0.02    |                          | 0.06  | 0.08    | 0.01  |    |
| sum of indirect effects       | 0.68                  | 0.32 | 0.07    | *                        | 0.29  | 0.15    | 0.06  | *  |
| $R^2$                         |                       |      | 0.28    |                          |       |         | 0.20  |    |

\*  $p < .05$ , \*\*  $p < .01$

Note. Child age in years indicated in (). M = mother. F = father. C = child. Involve = involvement. Educ = education. HH = household. UI = union instability



Table 7. Model 2 direct effects on model mediators

|                       | Co-parenting support |         |         | Mother involvement |      |         | Father involvement |      |         | Maternal responsiveness |         |         |       |   |
|-----------------------|----------------------|---------|---------|--------------------|------|---------|--------------------|------|---------|-------------------------|---------|---------|-------|---|
|                       | B                    | SE<br>B | $\beta$ | B                  | SE B | $\beta$ | B                  | SE B | $\beta$ | B                       | SE<br>B | $\beta$ |       |   |
| <b>Direct effects</b> |                      |         |         |                    |      |         |                    |      |         |                         |         |         |       |   |
| UI 5-9                | 0.02                 | 0.06    | 0.02    | 0.04               | 0.07 | 0.02    | -0.10              | 0.15 | -0.05   | -0.14                   | 0.33    | -0.04   |       |   |
| Other child           | -0.75                | 0.51    | -0.19   | -0.67              | 0.55 | -0.09   | 0.08               | 0.67 | 0.01    | -0.87                   | 1.47    | -0.06   |       |   |
| M race                | 0.05                 | 0.04    | 0.07    | -0.10              | 0.15 | -0.08   | 0.15               | 0.11 | 0.12    | -0.24                   | 0.15    | -0.12   |       |   |
| F race                | 0.01                 | 0.04    | 0.01    | -0.15              | 0.14 | -0.12   | -0.22              | 0.10 | -0.18   | *                       | -0.03   | 0.18    | -0.01 |   |
| M educ                | 0.00                 | 0.03    | -0.01   | 0.01               | 0.09 | 0.01    | 0.08               | 0.10 | 0.08    | 0.33                    | 0.16    | 0.18    | *     |   |
| F educ                | 0.02                 | 0.03    | 0.02    | 0.08               | 0.08 | 0.07    | -0.11              | 0.08 | -0.10   | -0.04                   | 0.18    | -0.02   |       |   |
| M age                 | 0.01                 | 0.01    | 0.08    | -0.03              | 0.03 | -0.16   | 0.03               | 0.02 | 0.14    | -0.02                   | 0.04    | -0.07   |       |   |
| F age                 | 0.00                 | 0.01    | -0.03   | -0.01              | 0.02 | -0.04   | -0.03              | 0.01 | -0.20   | *                       | 0.05    | 0.03    | 0.17  |   |
| M poverty             | -0.12                | 0.10    | -0.08   | 0.07               | 0.19 | 0.02    | 0.22               | 0.21 | 0.07    | -0.06                   | 0.37    | -0.01   |       |   |
| C boy                 | -0.09                | 0.07    | -0.07   | 0.12               | 0.15 | 0.05    | 0.21               | 0.20 | 0.09    | -0.40                   | 0.28    | -0.10   |       |   |
| C aggression (3)      | -0.12                | 0.06    | -0.06   | 0.02               | 0.22 | 0.01    | 0.33               | 0.21 | 0.09    | -0.91                   | 0.42    | -0.15   |       |   |
| UI 3-5                | -0.35                | 0.10    | -0.33   | **                 | 0.11 | 0.13    | 0.06               | 0.27 | 0.27    | 0.14                    | -0.21   | 0.28    | -0.06 | * |
| R <sup>2</sup>        | 0.26                 |         |         | 0.07               |      |         | 0.09               |      |         | 0.15                    |         |         |       |   |

\*  $p < .05$ , \*\*  $p < .01$

Note. UI = union instability. M = mother. C = child. Educ = education. Child age in years indicated in

()

RMSEA = .03 (90% CI = .02-.04) SRMR =

.01

Table 8. Model 3 comparison for moderation analyses - predicting EPB

| Model 3.1                       | Children's Aggression |         |          | Children's Rule Breaking |         |          |  |
|---------------------------------|-----------------------|---------|----------|--------------------------|---------|----------|--|
|                                 | B                     | SE<br>B | $\beta$  | B                        | SE<br>B | $\beta$  |  |
| Direct effects                  |                       |         |          |                          |         |          |  |
| UI 5-9                          | 0.42                  | 0.17    | 0.06 *   | 0.08                     | 0.07    | 0.02     |  |
| Other child                     | 1.14                  | 0.88    | 0.04     | 0.79                     | 0.58    | 0.06     |  |
| M race                          | -0.34                 | 0.17    | -0.05 *  | 0.00                     | 0.07    | 0.00     |  |
| F race                          | -0.02                 | 0.17    | 0.00     | -0.06                    | 0.07    | -0.02    |  |
| M educ                          | 0.20                  | 0.14    | 0.04     | -0.10                    | 0.07    | -0.04    |  |
| F educ                          | -0.14                 | 0.13    | -0.03    | -0.02                    | 0.07    | -0.01    |  |
| M age                           | -0.03                 | 0.03    | -0.04    | 0.02                     | 0.02    | 0.04     |  |
| F age                           | 0.00                  | 0.03    | 0.00     | -0.01                    | 0.01    | -0.04    |  |
| M poverty                       | 0.70                  | 0.28    | 0.06 *   | 0.47                     | 0.15    | 0.08 *   |  |
| M marital status                | 0.51                  | 0.25    | 0.04 *   | -0.05                    | 0.11    | -0.01    |  |
| C boy                           | 0.41                  | 0.23    | 0.04     | 0.59                     | 0.14    | 0.11 **  |  |
| C age                           | 0.01                  | 0.03    | 0.01     | -0.01                    | 0.01    | -0.01    |  |
| C aggression (3)                | 5.87                  | 0.39    | 0.38 **  | 1.89                     | 0.23    | 0.25 **  |  |
| Co-parenting                    | -0.68                 | 0.20    | -0.09 ** | -0.26                    | 0.11    | -0.07 *  |  |
| M involve                       | -0.03                 | 0.10    | -0.01    | -0.02                    | 0.05    | -0.01    |  |
| F involve                       | 0.13                  | 0.12    | 0.03     | -0.02                    | 0.06    | -0.01    |  |
| M responsiveness                | -0.27                 | 0.07    | -0.10 ** | -0.14                    | 0.04    | -0.10 ** |  |
| M depression                    | 1.47                  | 0.40    | 0.09 **  | 0.55                     | 0.20    | 0.06 *   |  |
| C temperament                   | 0.00                  | 0.11    | 0.00     | -0.06                    | 0.06    | -0.02    |  |
| Temp x co-parenting             | 0.08                  | 0.17    | 0.01     | 0.11                     | 0.08    | 0.03     |  |
| Temp x M involve                | 0.08                  | 0.10    | 0.02     | 0.02                     | 0.06    | 0.01     |  |
| Temp x F involve                | -0.12                 | 0.13    | -0.03    | 0.04                     | 0.08    | 0.02     |  |
| Temp x M responsiveness         | 0.02                  | 0.07    | 0.01     | -0.02                    | 0.03    | -0.01    |  |
| Indirect effects                |                       |         |          |                          |         |          |  |
| UI (3-5)-> co-parenting (5)     | 0.08                  | 0.04    | 0.01 *   | 0.03                     | 0.02    | 0.01     |  |
| UI (3-5)-> M involve(5)         | 0.00                  | 0.01    | 0.00     | 0.00                     | 0.00    | 0.00     |  |
| UI (3-5)-> F involve (5)        | 0.00                  | 0.01    | 0.00     | 0.00                     | 0.00    | 0.00     |  |
| UI (3-5)-> M responsiveness (5) | 0.00                  | 0.03    | 0.00     | 0.00                     | 0.01    | 0.00     |  |
| sum of indirect effects         | 0.07                  | 0.05    | 0.01     | 0.03                     | 0.02    | 0.01     |  |
| R <sup>2</sup>                  | 0.22                  |         |          | 0.14                     |         |          |  |

| <b>Model 3.2</b>                | Children's Aggression |         |          | Children's Rule Breaking |         |          |  |
|---------------------------------|-----------------------|---------|----------|--------------------------|---------|----------|--|
|                                 | B                     | SE<br>B | $\beta$  | B                        | SE<br>B | $\beta$  |  |
| Direct effects                  |                       |         |          |                          |         |          |  |
| UI 5-9                          | 0.42                  | 0.17    | 0.06 *   | 0.08                     | 0.07    | 0.02     |  |
| Other child                     | 1.12                  | 0.88    | 0.04     | 0.80                     | 0.58    | 0.06     |  |
| M race                          | -0.34                 | 0.17    | -0.05 *  | 0.00                     | 0.07    | 0.00     |  |
| F race                          | -0.02                 | 0.17    | 0.00     | -0.06                    | 0.07    | -0.02    |  |
| M educ                          | 0.20                  | 0.14    | 0.04     | -0.10                    | 0.07    | -0.04    |  |
| F educ                          | -0.14                 | 0.13    | -0.03    | -0.02                    | 0.07    | -0.01    |  |
| M age                           | -0.03                 | 0.03    | -0.04    | 0.02                     | 0.02    | 0.04     |  |
| F age                           | 0.00                  | 0.03    | 0.00     | -0.01                    | 0.01    | -0.04    |  |
| M poverty                       | 0.70                  | 0.28    | 0.06 *   | 0.46                     | 0.15    | 0.08 *   |  |
| M marital status                | 0.50                  | 0.25    | 0.04 *   | -0.05                    | 0.11    | -0.01    |  |
| C boy                           | 0.41                  | 0.23    | 0.04     | 0.59                     | 0.14    | 0.11 **  |  |
| C age                           | 0.01                  | 0.03    | 0.01     | -0.01                    | 0.01    | -0.01    |  |
| C aggression (3)                | 5.87                  | 0.39    | 0.38 **  | 1.89                     | 0.23    | 0.25 **  |  |
| Co-parenting                    | -0.68                 | 0.20    | -0.09 ** | -0.26                    | 0.11    | -0.07 *  |  |
| M involve                       | -0.03                 | 0.10    | -0.01    | -0.02                    | 0.05    | -0.01    |  |
| F involve                       | 0.13                  | 0.12    | 0.03     | -0.02                    | 0.06    | -0.01    |  |
| M responsiveness                | -0.27                 | 0.07    | -0.10 ** | -0.14                    | 0.04    | -0.10 ** |  |
| M depression                    | 1.46                  | 0.40    | 0.08 **  | 0.55                     | 0.20    | 0.06 *   |  |
| C temperament                   | 0.00                  | 0.11    | 0.00     | -0.06                    | 0.06    | -0.02    |  |
| Temp x co-parenting             | 0.07                  | 0.17    | 0.01     | 0.11                     | 0.08    | 0.03     |  |
| Temp x M involve                | 0.07                  | 0.10    | 0.02     | 0.02                     | 0.06    | 0.01     |  |
| Temp x F involve                | -0.12                 | 0.13    | -0.03    | 0.04                     | 0.08    | 0.02     |  |
| Temp x M responsiveness         | 0.02                  | 0.07    | 0.01     | -0.02                    | 0.03    | -0.01    |  |
| Indirect effects                |                       |         |          |                          |         |          |  |
| UI (3-5)-> co-parenting (5)     | 0.12                  | 0.05    | 0.02 *   | 0.04                     | 0.02    | 0.01     |  |
| UI (3-5)-> M involve(5)         | 0.00                  | 0.01    | 0.00     | 0.00                     | 0.00    | 0.00     |  |
| UI (3-5)-> F involve (5)        | 0.00                  | 0.01    | 0.00     | 0.00                     | 0.00    | 0.00     |  |
| UI (3-5)-> M responsiveness (5) | 0.01                  | 0.02    | 0.00     | 0.01                     | 0.01    | 0.00     |  |
| sum of indirect effects         | 0.11                  | 0.05    | 0.01 *   | 0.04                     | 0.03    | 0.01     |  |
| R <sup>2</sup>                  | 0.22                  |         |          | 0.14                     |         |          |  |

| <b>Model 3.3</b>            | Children's Aggression |      |          | Children's Rule Breaking |      |          |
|-----------------------------|-----------------------|------|----------|--------------------------|------|----------|
|                             | B                     | SE B | $\beta$  | B                        | SE B | $\beta$  |
| Direct effects              |                       |      |          |                          |      |          |
| UI 5-9                      | 0.42                  | 0.17 | 0.06 *   | 0.08                     | 0.07 | 0.02     |
| Other child                 | 1.13                  | 0.88 | 0.04     | 0.78                     | 0.58 | 0.06     |
| M race                      | -0.34                 | 0.17 | -0.05 *  | 0.00                     | 0.07 | 0.00     |
| F race                      | -0.02                 | 0.17 | 0.00     | -0.06                    | 0.07 | -0.02    |
| M educ                      | 0.20                  | 0.14 | 0.04     | -0.10                    | 0.07 | -0.04    |
| F educ                      | -0.15                 | 0.13 | -0.03    | -0.02                    | 0.07 | -0.01    |
| M age                       | -0.03                 | 0.03 | -0.04    | 0.02                     | 0.02 | 0.04     |
| F age                       | 0.00                  | 0.03 | 0.00     | -0.01                    | 0.01 | -0.04    |
| M poverty                   | 0.70                  | 0.28 | 0.06 *   | 0.47                     | 0.15 | 0.08 *   |
| M marital status            | 0.51                  | 0.25 | 0.04 *   | -0.05                    | 0.11 | -0.01    |
| C boy                       | 0.42                  | 0.23 | 0.04     | 0.59                     | 0.14 | 0.11 **  |
| C age                       | 0.02                  | 0.03 | 0.01     | -0.01                    | 0.01 | -0.01    |
| C aggression (3)            | 5.87                  | 0.39 | 0.38 **  | 1.89                     | 0.23 | 0.25 **  |
| Co-parenting                | -0.68                 | 0.20 | -0.09 ** | -0.26                    | 0.11 | -0.07 *  |
| M involve                   | -0.03                 | 0.10 | -0.01    | -0.02                    | 0.05 | -0.01    |
| F involve                   | 0.13                  | 0.12 | 0.03     | -0.02                    | 0.06 | -0.01    |
| M responsiveness            | -0.27                 | 0.07 | -0.10 ** | -0.14                    | 0.04 | -0.10 ** |
| M depression                | 1.47                  | 0.40 | 0.09 **  | 0.55                     | 0.20 | 0.06 *   |
| C temperament               | 0.00                  | 0.11 | 0.00     | -0.06                    | 0.06 | -0.02    |
| Temp x co-parenting         | 0.07                  | 0.17 | 0.01     | 0.11                     | 0.08 | 0.03     |
| Temp x M involve            | 0.07                  | 0.10 | 0.02     | 0.02                     | 0.06 | 0.01     |
| Temp x F involve            | -0.12                 | 0.13 | -0.03    | 0.04                     | 0.08 | 0.02     |
| Temp x M responsiveness     | 0.02                  | 0.07 | 0.01     | -0.02                    | 0.03 | -0.01    |
| Indirect effects            |                       |      |          |                          |      |          |
| UI (3-5)-> co-parenting (5) | 0.07                  | 0.03 | 0.01 *   | 0.03                     | 0.02 | 0.01     |
| UI (3-5)-> M involve(5)     | 0.00                  | 0.01 | 0.00     | 0.00                     | 0.00 | 0.00     |
| UI (3-5)-> F involve (5)    | 0.00                  | 0.01 | 0.00     | 0.00                     | 0.00 | 0.00     |
| UI (3-5)-> M responsiveness | 0.01                  | 0.02 | 0.00     | 0.01                     | 0.01 | 0.00     |
| sum of indirect effects     | 0.09                  | 0.04 | 0.01 *   | 0.03                     | 0.02 | 0.01     |
| R <sup>2</sup>              | 0.22                  |      |          | 0.14                     |      |          |

\*  $p < .05$ , \*\*  $p < .01$

Note. Unweighted data used in all model comparisons. UI = union instability. M = mother. C = child. Educ = education. Child age in years indicated in ().

Table 9. Model comparison for moderation analyses - predicting mediators

|                  | Co-parenting support |         |         | Mother involvement |         |         | Father involvement |         |         | Maternal responsiveness |       |         |      |       |      |
|------------------|----------------------|---------|---------|--------------------|---------|---------|--------------------|---------|---------|-------------------------|-------|---------|------|-------|------|
|                  | B                    | SE<br>B | $\beta$ | B                  | SE<br>B | $\beta$ | B                  | SE<br>B | $\beta$ | B                       | SE B  | $\beta$ |      |       |      |
| <b>Model 3.1</b> |                      |         |         |                    |         |         |                    |         |         |                         |       |         |      |       |      |
| Direct effects   |                      |         |         |                    |         |         |                    |         |         |                         |       |         |      |       |      |
| UI 5-9           | 0.00                 | 0.03    | 0.00    | 0.00               | 0.04    | 0.00    | -0.02              | 0.07    | -0.01   | -0.02                   | 0.09  | -0.01   |      |       |      |
| Other child      | -0.54                | 0.25    | -0.16   | *                  | -0.11   | 0.21    | -0.02              | -0.34   | 0.22    | -0.06                   | 0.08  | 0.51    | 0.01 |       |      |
| M race           | 0.03                 | 0.02    | 0.03    |                    | -0.10   | 0.04    | -0.07              | **      | -0.07   | 0.05                    | -0.04 | -0.07   | 0.09 | -0.03 |      |
| F race           | -0.02                | 0.02    | -0.02   |                    | -0.06   | 0.04    | -0.04              |         | -0.01   | 0.05                    | -0.01 | 0.04    | 0.09 | 0.01  |      |
| M educ           | -0.06                | 0.02    | -0.09   | **                 | 0.01    | 0.03    | 0.01               |         | 0.00    | 0.04                    | 0.00  | 0.25    | 0.07 | 0.12  | **   |
| F educ           | 0.01                 | 0.02    | 0.02    |                    | 0.01    | 0.03    | 0.01               |         | -0.01   | 0.04                    | -0.01 | 0.03    | 0.07 | 0.02  |      |
| M age            | 0.01                 | 0.00    | 0.09    | **                 | -0.02   | 0.01    | -0.08              | *       | 0.00    | 0.01                    | 0.01  | 0.00    | 0.02 | 0.01  |      |
| F age            | 0.00                 | 0.00    | -0.03   |                    | -0.01   | 0.01    | -0.05              |         | -0.02   | 0.01                    | -0.09 | *       | 0.01 | 0.01  | 0.03 |
| M poverty        | -0.10                | 0.04    | -0.06   | **                 | 0.05    | 0.05    | 0.02               |         | 0.09    | 0.09                    | 0.03  | -0.13   | 0.13 | -0.03 |      |
| C boy            | -0.05                | 0.03    | -0.04   |                    | -0.04   | 0.05    | -0.02              |         | 0.11    | 0.08                    | 0.05  | -0.37   | 0.12 | -0.09 | **   |
| C aggression (3) | -0.08                | 0.05    | -0.04   |                    | -0.16   | 0.08    | -0.05              |         | -0.14   | 0.12                    | -0.04 | -0.10   | 0.18 | -0.02 |      |
| M depression     | -0.22                | 0.05    | -0.10   | **                 | -0.09   | 0.08    | -0.02              |         | -0.09   | 0.11                    | -0.02 | 0.00    | 0.16 | 0.00  |      |
| C temperament    | -0.02                | 0.02    | -0.04   |                    | -0.07   | 0.02    | -0.06              | **      | 0.05    | 0.04                    | 0.04  | -0.06   | 0.06 | -0.03 |      |
| UI 3-5           | -0.11                | 0.04    | -0.11   | **                 | 0.00    | 0.04    | 0.05               |         | 0.02    | 0.10                    | 0.01  | 0.02    | 0.10 | 0.01  |      |
| M marital status | 0.19                 | 0.04    | 0.13    | **                 | 0.00    | 0.06    | 0.00               |         | -0.04   | 0.11                    | -0.01 | 0.23    | 0.13 | 0.05  |      |
| Depression x UI  | 0.02                 | 0.07    | 0.01    |                    | -0.11   | 0.13    | -0.03              |         | -0.02   | 0.13                    | -0.01 | -0.34   | 0.20 | -0.05 |      |
| Marital x UI     | -0.31                | 0.08    | -0.14   | **                 | -0.09   | 0.09    | -0.02              |         | -0.16   | 0.23                    | -0.04 | -0.10   | 0.21 | 0.02  |      |
| R <sup>2</sup>   | 0.18                 |         |         |                    | 0.03    |         |                    |         | 0.02    |                         |       | 0.06    |      |       |      |
| $\chi^2$         | 188.14               |         |         |                    |         |         |                    |         |         |                         |       |         |      |       |      |

| <b>Model 3.2</b> | Co-parenting support |         |         | Mother involvement |         |         | Father involvement |         |         | Maternal responsiveness |         |         |      |       |      |
|------------------|----------------------|---------|---------|--------------------|---------|---------|--------------------|---------|---------|-------------------------|---------|---------|------|-------|------|
|                  | B                    | SE<br>B | $\beta$ | B                  | SE<br>B | $\beta$ | B                  | SE<br>B | $\beta$ | B                       | SE<br>B | $\beta$ |      |       |      |
| Direct effects   |                      |         |         |                    |         |         |                    |         |         |                         |         |         |      |       |      |
| UI 5-9           | 0.00                 | 0.03    | 0.00    | 0.00               | 0.04    | 0.00    | -0.02              | 0.07    | -0.01   | -0.02                   | 0.09    | -0.01   |      |       |      |
| Other child      | -0.60                | 0.32    | -0.17   | *                  | -0.12   | 0.21    | -0.02              | -0.35   | 0.23    | -0.06                   | 0.09    | 0.51    | 0.01 |       |      |
| M race           | 0.03                 | 0.02    | 0.03    |                    | -0.10   | 0.04    | -0.07              | **      | -0.07   | 0.05                    | -0.04   | -0.07   | 0.09 | -0.03 |      |
| F race           | -0.02                | 0.02    | -0.03   |                    | -0.06   | 0.04    | -0.05              |         | -0.01   | 0.05                    | -0.01   | 0.03    | 0.09 | 0.01  |      |
| M educ           | -0.06                | 0.02    | -0.08   | **                 | 0.01    | 0.03    | 0.01               |         | 0.00    | 0.04                    | 0.00    | 0.25    | 0.07 | 0.12  | **   |
| F educ           | 0.01                 | 0.02    | 0.02    |                    | 0.01    | 0.03    | 0.01               |         | -0.01   | 0.04                    | -0.01   | 0.04    | 0.07 | 0.02  |      |
| M age            | 0.01                 | 0.00    | 0.09    | **                 | -0.02   | 0.01    | -0.08              | *       | 0.00    | 0.01                    | 0.01    | 0.00    | 0.02 | 0.01  |      |
| F age            | 0.00                 | 0.00    | -0.03   |                    | -0.01   | 0.01    | -0.05              |         | -0.02   | 0.01                    | -0.09   | *       | 0.01 | 0.01  | 0.03 |
| M poverty        | -0.11                | 0.04    | -0.07   | **                 | 0.04    | 0.05    | 0.02               |         | 0.09    | 0.09                    | 0.03    | -0.14   | 0.13 | -0.03 |      |
| C boy            | -0.05                | 0.03    | -0.04   |                    | -0.04   | 0.05    | -0.02              |         | 0.12    | 0.08                    | 0.05    | -0.37   | 0.12 | -0.09 | **   |
| C aggression (3) | -0.07                | 0.05    | -0.04   |                    | -0.16   | 0.08    | -0.05              |         | -0.14   | 0.12                    | -0.04   | -0.10   | 0.18 | -0.02 |      |
| M depression     | -0.21                | 0.05    | -0.10   | **                 | -0.09   | 0.08    | -0.02              |         | -0.09   | 0.11                    | -0.02   | 0.00    | 0.16 | 0.00  |      |
| C temperament    | -0.02                | 0.02    | -0.04   |                    | -0.07   | 0.02    | -0.06              | **      | 0.05    | 0.04                    | 0.04    | -0.06   | 0.06 | -0.03 |      |
| UI 3-5           | -0.17                | 0.04    | -0.17   | **                 | 0.07    | 0.04    | 0.04               |         | -0.01   | 0.09                    | 0.01    | 0.00    | 0.09 | 0.00  |      |
| M marital status | 0.25                 | 0.03    | 0.17    | **                 | 0.01    | 0.06    | 0.01               |         | 0.00    | 0.08                    | 0.00    | 0.25    | 0.13 | 0.06  | *    |
| Depression x UI  | 0.04                 | 0.07    | 0.01    |                    | -0.11   | 0.12    | -0.03              |         | -0.01   | 0.13                    | 0.00    | -0.34   | 0.20 | -0.05 |      |
| Marital x UI     |                      |         |         |                    |         |         |                    |         |         |                         |         |         |      |       |      |
| R <sup>2</sup>   | 0.18                 |         |         |                    | 0.03    |         |                    |         | 0.02    |                         |         | 0.06    |      |       |      |
| $\chi^2$         | 218.74               |         |         |                    |         |         |                    |         |         |                         |         |         |      |       |      |

| <b>Model 3.3</b> | Co-parenting support |         |          | Mother involvement |         |          | Father involvement |         |         | Maternal responsiveness |         |          |
|------------------|----------------------|---------|----------|--------------------|---------|----------|--------------------|---------|---------|-------------------------|---------|----------|
|                  | B                    | SE<br>B | $\beta$  | B                  | SE<br>B | $\beta$  | B                  | SE<br>B | $\beta$ | B                       | SE<br>B | $\beta$  |
| Direct effects   |                      |         |          |                    |         |          |                    |         |         |                         |         |          |
| UI 5-9           | 0.00                 | 0.03    | 0.00     | -0.01              | 0.04    | 0.00     | -0.02              | 0.07    | -0.02   | -0.03                   | 0.09    | -0.01    |
| Other child      | -0.56                | 0.24    | -0.17 *  | -0.07              | 0.20    | -0.01    | -0.33              | 0.22    | -0.06   | 0.22                    | 0.50    | 0.02     |
| M race           | 0.03                 | 0.02    | 0.03     | -0.10              | 0.04    | -0.07 ** | -0.07              | 0.05    | -0.04   | -0.08                   | 0.09    | -0.03    |
| F race           | -0.02                | 0.02    | -0.03    | -0.06              | 0.04    | -0.04    | -0.01              | 0.05    | -0.01   | 0.05                    | 0.09    | 0.02     |
| M educ           | -0.06                | 0.02    | -0.09 ** | 0.01               | 0.03    | 0.01     | 0.00               | 0.04    | 0.00    | 0.24                    | 0.07    | 0.12 **  |
| F educ           | 0.01                 | 0.02    | 0.02     | 0.01               | 0.03    | 0.01     | -0.01              | 0.04    | -0.01   | 0.04                    | 0.07    | 0.02     |
| M age            | 0.01                 | 0.00    | 0.09 **  | -0.02              | 0.01    | -0.08 *  | 0.00               | 0.01    | 0.01    | 0.00                    | 0.02    | 0.01     |
| F age            | 0.00                 | 0.00    | -0.03    | -0.01              | 0.01    | -0.05    | -0.02              | 0.01    | -0.09 * | 0.01                    | 0.01    | 0.03     |
| M poverty        | -0.10                | 0.04    | -0.06 ** | 0.05               | 0.05    | 0.02     | 0.09               | 0.09    | 0.03    | -0.14                   | 0.13    | -0.03    |
| C boy            | -0.05                | 0.03    | -0.04    | -0.04              | 0.05    | -0.02    | 0.11               | 0.08    | 0.05    | -0.37                   | 0.12    | -0.09 ** |
| C aggression (3) | -0.08                | 0.05    | -0.04    | -0.16              | 0.08    | -0.05    | -0.14              | 0.12    | -0.04   | -0.10                   | 0.18    | -0.02    |
| M depression     | -0.21                | 0.05    | -0.10 ** | -0.10              | 0.08    | -0.03    | -0.09              | 0.11    | -0.02   | -0.04                   | 0.16    | -0.01    |
| C temperament    | -0.02                | 0.02    | -0.04    | -0.07              | 0.02    | -0.06 ** | 0.05               | 0.04    | 0.04    | -0.06                   | 0.06    | -0.03    |
| UI 3-5           | -0.11                | 0.03    | -0.11 ** | 0.07               | 0.04    | 0.04     | 0.01               | 0.08    | 0.01    | -0.05                   | 0.09    | 0.02     |
| M marital status | 0.19                 | 0.04    | 0.13 **  | 0.00               | 0.06    | 0.00     | -0.04              | 0.11    | -0.01   | 0.24                    | 0.13    | 0.06     |
| Depression x UI  |                      |         |          |                    |         |          |                    |         |         |                         |         |          |
| Marital x UI     | -0.31                | 0.08    | -0.14 ** | -0.08              | 0.09    | -0.02    | -0.16              | 0.23    | -0.04   | -0.09                   | 0.21    | 0.01     |
| R <sup>2</sup>   | 0.18                 |         |          | 0.03               |         |          | 0.02               |         |         | 0.05                    |         |          |
| $\chi^2$         | 192.07               |         |          |                    |         |          |                    |         |         |                         |         |          |

\*  $p < .05$ , \*\*  $p < .01$

Note. Unweighted data used in all model comparisons. UI = union instability. M = mother. C = child. Educ = education. Child age in years indicated in ().

Table 10. Model 3 direct and indirect effects on children's aggressive and rule breaking behaviors

|                               | Children's Aggression |      |         | Children's Rule Breaking |      |         |     |
|-------------------------------|-----------------------|------|---------|--------------------------|------|---------|-----|
|                               | B                     | SE B | $\beta$ | B                        | SE B | $\beta$ |     |
| Direct effects                |                       |      |         |                          |      |         |     |
| UI (5-9)                      | 0.21                  | 0.27 | 0.02    | -0.04                    | 0.16 | -0.01   |     |
| Other child                   | 1.03                  | 1.55 | 0.03    | 0.30                     | 1.12 | 0.02    |     |
| M race                        | -0.54                 | 0.70 | -0.10   | -0.06                    | 0.27 | -0.02   |     |
| F race                        | 0.15                  | 0.56 | 0.03    | 0.08                     | 0.22 | 0.03    |     |
| M educ                        | 0.07                  | 0.35 | 0.02    | -0.11                    | 0.17 | -0.05   |     |
| F educ                        | -0.12                 | 0.45 | -0.02   | -0.02                    | 0.18 | -0.01   |     |
| M age                         | -0.02                 | 0.11 | -0.03   | 0.06                     | 0.06 | 0.13    |     |
| F age                         | 0.00                  | 0.10 | 0.00    | -0.05                    | 0.05 | -0.12   |     |
| M poverty                     | 0.79                  | 0.91 | 0.06    | 0.82                     | 0.52 | 0.12    |     |
| M marital status              | 1.28                  | 0.78 | 0.11    | 0.40                     | 0.39 | 0.07    |     |
| C boy                         | -0.85                 | 0.09 | -0.08   | -0.10                    | 0.40 | -0.02   |     |
| C age                         | 0.08                  | 0.09 | 0.05    | 0.02                     | 0.16 | 0.02    |     |
| C aggression (3)              | 6.06                  | 1.18 | 0.36    | 1.94                     | 0.51 | 0.24    | *** |
| Co-parenting                  | -1.34                 | 0.37 | -0.15   | -0.58                    | 0.27 | -0.14   | **  |
| M involve                     | 0.20                  | 0.34 | 0.04    | -0.03                    | 0.17 | -0.01   |     |
| F involve                     | 0.58                  | 0.52 | 0.12    | 0.39                     | 0.31 | 0.17    |     |
| M responsivity                | -0.61                 | 0.26 | -0.22   | -0.27                    | 0.10 | -0.20   | *   |
| M depression                  | 1.89                  | 0.99 | 0.10    | 0.33                     | 0.53 | 0.04    |     |
| C temperament                 | 0.22                  | 0.37 | 0.04    | 0.04                     | 0.18 | 0.01    |     |
| Temp x co-parenting           | 0.49                  | 0.48 | 0.06    | 0.37                     | 0.30 | 0.09    |     |
| Temp x M involve              | -0.17                 | 0.43 | -0.04   | -0.14                    | 0.24 | -0.06   |     |
| Temp x F involve              | 0.25                  | 0.46 | 0.05    | 0.54                     | 0.35 | 0.20    |     |
| Temp x M responsivity         | -0.04                 | 0.22 | -0.02   | -0.07                    | 0.09 | -0.05   |     |
| Indirect effects              |                       |      |         |                          |      |         |     |
| UI (3-5)-> co-parenting (5)   | 0.44                  | 0.23 | 0.05    | 0.19                     | 0.13 | 0.04    | *   |
| UI (3-5)-> M involve(5)       | 0.02                  | 0.05 | 0.00    | 0.00                     | 0.02 | 0.00    |     |
| UI (3-5)-> F involve (5)      | 0.18                  | 0.24 | 0.02    | 0.12                     | 0.16 | 0.03    |     |
| UI (3-5)-> M responsivity (5) | 0.06                  | 0.16 | 0.01    | 0.03                     | 0.07 | 0.01    |     |
| sum of indirect effects       | 0.70                  | 0.42 | 0.08    | 0.34                     | 0.21 | 0.08    |     |
| $R^2$                         |                       |      | 0.31    |                          |      | 0.26    |     |

\*  $p < .05$ , \*\*  $p < .01$

Note. Child age in years indicated in (). M = mother. F = father. C = child. Involve = involvement. Educ = education. HH = household. UI = union instability. Temp = temperament



Table 11. Model 3 direct effects on model mediators

|                  | Co-parenting support |      |         | Mother involvement |      |         | Father involvement |      |         | Maternal responsiveness |       |         |       |
|------------------|----------------------|------|---------|--------------------|------|---------|--------------------|------|---------|-------------------------|-------|---------|-------|
|                  | B                    | SE B | $\beta$ | B                  | SE B | $\beta$ | B                  | SE B | $\beta$ | B                       | SE B  | $\beta$ |       |
| Direct effects   |                      |      |         |                    |      |         |                    |      |         |                         |       |         |       |
| UI (5-9)         | 0.02                 | 0.07 | 0.02    | 0.02               | 0.06 | 0.01    | -0.07              | 0.14 | -0.03   | -0.12                   | 0.31  | -0.03   |       |
| Other child      | -0.23                | 0.37 | -0.06   | 0.05               | 0.55 | 0.01    | 0.27               | 0.68 | 0.04    | -1.28                   | 1.35  | -0.10   |       |
| M race           | 0.06                 | 0.04 | 0.09    | -0.09              | 0.15 | -0.08   | 0.13               | 0.10 | 0.10    | -0.24                   | 0.14  | -0.12   |       |
| F race           | 0.00                 | 0.04 | 0.00    | -0.14              | 0.14 | -0.11   | -0.21              | 0.10 | -0.17   | *                       | -0.07 | 0.17    | -0.03 |
| M educ           | -0.04                | 0.03 | -0.08   | -0.01              | 0.10 | -0.01   | 0.08               | 0.11 | 0.08    | 0.32                    | 0.15  | 0.18    | *     |
| F educ           | 0.00                 | 0.03 | -0.01   | 0.08               | 0.08 | 0.07    | -0.13              | 0.08 | -0.12   | -0.07                   | 0.17  | -0.04   |       |
| M age            | 0.01                 | 0.01 | 0.09    | -0.04              | 0.02 | -0.17   | 0.03               | 0.02 | 0.17    | -0.02                   | 0.04  | -0.06   |       |
| F age            | -0.01                | 0.01 | -0.08   | -0.01              | 0.02 | -0.04   | -0.04              | 0.01 | -0.23   | **                      | 0.04  | 0.03    | 0.15  |
| M poverty        | -0.06                | 0.08 | -0.04   | 0.05               | 0.19 | 0.02    | 0.25               | 0.20 | 0.08    | 0.01                    | 0.40  | 0.00    |       |
| C boy            | -0.13                | 0.07 | -0.10   | 0.12               | 0.16 | 0.05    | 0.23               | 0.20 | 0.10    | -0.42                   | 0.26  | -0.10   |       |
| C aggression (3) | -0.04                | 0.07 | -0.02   | 0.13               | 0.25 | 0.04    | 0.30               | 0.23 | 0.09    | -0.75                   | 0.43  | -0.12   |       |
| M depression     | -0.14                | 0.09 | -0.07   | -0.01              | 0.29 | 0.00    | -0.13              | 0.26 | -0.03   | -0.54                   | 0.43  | -0.08   |       |
| C temperament    | -0.03                | 0.03 | -0.05   | -0.15              | 0.06 | -0.12   | *                  | 0.04 | 0.06    | 0.03                    | -0.03 | 0.14    | -0.02 |
| UI (3-5)         | -0.23                | 0.13 | -0.21   | 0.05               | 0.13 | 0.02    | 0.09               | 0.21 | 0.05    | -0.01                   | 0.22  | 0.00    |       |
| M marital status | 0.38                 | 0.10 | 0.30    | **                 | 0.16 | 0.17    | 0.06               | 0.24 | 0.31    | 0.10                    | 0.12  | 0.40    | 0.03  |
| Marital x UI     | -0.31                | 0.11 | -0.16   | **                 | 0.06 | 0.28    | 0.02               | 0.58 | 0.77    | 0.16                    | -0.53 | 0.70    | -0.08 |
| $R^2$            |                      |      | 0.30    |                    |      | 0.08    |                    |      | 0.11    |                         |       | 0.17    |       |

\*  $p < .05$ , \*\*  $p < .01$

Note. UI = union instability. M = mother. C = child. Educ = education. Child age in years indicated in ()

## Figures

Figure 1. *Conceptual model for research questions 1 and 2*

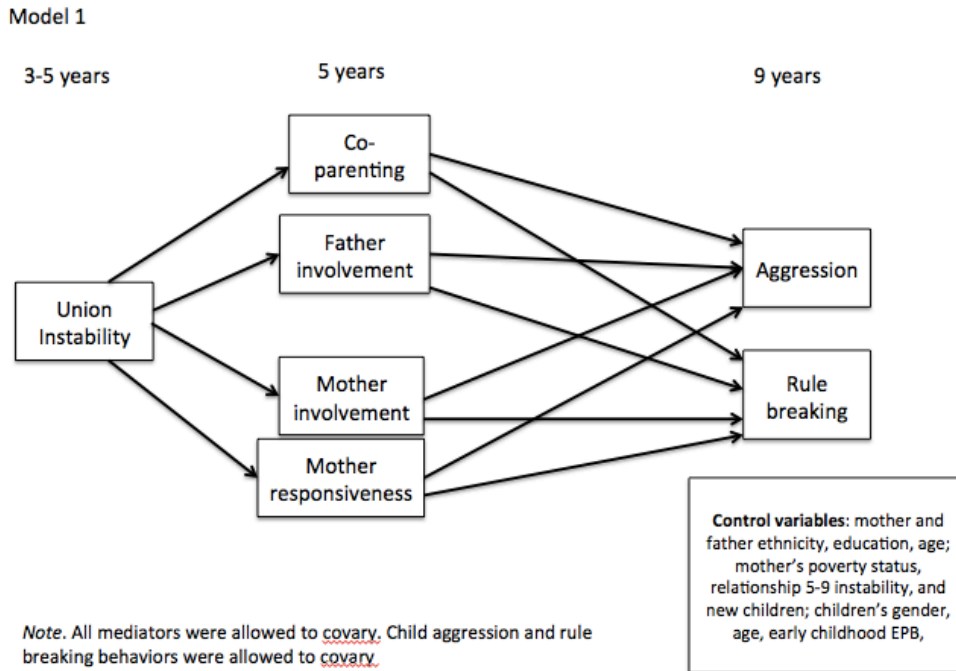


Figure 2. *Conceptual model for research question 2*

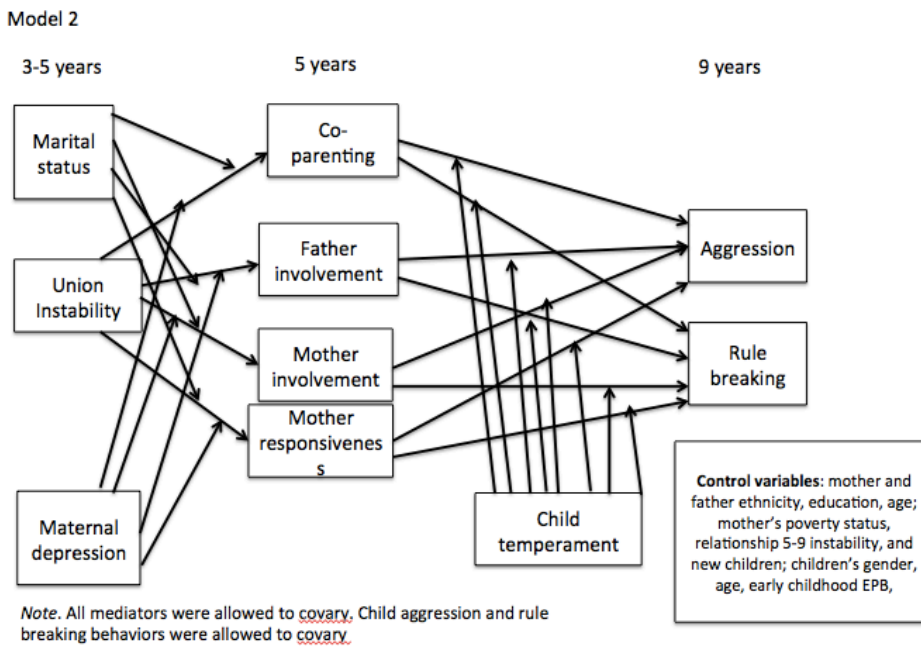


Figure 3. Path coefficients for Model 2

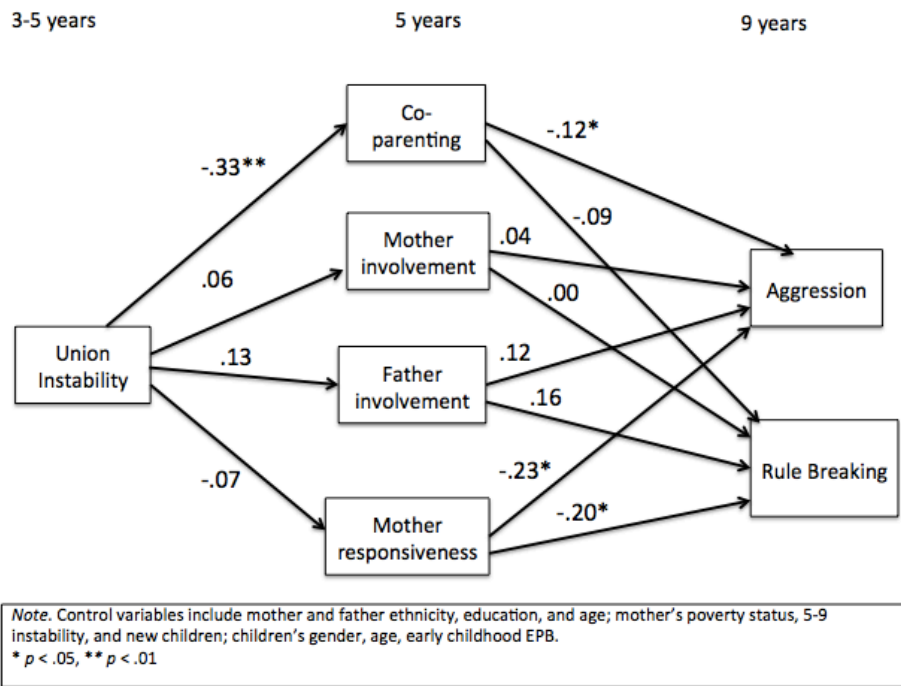
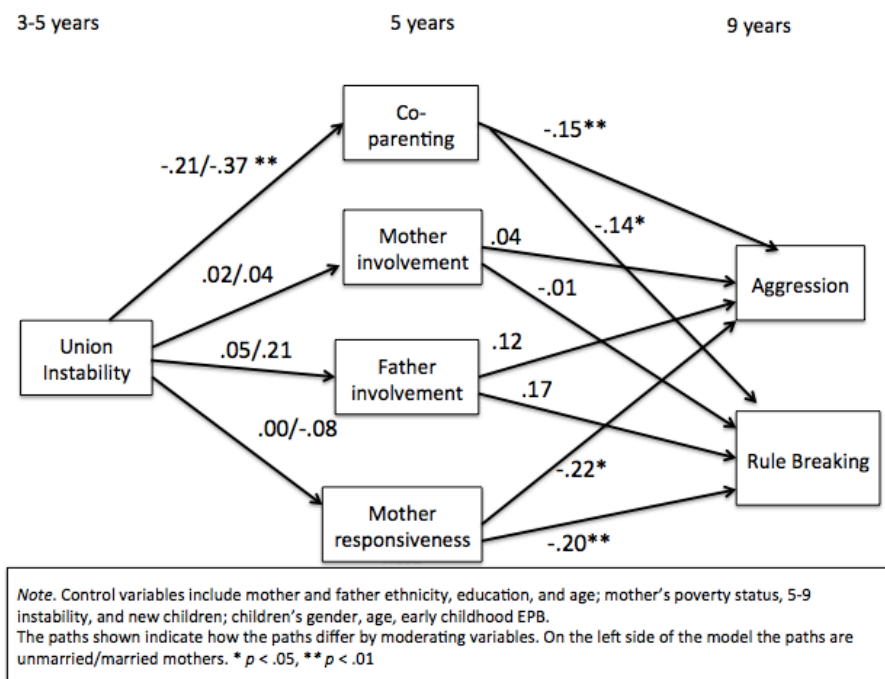


Figure 4. Path coefficients for Model 3



## Appendix

Table 12. *Unweighted Descriptive Statistics (N = 3,387)*

| Variable                      | <i>n</i> | %    | <i>M(SD)</i> |
|-------------------------------|----------|------|--------------|
| Mother age                    |          |      | 25.29(6.04)  |
| Father age                    |          |      | 27.91(7.13)  |
| Mother years of education     |          |      |              |
| < HS degree                   | 1666     | 34.6 |              |
| HS degree                     | 1450     | 30.1 |              |
| Some college                  | 1174     | 24.4 |              |
| College degree                | 522      | 10.8 |              |
| Father years of education     |          |      |              |
| < HS degree                   | 1688     | 35.1 |              |
| HS degree                     | 1665     | 34.6 |              |
| Some college                  | 970      | 20.2 |              |
| College degree                | 490      | 10.2 |              |
| Mother race                   |          |      |              |
| Black                         |          | 47.2 |              |
| Latina                        |          | 27.5 |              |
| White                         |          | 21.1 |              |
| Other                         |          | 4    |              |
| Father race                   |          |      |              |
| Black                         |          | 48.8 |              |
| Latina                        |          | 27.8 |              |
| White                         |          | 18.4 |              |
| Other                         |          | 4.4  |              |
| Mother poverty at 5 years     |          | 26.2 |              |
| Mother married at 3 years     |          | 32.3 |              |
| Mother married at 5 years     |          | 31.6 |              |
| Child gender                  |          |      |              |
| Male                          |          | 52.3 |              |
| Female                        |          | 47.7 |              |
| Child age in months           |          |      | 111.64(4.78) |
| Child temperament             |          |      | 2.82(1.06)   |
| Mother UI 3-5 years           |          |      | .38(.70)     |
| Mother UI 5-9 years           |          |      | .21(.77)     |
| Co-parenting at 5 years       |          |      | 3.46(.72)    |
| Father involvement at 5 years |          |      | 3.96(1.26)   |
| Mother involvement at 5 years |          |      | 4.65(1.16)   |

|                                  |       |            |
|----------------------------------|-------|------------|
| Mother responsiveness at 5 years |       | 6.15(2.07) |
| CBCL aggression at 9 years       |       | 5.67(5.49) |
| CBCL rules at 9 years            |       | 1.99(2.60) |
| Mother new child 3-5 years       | 4.5   |            |
| Mother depression at 5 years     | 11.70 |            |
| Father depression at 5 years     | 8.00  |            |

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*Note.* CBCL Aggression = aggression scale of the CBCL.

CBCL Rules = Rule breaking scale of the CBCL.

< HS degree = Completed less than high school/did not complete high school.

Mother new child = new child with a new partner. UI = union instability

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