ABSTRACT

Title of Document:	POST-BIRTH MARRIAGE AND CHILDREN'S BEHAVIOR IN FRAGILE FAMILIES
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The objective of this study was to learn how post-birth marriage among fragile families was related to child behavior problems by examining the (1) characteristics that predict post-birth marriage, (2) the relationship of various dimensions of post-birth marriage (i.e., occurrence, timing, identity of mother's partner, relationship trajectory, and family instability) to child behavior problems, and (3) parental stress and parenting behaviors as mediators. Data from the first four waves of the Fragile Families and Child Wellbeing Study (FFCWS) were examined using multivariate analyses of a sample of mothers who were unmarried at the time of the focal child's birth (N = 2,283).

This longitudinal study revealed that the occurrence and the timing of a post-birth marriage in the first five years following the child's birth were not related to aggressive or internalizing behaviors. However, marriage to the child's biological father predicted lower aggressive behavior as well as lower parental stress. Furthermore, there were two relationship trajectories that predicted higher aggressive behaviors, namely one including the dissolution of the parent's romantic relationship followed by the mother's re-partnering, and the other including multiple transitions ending with the biological parents back together in a romantic relationship. Family instability (i.e., 3-6 transitions) was associated with higher aggressive behaviors. None of the post-birth marriage components predicted internalizing behavior. Analyses of parenting variables showed that parental stress and spanking predicted higher aggressive behaviors, but maternal involvement did not. Mediation tests revealed that parental stress mediated the relationship between marriage to the child's father and aggressive behaviors. Furthermore, a reduction in parental stress was linked to a decreased likelihood that the mother utilized spanking as a parenting technique.

Results support previous research linking family instability, parental stress, and spanking to aggressive behaviors. These findings were unable to find support for the assumption that any marriage is universally beneficial for *all* families, but found evidence that a marriage to the child's father may produce positive outcomes. This study contributes to a growing body of literature regarding fragile families and supports further study of the multiple dimensions of parents' romantic relationships and their impact on child wellbeing.

POST-BIRTH MARRIAGE AND CHILDREN'S BEHAVIOR IN FRAGILE FAMILIES

by

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CHAPTER 1: INTRODUCTION

Introduction

Traditional Families

The traditional family consists of two married parents and biological (or adopted) children. This family type has been championed by social scientists, politicians, religious leaders, and others as an ideal family form in which to raise children (Berger & McLanahan, 2012; Blackwell, 2010; Boutwell & Beaver, 2010; Hilton, Desrochers, & Devall, 2001; Waldfogel, Craigie, & Brooks-Gunn, 2010). Such a composition may be good for children not only because of the parent's marital status but also because of the normative path by which the family developed –marriage followed by childbirth. In following this path, these parents were likely better prepared both financially and emotionally to care for a child. Greater resources enable married parents to handle the stress that typically follows the transition into parenthood and allow them to continue to build a healthy family environment for their child. Children in traditional homes usually enjoy a stable environment, more family resources, and experience fewer family transitions during their childhood than children in other family forms (Berger & McLanahan, 2012). Children of married biological parents also exhibit better educational, social, cognitive, and behavioral outcomes than their counterparts in other family forms (Brown, 2010). In short, it would seem that being born to married parents is healthy for child development and wellbeing.

Fragile Families

While many children in the United States are born into a married-biological-parent family, these numbers have declined significantly in the past several decades. In 2011, 41% of all

children in the United States were born to unmarried parents; this number has more than doubled since 1980 (18%) and is over eight times the rate in 1960 (5%). In 2009, half of "first births" were born to unmarried mothers (Cook, 2011). The population-level shifts in the structure of the family and an overall decline in marriage in the United States are trends that social scientists predict will continue (Biblarz & Gottainer, 2000). This means that fewer children will be born to and live in married-parent families. In 2010, only 66% of children ages 0-17 were living with two married parents, down from 77% in 1980 (Cook, 2011). The declining numbers of children born to married parents also suggests that children will spend more time in a variety of family forms. Of non-marital births, 58% are to cohabiting parents (Cook, 2011), meaning that the remaining 42% of these children may not be raised by both biological parents. That the two-parent-biological-married family and the pattern of birth after marriage is increasingly less common might indicate that the traditional family form is becoming less attainable or less desired. But what do these changes mean for the parents and children living in what social scientists are calling "fragile families?"

The existing research on fragile families suggests some negative outcomes are the result of this trend away from births to married biological parents. Parents who are not married before having a child are in many ways poorly equipped to handle the stress of being a parent. Many fragile family parents are young, poorly educated, and earn lower-incomes than married families (Parke, 2004). Thus, fragile families are more likely to be in economic distress (McLanahan, Haskins, Garfinkel, Mincy, & Donahue, 2010). In addition, the romantic relationships between parents in fragile families tend to be less stable than those of married parents. In fact, one reason fragile families are considered "fragile" is precisely because these relationships so easily dissolve (McLanahan, Garfinkel, Mincy, & Donahue, 2010). Being burdened with economic stress and

relational uncertainty coupled with the possible psychological distress that may accompany a deviation from social norms, fragile family parents may have to manage much more intense stress, in addition to the stress of caring for a new child, than parents in traditional married unions. It is possible that these stressors might diminish their capacity to parent well and be emotionally available to their new child in the same way that married parents would be (see Conger & Conger, 2004).

Children in Fragile Families

Relevant to parents and policymakers is the question, "How does growing up in a fragile family impact the child?" The most obvious impact is that, as a young child, he or she will be part of a family system that is at high risk for economic disadvantage and dissolution. Living in such a family context might significantly influence the child's wellbeing and development. Studies have reported that children in families that began with a non-marital birth are at an increased risk for health problems (e.g., asthma, obesity), education and achievement delays, as well as a myriad of social ills, including poverty, crime, and delinquency (Blackwell, 2010; Hilton et al., 2001; Magnuson & Berger, 2009; McLanahan, 1985; Waldfogel et al., 2010). In addition, children in fragile families are at risk for poorer social and emotional development, beginning in early childhood (Waldfogel et al., 2010).

For children in general, the early years are critical in the development of healthy (or problematic) behaviors (Owens, 2011). Common child behavior problems include internalizing behaviors (e.g., withdrawal, anxiety, depression, and inhibition) and externalizing behaviors (e.g., aggression, noncompliance, and acting out) (Hilton et al., 2001). These behaviors have been linked to early school success and peer relations (Hinshaw, 1992, as cited in Williford, Calkins, & Keane, 2007) as well as antisocial behaviors in adolescence and adulthood (Boutwell &

Beaver, 2010). Because early behavior patterns influence later development, it is critical to better understand the factors that contribute to child behavior problems, specifically how living in a fragile family might influence child behavior in early childhood (Osborne, 2007). However, few studies have focused on samples of young children in fragile families to know how their behavior is related to living in this family context.

Parents are typically most influential in directly shaping early childhood development. However, if the parents are overly stressed or preoccupied, their ability to appropriately parent may be compromised. Children may respond to stressful family environments and poor parenting by showing distressed behaviors, either withdrawing or showing an increase in aggression. Children in fragile families may be at particular risk for developing behavior problems because of the stressful familial context in which they grow up and perhaps due to less effective parenting behaviors.

Children born out-of-wedlock have poor prospects when compared to children in traditional married families. It is possible that large numbers of children are beginning a trajectory of disadvantage simply due to their birth into a fragile family. However, not every fragile family child experiences negative outcomes. Some factors might encourage resilience or buffer the negative impact of stress experienced by fragile families. Marriage appears to be beneficial for traditional families; therefore, it is plausible that although fragile families began with a non-marital birth, children in these families might glean benefits from living in a "post-birth married family."

Is Marriage Best?

The conclusion that children do best in married biological families is derived in part from a body of literature that has compared married-biological parent families with other "non-traditional" family forms. Much of the relevant literature is discussed and referenced herein and

Brown (2010) and Waldfogel and colleagues (2010) offer more comprehensive literature reviews.

Many studies report that children living with married biological parents have lower behavior problems than children living in other family structures (Abada and Gillespie, 2007; Blackwell, 2010; Boutwell & Beaver, 2010; Brown, 2010; Cooper, Osborne, Beck, & McLanahan, 2011; Hilton, et al., 2001; Osborne, 2007). Using the FFCWS data, scholars have also reported that young children living with stable-married-biological parents have fewer behavior problems than children living in other family structures (Berger & McLanahan, 2012; Waldfogel, et al., 2010). When comparing the non-traditional family forms, there is some evidence that children living with single mothers fare worse in terms of behavior problems than children living in cohabiting families (Osborne, 2007; Waldfogel, et al., 2010), but most studies have found no differences in child behavior among non-traditional families (Bachman, Coley, & Carrano, 2011; Berger & McLanahan, 2012; Blackwell, 2010).

These findings support the idea that traditional families may be best for children, but they are not helpful in sorting out what elements of traditional family structures predict child behavior outcomes. These comparisons of family structure confound the influence of marriage with other variables such as biology and number of parents, thus making proper interpretation of the findings difficult. Neither marriage nor biology was consistently related to better outcomes, as was reported in the Berger and McLanahan (2012) study, where married-step-families and cohabiting-biological-families were similarly predictive of greater behavior problems and married biological parents reported the most positive outcomes. Although these findings might suggest that children exhibit the fewest behavior problems when the parents are both married and have a biological relationship to the child (Berger & McLanahan, 2012), these findings cannot be

generalized to all fragile families because the benefits of marriage highlighted in these studies were only for families who married before the birth of the child.

Despite the limitations of the literature, the idea that two-married-parent families are the best place to raise children is generally supported by societal, religious, and government groups. In recent years, policies and programs such as the Healthy Marriage Initiative were created based on the assumption that "marriage is an essential institution of a successful society which promotes interests of children" (US Congress, as cited by Brown, 2010, p. 1601). Furthermore, promoting marriage among low-income populations has been proposed to be a way to help alleviate poverty, reduce non-marital child bearing, and enhance child well-being (Brown, 2010). However, few studies have explored the potential impact of a post-birth marriage on child behaviors among fragile families; therefore many of these programs are based solely on theory.

Why Marriage Might Matter

There may be theoretical support for encouraging a post-birth marriage for fragile families and other disadvantaged populations. First, because marriage (particularly before childbirth) is sanctioned by society at large, moving into this normative pattern of family formation might bring with it social and institutional support. Second, marriage, as a legal institution, might provide greater stability to the family relationships, foster more defined parental roles, and encourage the intergenerational transfer of resources (Liu & Heiland, 2012). Third, from an economic perspective, marriage might be the best family structure for children because it provides greater economic resources through specialization, pooling resources, and an increase in productivity due to social learning (e.g., learning skills from other family members) (Liu & Heiland, 2012). Finally, as a social relationship, married partners may also provide significant emotional support to each other and may have more external motivations to invest both

emotionally and financially in family relationships (see Hofferth & Anderson, 2004). All of these factors, individually and combined, might enhance the quality of life of the family members directly, but also significantly reduce family stress.

In contrast, without marriage fragile families might experience greater relational instability, economic distress, fewer social resources, and little institutional/government support. Furthermore, although cohabiting partnerships may resemble marital unions, it has been argued that the former carry with them a sense of ambiguity and impermanence, which can be a cause of individual psychological and family stress (Artis, 2007). An increase in family stress might impact parents directly, significantly impairing their ability to be emotionally available to their children. A disruption in positive parenting as a result of stress might then contribute to child behavior problems, making parenting the process that links marital status with child behavior (see Conger & Conger, 2004). However, if the addition of a post-birth marriage actually reduces family stress in the ways suggested above, it is likely that fragile-family parents who marry would find that with less stress they are better parents and their children respond with fewer behavior problems.

There are several reasons why marriage might not make a difference to fragile families. The first argument is that of selectivity — that the same characteristics that predict marriage between men and women in fragile families also predict other positive outcomes that contribute to better parenting and child outcomes (Waldfogel, et al., 2010). Therefore, because fragile families are a select group, once married they will still not have advantages similar to those of traditional married families. For example, men who choose to marry might have different family values than men who cohabit, which might also motivate them to be better fathers, positively impacting their children (Waldfogel, et al., 2010). From this perspective, it is not the marriage but rather these individual characteristics that produce the positive child outcomes. Another factor might be

missing variables bias, meaning that other fundamental characteristics that predict marriage and child behavior were not measured by survey data but are significant in explaining the variance in these variables. If these variables were known, they could potentially be measured and controlled. Finally, there is an argument that the institution of marriage benefits only select groups. Due to changes in the economy and social policy, marriage may be less socially and economically beneficial, especially among low-income and racial/ethnic minority families. Barriers to marriage that inhibited a pre-birth marriage (e.g., low-income, disadvantage, poorer relationship quality) might make a post-birth marriage difficult and may also bring negative child behavior outcomes. For instance, if fragile family parents who are in an abusive or conflict relationship marry following the birth, this relationship might cause further harm to the child than good. Therefore, it is possible that a post-birth marriage for fragile families is not in the best interest of the child.

Post-birth Marriage in Fragile Families

Despite the many barriers to marriage fragile family couples face, many of these mothers eventually marry either the child's father or another man. A few recent studies have examined the impact of a post-birth marriage on children's behaviors among fragile families. Some found that post-birth marriage made no difference in child behavior outcomes in the short-term (Liu & Heiland, 2012; Osborne, McLanahan, & Brooks-Gunn, 2003). One study found that post-birth marriage among biological parents who were cohabiting at birth led to more behavior problems (Bzostek, 2008). Another found evidence that post-birth marriage might lead to better child behavior (Heiland & Liu, 2006). These studies were limited to marriages between biological parents to child outcomes in the first year or the first three years of the child's life. Therefore, further study is needed to determine if moving towards a "traditional-like" family leads to better child behaviors in the longer term.

As shown above in the studies focused on the relationship between child outcomes and marriage in a general population, other complexities linked to marriage might also be contributing to improved child behavior outcomes. For example, among fragile families, it is important to learn if the mother would need to marry the child's biological father or simply marry any man in order for the child to benefit. Other elements are relevant only to post-birth marriages, namely, the timing of the marriage, how the mother arrives at marriage (i.e., relationship trajectory), and the number of family transitions that occur prior to this marriage. All of these are elements unique to the experience of a post-birth marriage that may explain the impact marriage could have on child behaviors for fragile families. Very few studies have explored these questions, and no study has systematically explored each with the focus on child behavior outcomes.

Study Purpose and Aims

Fragile Families: Who Will Marry?

Fragile families are formed when a birth occurs outside of marriage. Many social and economic factors may have inhibited these couples from marrying. Notwithstanding these barriers, marriage is highly valued and is a goal for many fragile family couples (McLanahan & Beck, 2010). Inconsistent with this desire to marry is the fact that very few fragile family parents eventually marry each other. One report estimated that only 16% of fragile family parents had married within five years following the birth of their child ("Parents' relationship status five years after a non-marital birth," 2007). Therefore, the first aim of this study is to learn what kinds of mothers are able to marry and determine the characteristics that predict post-birth marriage within the first five years of the child's life (Research Question 1).

Post-birth Marriage & Child Behavior

Having married parents seems to be beneficial for many children, provided the marriage occurred prior to their birth. However, an increasing number of children are born to unmarried parents who will likely marry someone at some point in the child's lifetime. As described above, it is unclear whether a post-birth marriage in a fragile family would bring the same benefits enjoyed by children born within a married union. Therefore, the second aim is to determine the relationship between a post-birth marriage and child behavior outcomes (Research Question 2).

Because the experience of a post-birth marriage may vary in many ways, this study will include additional analyses of its complexities (Research Questions 2a-e). More than just the occurrence of a post-birth marriage (Research Question 2a) it might be important to consider the timing of this marriage (Research Question 2b). Although mothers in fragile families are unmarried at the time of the child's birth, the majority of unmarried mothers eventually marry at some point before age 40 (Gibson-Davis, 2011). In a study of the patterns of post-birth marriages among fragile families, Gibson-Davis (2011) found that, after 15 years, 85% of White mothers and 60% of Black mothers were married. However, the percentages of mothers who married within the first three years of the child's life have declined. In recent years, the pattern of post-birth marriage has shifted from a majority marrying the biological father shortly after the birth to waiting many years and possibly marrying another man (Gibson-Davis, 2011). These shifts in marriage trends among unmarried mothers raise the question as to whether the timing (i.e., early vs. late vs. never) of these marital unions would make any difference to the behaviors of the child (Research Question 2b).

These shifts in timing tend to correlate with the likelihood of a marriage to the biological father of the child. Gibson-Davis (2011) reported that the longer unmarried mothers waited to

marry, the less likely she was to marry the biological father. As noted above, only a relatively small percentage of unmarried parents marry the biological parent of the child within the first five years and half of these marry within the first year ("Parents' relationship status five years after a non-marital birth," 2007). Although most of these mothers will eventually marry someone, the longer she waits to marry, the less likely her partner will be the child's father. Five years after the child's birth, 18% of the mothers in fragile families were living with a new partner, 28% of whom were married to this new partner ("Parents' relationship status five years after a non-marital birth," 2007). Would a marriage to a non-biological father influence the child's behaviors? When examining the influence of post-birth marriage on child wellbeing, it is important to examine whether it is necessary to marry the biological father to improve child behavior outcomes or if the mother's marriage to another man other than the child's father is similarly beneficial (Research Question 2c).

In addition to asking if the child is living with his or her biological parents, it is important to consider the possible episodes of instability and change in the family structure the child experienced during these early years of life. In other words, does the pattern of post-birth unions and the relationship trajectories following the child's birth matter? In a sample of unmarried parents, the majority of these unmarried parents were in a romantic relationship of some kind (50% cohabiting) at the time of the child's birth. However, by year 1, many of the mothers had changed their relationship with the child's father ("Parents' relationship status five years after a non-marital birth," 2007). For example, in the first year of the child's life, 14.6% of a sample of unmarried parents changed their relationship status from cohabiting to married, 5.3% went from romantic but non-cohabiting relationship (i.e., visiting) to married, and 3% went from a non-romantic relationship (i.e., friends, no relationship) to married. By year 5, half of the mothers

who were romantically involved with the father of their child had ended the relationship ("Parents' relationship status five years after a non-marital birth," 2007). Fragile families experience a high frequency of significant relationship changes, which bring instability to family structure. Family transitions (e.g., parental partnership changes) are associated with increased behavior problems (Osborne & McLanahan, 2007). Thus, whether the relationship trajectory and the family instability (i.e., number relationship changes) are related to child behavior outcomes is important to examine among fragile families (Research Question 2d and 2e).

Parenting Behaviors: Mediating Family Process

Although some evidence links child behavior problems and family structure, more research is needed to explain the process through which the parent's marital status or other elements of family structure impact the child's behavior. Several researchers have suggested that parenting behaviors are primary mechanisms that may explain the link between family structure and child behavior (Artis, 2007; Boutwell & Beaver, 2010; Walfogel, et al 2010). Conger and Conger (2004) present a theoretical model that predicts that environmental stressors will increase the parental stress, which will negatively impact their ability to parent effectively, which would then result in more child behavior problems.

Some findings offer support for this model. First, positive parenting practices (e.g., quality time, reading, etc.) are linked to fewer behavior problems (Heiland & Liu, 2006). Nurturing and responsive parenting encouraged resilience among children and may lead to more positive outcomes for families who face adversity (Conger & Conger, 2004). Second, parenting behavior may be determined in part by the parents' level of stress. High parental stress leads to harsher, more negative parenting practices (Beck, Cooper, McLanahan, & Brooks-Gunn, 2010; Heiland & Liu, 2006). Finally, as a consequence perhaps, high parental stress is associated with

greater externalizing child behavior problems (Hilton & Desrochers, 2002; Williford et al., 2007).

If a post-birth marriage impacts the environmental stressors commonly experienced by fragile family parents, it would consequently impact parenting behaviors and ultimately child behavior. Single parent families experience greater stress due to limited resources, having to raise a child alone, and less parental control, which resulted in poorer parenting practices (Hilton & Desrochers, 2002; Williford et al., 2007). As described above, a post-birth marriage might reduce family stress by providing emotional, financial, and parental support. A reduction of stress would encourage better parenting, which would lead to better child behavior outcomes (Conger & Conger, 2004). Some evidence suggests that married parents more consistently provide quality care and use fewer negative parenting practices than single, cohabiting, or divorced parents (Abada & Gillespie, 2007; Gibson-Davis & Gassman-Pines, 2010; Hilton et al., 2001; Waldfogel et al., 2010). Others found no difference in parenting quality between cohabiting and married parents (Berger & McLanahan, 2012).

Although the relationship of stress, parenting behaviors, and child behavior has been established by Conger and Conger (2004) in Midwestern and middle class families, there remains a need to explore this relationship among fragile families. It is possible that a post-birth marriage might impact that child's behavior indirectly through the parents' behavior. Therefore, the final aim of this study is to examine parental stress and parenting behaviors as mediators (Research Question 3).

Summary of Project Aims

Marriage patterns following the birth of the child for fragile families are complex and vary by the occurrence, timing, identity of the mother's partner, relationship trajectory, and

family instability. Many conclusions regarding the benefits of marriage have been based on couples that married prior to the birth of the child. This study investigated factors linked to whether the mother married and the value and benefit of marriage following the birth of a child out-of-wedlock among fragile families. Marriage is a multidimensional construct and many of these important elements have largely been overlooked in the current literature. This study explored not only the occurrence of post-birth marriages among fragile families, but examined the timing, identity of the mother's partner, relationship trajectory, and family instability in the first five years of the child's life, and how these relate to the child's behavior problems. Only limited attention is given in the literature to family processes through which marriage impacts the child's behavior, particularly in early childhood. In response, this study also examined the potential mediating relationship of parenting behavior between marital status and child behaviors among fragile families.

Conceptual Model

The research questions and hypotheses were based upon a family stress framework, as will be described in greater detail in the next chapter. This study utilized the data collected for the Fragile Family and Child Wellbeing Study (FFCWS) by Princeton University and Columbia University. The data were gathered starting in 1998 during interviews with new mothers in hospitals in 20 large cities across the United States. Follow-ups took place when the child was 1 year, 3 years, 5 years, and 9 years of age. The data are publicly available and are provided without any personal identifying information. The current study examined a sample consisting of families whose parents were unmarried at the time of the birth of their first child (n = 2283) and focused on the first four waves of data (birth, year 1, year 3, and year 5).

Analyses were focused only on the first five years of the child's life, with child behavior outcomes at year 5 because fewer studies have examined the occurrence of behavior problems among children in early childhood and toddlerhood. In addition, studying young children reduces the potential confounding variables that are present for older children. For example, after age 5 the child will be in school and behavior problems might be explained in part to experiences with other adults, peers, and events at school.

The conceptual model included several components. The first was an exploration of the characteristics of the mothers who marry within the first five years following the child's birth (RQ1). Second, the relationship of post-birth marriage and child behavior outcomes were explored (RQ2). Several dimensions of the post-birth marriage among fragile families - the occurrence of marriage, the timing of marriage, the identity of the mother's partner, the mother's relationship trajectory, and family instability (i.e., number of transitions) across the first five years of life – were examined in relationship to child behavior outcomes (RQ2a-e). The third component of the study was an examination of parental stress and parenting behaviors (i.e., maternal involvement, maternal warmth, and spanking) as mediators or the process through which marriage influences child behaviors. Factors assumed to be possible exogenous selection factors, such as the mother's race/ethnicity, age, income, education, religiosity, and household income, were controlled in each analysis, as well as other factors that might have had a confounding effect on the dependent variable, such as the child's temperament and gender.

Research Questions

Below is a summary of the research questions for this study:

1. Who among fragile family mothers will marry?
    a. What maternal characteristics predict post-birth marriage among fragile family mothers during the first five years?
2. What is the association of post-birth marriage to child behavior among fragile families?
    a. Will the occurrence of any marriage between the birth and age 5 of the child (e.g. dichotomous yes/no variable) predict child behavior outcomes at age 5?
    b. Is the timing (early/late/never) of the marriage significant in predicting child behavior outcomes at age 5?
    c. Does the biological relationship of the mother's spouse to the child predict child behavior outcomes at age 5?
    d. Do different trajectories of the mother's romantic relationships predict child behaviors at age 5?
    e. Does the number of transitions predict child behavior outcomes?
3. Does parental stress and behavior act as mediators of the relationship between post-birth marriage and child behavior among fragile families?
    a. Do the significant dimensions of post-birth marriage predict parental stress and behavior?
    b. Does parental stress and behavior predict child behavior at year 5?
    c. Will the addition of the parenting variables significantly reduce the relationship between post-birth marriage and child wellbeing?

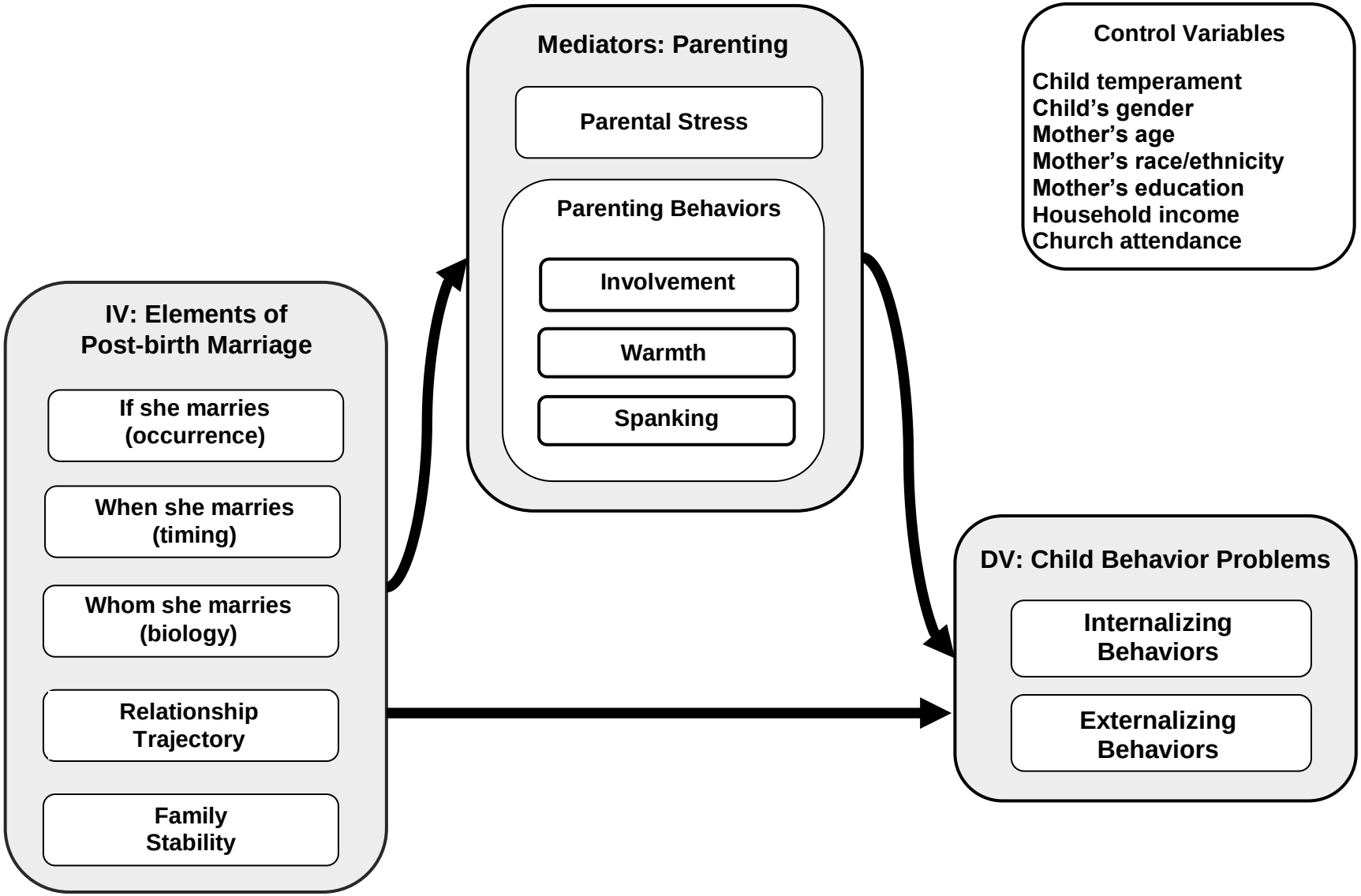

Figure 1. Conceptual Model

CHAPTER 2: THEORY & LITERATURE REVIEW

The purpose of this chapter is to provide the background and theoretical framework for this study. This chapter begins with an introduction to the population of interest – fragile families – followed by a description of the primary outcome variable, child behavior problems. These sections are followed by a description of the theoretical framework, family stress theory. The chapter concludes with a justification for each hypotheses based in current literature and family stress theory.

Section I: Fragile Families

History of Fragile Families

Beginning in the latter-half of the twentieth century, major changes in family structure were occurring in the United States; growth in divorce was accompanied by an increase in non-marital births. Today, large numbers of children are born out-of-wedlock into what are called "fragile families." The term fragile family was coined by Ron Mincy in 1994, and is defined as a family "in which the parents are unwed at the time of their child's birth" (McLanahan, Garfinkel, Mincy, & Donahue, 2010, p. 4). The title is indicative of the conclusion, supported by much of the family structure literature, that being born to unmarried parents creates an unstable environment for children (Osborne, 2007). Fragile families are at greater risk for relationship instability and dissolution, as well as significant economic and social adversity. The term implies that these relationships may be more "fragile" or "easily broken" than married families. Nevertheless, these relationships are more than just "casual encounters," but are "family." And more children are growing up in these families than ever before (McLanahan, et al., 2010).

Perhaps out of concern for the children in fragile families, many researchers have begun to investigate what living in one would mean for the children. One project that has significantly aided in this effort is the "Fragile Family and Child Wellbeing Study" (FFCWS). Beginning in 1998, McLanahan, Paxson, Currie, Garfinkel, Brooks-Gunn, Mincy, Notterman, and Waldfogel collected interview and survey data from mothers and fathers at the birth of their child. The sample included both mothers who were and were not married at the birth of their child. Follow-up interviews were conducted at years 1, 3, 5, and 9. The objective of the FFCWS was to understand the consequences of out-of-wedlock births for mothers and their children.

Who are Fragile Families?

Fragile families are defined by the unmarried status of the parents at the birth of the child (McLanahan, et al., 2010), yet there are a wide variety of family structures that fall under this broad category. For instance, fragile family parents may be cohabiting or living apart, dating new partners, or raising the child alone. Although many fragile family parents remain unmarried, a single parent (i.e., unmarried, without a partner) is not necessarily always a fragile family parent; one could be unmarried with children due to divorce or the death of a spouse rather than having had a birth out of wedlock (McLanahan, et al., 2010; Waldfogel et al., 2010). Fragile families are also not necessarily never-married parents because, according to McLanahan and colleagues (2010), some fragile family parents may have been married to another partner and then divorced prior to having this non-marital birth.

Fragile families are also likely to experience transitions across various family states in the years following the child's birth. Some fragile family parents may marry shortly after the child's birth, after several years, or never marry. Some children in fragile families live with both biological parents, while others have transitioned through several family structures with the re-

partnering of their parents (McLanahan, et al., 2010; Waldfogel et al., 2010). Table 1 shows how married-at-birth families compare to fragile families in terms of relationship statuses prior to and following the birth of the child. These two types of families may share similar relationship status titles at times (e.g., married, divorced, cohabiting) but should not be equated. Scholars suggest that children in fragile families have distinct experiences from children whose parents were married prior to their birth.

Table 1. Relationship Types in Fragile Families vs. Married-at-birth Families

Status at the child's birth	Changes following child's birth	Family type
Married	Separated, divorced, visiting, cohabiting, remarried	Married-at-birth family
Unmarried, Romantic	Married, separated, divorced, visiting, cohabiting, remarried	Fragile family

One way in which fragile families differ from many married-at-birth families is that they are largely under-prepared to support themselves and their children and are overrepresented in economically- and socially-disadvantaged populations (Bembry, 2011; Carlson, McLanahan, & England, 2004). Fragile family parents tend to be younger (by 7 years for mothers and 6 years for fathers) and likely less mature than married parents (Parke, 2004). Parents in fragile families also lack human capital such as work experience, education, good health, and social support. Fragile family mothers tend to be poorly educated; only 2% earned college degrees and 43% did not complete high school (Carlson et al., 2004). Fragile family parents were twice as likely as married parents to have dropped out of high school (Parke, 2004). Fragile family parents are also twice as likely to experience poor physical and mental health, which may also be linked to a lower level of productivity in the workplace (Park, 2004).

Perhaps as a consequence of their limited resources, large numbers of fragile families live in poverty, with 45% of fragile family mothers living below 100% of the federal poverty line; of

this 45%, 27% have incomes below 50% of the federal poverty line (Parke, 2004). When compared to married families, fragile families are twice as likely to be poor (Parke, 2004). Thus growing up in a fragile family almost certainly entails economic distress.

Growth in fragile families is found across all racial/ethnic groups, a trend researchers predict will continue (McLanahan et al., 2010). However, greater proportions of Black and Latino children are born into fragile families than White or Asian families. In 2011, half of all Latino children and 72% of Black children were born into fragile families. Asians have the lowest prevalence of unmarried births (17%) and White children fall between these two extremes (29%) (Child Trends, 2012; McLanahan, Haskins, et al., 2010). Thus, some fragile families may also experience stress due to racial discrimination.

The heterogeneity of fragile families means that even though they are similar by virtue of having had a birth out-of-wedlock, fragile families experience diverse familial processes and environments. It is, therefore, important to consider the complexities of fragile family post-birth relationships and family structures in determining how they might influence the children growing up in these homes.

Why Not Marry?

There are several theories why fragile family parents did not marry before the child's birth. Researchers have pointed to changes in cultural expectations of marriage as a cause for a delay in marriage, especially among disadvantaged populations. Marriage is still generally valued and desired, but marriage has been placed on such a high pedestal that many couples wait to marry until specific relational and financial milestones have been attained. For many low-income families, these standards may seem unattainable (England & Edin, 2007; Gibson-Davis, 2011). High rates of poverty among fragile families may both contribute to and be a consequence

of fragile relationships (Burton & Tucker, 2009). In a qualitative study, Edin and Edin (2007) investigated why fragile families do not marry and found that "rising emotional and economic standards for marriage have left many low-income couples in the situation where neither their relationship nor their budget meets their own standards for marriage" (p. 14). Whereas financial stability may be viewed as a requirement for marriage, it is not a requirement for cohabitation. In fact, cohabitation may be seen as a way to pool resources and save money (e.g., paying for one apartment rather than two). As a result, those who are struggling to make ends meet may tend to put off marriage for financial reasons, but then may choose to cohabit and may bear children in these unions. This is how many fragile families begin.

Gibson-Davis (2011) has described current societal level changes in the meaning of marriage as well as a decrease in the economic gains and necessity of marriage. Following the sexual revolution in the 1960s, marriage became less of a requirement for sex and childbearing. As the social gains of marriage declined in recent years, so have the economic benefits (Gibson-Davis, 2011). Marriage has generally not provided for Black women the same protective and economic benefits that White women enjoy (Burton & Tucker, 2009; Hill, 2006) and the incentives for marriage, therefore, are weaker. Consequently, White children spend more of their childhoods with married parents than Black children (Brown, 2010).

The financial instability and economic constraints that many low-income and minority groups experience are often barriers to marriage (Chaney & Monroe, 2010) resulting in an overrepresentation of racial/ethnic minorities among fragile families. A higher percentage of Black children are born to unmarried parents than any other racial/ethnic group (Bembry, 2011; Hummer & Hamilton, 2010). This may be due in part to the deteriorating economic status of Black men (McLoyd, 1990). High rates of unemployment, economic marginalization, and

financial constraints among minority men also contribute to a decreased interest in marriage (Chambers & Kravitz, 2011). The stress of working long hours in a low wage job might make it difficult for individuals to be emotionally available to their partners. One study found that Black women in poverty had limited time to invest in relationships due to other responsibilities (e.g., work, childcare) and poor health (Burton & Tucker, 2009). These and other constraints may strain relationships that might have otherwise led to marriage (Chambers & Kravitz, 2011; Clarkwest, 2007).

Another relevant factor that impedes individuals from marrying may be a lack of basic qualifications for marriage. Fragile family parents might not marry because they lack crucial qualities to attract and secure a marriage partner. Women who have a child out-of-wedlock are less advantaged in terms of education and income and thus less desirable as a partner. Likewise, men who chose to become a social father or father a child out-of-wedlock tend to be less advantaged than those men who marry (McLanahan & Beck 2012). A lack of eligible partners limits opportunity for marriage. Unbalanced sex ratios due to higher mortality rates, incarceration, drug and alcohol use among young men, make fewer "marriageable" options, particularly for Blacks (Dixon, 2008).

Why fragile family couples do not marry prior to the birth of their child is a complex issue. It is evident that attaining marriage may be more difficult for some populations due to poverty and disadvantage. Although fragile family couples may have had barriers that kept them from marrying before the child's birth, many of the couples marry after the child's birth (each other or another partner). However, very little is known about the couples who eventually marry and how this post-birth marriage impacts the child growing up in these fragile families.

Section II: Child Behavior Problems

Aggression, noncompliance, depression, anxiety are a few of the behaviors that are considered problematic for children. During early childhood most children misbehave at times, which may be part of their normal social and emotional development (Campbell, et al., 1996). As young children gain greater independence with improved motor skills and cognitive functioning they may test their limits and misbehave more frequently (e.g., "terrible twos"). After toddlerhood the child's behavior improves as he or she learns self-control and conforms to social norms (Dehart, Stroufe, & Cooper, 2004). Misbehavior that persists beyond what is expected as part of normal child development might indicate more serious problems with long-lasting effects. Child behavior problems are typically categorized into two types: internalizing behaviors include withdrawal, anxiety, depression, and inhibition and are associated with excessive emotional control; and externalizing behaviors include aggression, noncompliance, and acting out, representing a lack of emotional control (Hilton et al., 2001).

Child behavior problems can have a long-term negative impact on the individual child, but also can contribute to problems in the family and community. Previous studies have shown that child behavior problems impact other areas of child functioning and "set the stage for subsequent development" (Osborne, 2007, p. 2). These studies show that behavior problems such as impulsivity, aggression, low attention span, and low self-control that develop in early childhood are associated with poorer school performance and peer relations during childhood and antisocial behaviors during adolescence and into adulthood (Hinshaw, 1992 as cited in Williford et al., 2007; Boutwell & Beaver, 2010). Thus, better understanding the factors that contribute to child behavior problems, especially those rooted in early childhood, is relevant to

parents, politicians, social scientists who are interested in creating interventions that might prevent more serious problems in adulthood.

Parenting and Child Behavior

There are certainly many factors that may contribute to the occurrence of child behavior problems in early childhood (i.e., child temperament, cognitive development, etc.), however it is widely accepted that parents' behavior directly impacts child's social and emotional development, particularly in early childhood when more time-intensive parental care is required. These early years are a critical developmental period for forming expectations about the consistency of their care and a sense of their own capabilities. Children are directly impacted when there is an interruption in the quality of this care (Bachman, et al., 2011).

The parenting literature has focused on two dimensions of parenting: nurturance and control (Waldfogel, et al., 2010). The literature has documented that authoritative parents, those who exhibit a combination of high parental nurturance (warmth and involvement) and high parental control, most appropriately prepare their children for later life (see Baumrind 1966, Darling & Steinberg 1993). Authoritarian (high control, low warmth), permissive (low control and high warmth), and neglectful (low control and low warmth) parenting can lead to rebellion, acting out, withdrawal, and other child behavior problems (Baumrind, 1966; Baker et al., 1996; Linver, et al., 2002; Querido, et al., 2002; Tan, et al., 2012; Williams, et al., 2009). Because of the relationship of parenting with child behavior, it is important to learn the factors that encourage positive parenting behaviors and those that contribute to dysfunctional parenting. Parenting behavior occurs within the family context, thus family environmental factors are likely to contribute to parenting behaviors and, therefore, to child behavior (Campbell, et al., 1996).

Family Structure and Child Behavior

Scholars have also looked at the structure or composition of the family as a partial determinant of children's social and emotional development. The earliest findings were based on comparisons between married, remarried, and divorced families (Brown, 2010). In response to the surge of non-marital births and the emergence of various non-traditional family forms, current research has expanded its scope to include other family types (e.g., cohabiting, single, unmarried). After reviewing the family structure literature in the last decade, Brown (2010) concluded that, "children living with two biological married parents experience better educational, social, cognitive, and *behavioral* outcomes than do other children, on average," and that the benefits of living with married parents are experienced in the "short-term but also endure through adulthood" (p. 1602, italics added).

Due to several limitations in this literature, Brown's (2010) conclusion cannot be applied to families who were formed by an out-of-wedlock birth (i.e., fragile families). First, these findings are based on "static comparisons of child outcomes across family structures" and do not appropriately take into account changes over time (Brown, 2010, p.1066). Second, the way family structures have been operationalized and the terms used to describe these family forms are confusing and often overlap. For example, a "single" mother may or may not have been married at childbirth, and may or may not be currently cohabiting with a partner, both of which are important distinctions. Third, the timing of the marriage (pre vs. post-birth) is generally not considered. As depicted in Table 1, above, families may have similar marital statuses (e.g., married, divorced) but may have had different experiences because their marital status at the birth of the child differed. Unless the marital status of the parents at the birth of the child is considered, research findings cannot be generalized to fragile families. Thus, more research

focused primarily on fragile families is needed and should be grounded on a sound theoretical framework.

Section III: Theoretical Framework

The research questions and analyses for this study were built upon a theoretical framework of how a post-birth marriage in a fragile family may affect child behavior that is largely based upon family stress models (see, Hill, 1958; Patterson, 2002; Conger & Conger, 2004; Cavanaugh, 2006, 2008). Family stress theory elucidates what factors might predict a post-birth marriage (RQ1), how changes in the parents' romantic relationship (e.g., post-birth marriage) would impact the child's behavior (RQ2) and how parental stress and behavior mediate these relationships (RQ3). Below is a description of the basic assumptions of family stress theory and how they relate to fragile families.

Principles of Family Stress Theory

Family stress theory, as originally described by Hill (1958), is based on the assumption that the family is an interacting and transacting organism. The members of the family unit are interconnected and are therefore affected by each individual. As a transacting organism, the family interacts with other "agencies" (e.g., people and groups outside of the family unit) and is therefore impacted by environmental factors. These factors, internal or external, have the potential to strain the family's resources and require the family to adapt. Boss (2003), building on Hill's original concepts, defines *family stress* as the pressure or tension to change in order to adapt to an external or interpersonal stressor. Family stress may significantly disrupt the state of normalcy or homeostasis of the family, requiring the family to change and re-organize roles,

responsibilities, and possibly structure in order to cope. Family stress, therefore, impacts both family processes and the behavior of individual family members.

The impact of family stress varies by family based on the meaning the family attributes to the stressor and the resources that are available to allow effective coping. Resources are the means through which families can adequately cope with stress or work to reduce or prevent stress. Adaptation or positive coping is determined in part by the family members' ability to successfully fulfill their role responsibilities in the family (e.g., nurturing parenting). Likewise, behavior problems and dysfunctional family processes indicate that the family is in crisis or having difficulty managing the stressors in the family environment (Hill, 1958).

Family Stress and Child behavior

Problematic child behavior, according to family stress theory, is an indicator of child distress as a response to a stressful environment (Carlson & Corcoran, 2001). Family stress theory would predict that children who experience greater strain would respond with greater child behavior problems. This assumption is supported by a study that found that family stress had a direct effect on boy's behavior problems that was slightly attenuated by negative maternal control (Campbell, et al., 1996). Younger children were particularly sensitive and easily distressed by family stress (Campbell, et al., 1996). Therefore, according to this theory, child behavior problems are, at least partially, a consequence of family stress.

Family Processes

Family stress theory explains that the family unit itself can be impacted by family stress. In other words, not only are individuals (e.g., parents, children) impacted by family stress, but also significant family processes might change during periods of stress. For instance, the way

parents interact with their children is a family process that impacts child behavior and is affected by family stress. As described above, children whose parents are highly engaged and warm and are able to discipline without hostility tend to have fewer behavior problems (Baurimd, 1966). Kotchick (2005) explains that parenting behaviors, according to family stress theory, can be impaired by contextual stressors (p. 449). Bozoekt and Beck (2012) explain that family stress might decrease "warm, consistent, stimulating, and nurturing" parenting behaviors, which may lead to "emotional disregulation and insecurity for children" (p. 283). A change in the quality of parenting behaviors (i.e., nurturing vs. hostile) would directly impact the child, possibly more than would the external stressor that is impacting the parent (Conger & Conger, 2004). Therefore children respond to this gap in positive parenting during a period of family stress by behaving in problematic ways (Conger & Conger, 2004). In sum, the family stress theory posits that exposure to family stressors increases parental stress, which compromises parenting and then exacerbates child behavioral maladjustment (see Figure 1).

Figure 2. The Theoretical Process Though Which Family Stressors Impact Child Behaviors

Stressors

Based on the definition of family stress, any variable that causes stress or requires that the family must change in some way to adapt could be considered a *family stressor*. Family stress occurs under various circumstances, but always requires the family to adapt by changing behavior (i.e., the roles and responsibilities of each member). Change can be the result of external stressors (e.g., economic downturn, disasters, war, poverty), a normative family transition (e.g., birth, death), changes in family structure (e.g., divorce), or can be interpersonal (e.g., illness of a family member). Whatever the source, periods of change can create a feeling of

insecurity among family members and instability in the family environment. Below are a few family stressors that are common for many fragile families.

Economic hardship. Economic distress has been an area of focus for several family stress theorists (Conger & Conger, 2004; Conger & Elder, 1999; McLanahan, 1985). Economic resources are important to children and families because they provide financial stability, the ability to purchase goods and services, and determine family welfare (Biblarz & Gottainer, 2000). Financial strain may be a significant stressor when it impacts family functioning.

Economic hardship is a common stressor experienced by fragile families. As described in Section I, fragile families tend to be severely disadvantaged and largely under-prepared to support themselves and their children (Bembry, 2011; Carlson, McLanahan, & England, 2004). Living in poverty is associated with other stressors, such as unemployment, financial strain, living in high-risk neighborhoods, and food insecurity. These all may contribute to the "fragile" nature of these families. In addition, large percentages of fragile families among some racial/ethnic minority groups also experience the stress of racism, discrimination, and inequality (Clark, Anderson, Cark, & Williams, 1999; Christie-Mizell, Pryor, & Grossman, 2008)).

Family life course transitions. Other sources of family stress are the normal and predictable events in the family's life course, such as births, deaths, marriages, school entry, and retirement, whether or not these result in a family structure change. Family transitions, both normative and "off-time," tend to create a temporary disturbance in the family processes and organization, which causes stress (Cavanagh, 2008; White & Klein, 2002). Price (2010) explains that these transitions "have the potential of changing a family's level of stress because they disturb the system equilibrium" (p. 2). During periods of family change, the members must adjust to changes in routines, roles, and patterns of behaviors and must find a new state of

normalcy. The family is therefore likely to experience high levels of stress during these periods of instability as they adjust (Price, 2010).

Family stress is more severe when family events that are unexpected or do not follow the normal life course trajectory (e.g., divorce/separation, death of a child, birth before marriage), even if they are welcomed (e.g., winning the lottery) (Prince, 2010). According to family stress theory, families who follow "non-benchmark patterns" or whose transitions do not follow a normative sequence are vulnerable to a great deal of disequilibrium and stress (Demo & Acock, 1996). The order of events may also impact the level of family resources available to manage the stressors. The timing and sequence of the events contribute to how these stressors are perceived by the family members. Non-normative transitions might be more likely to be perceived as being "unfair" and experienced as overwhelming (Price, 2010, p.10).

Fragile families may experience significant family stress as a result of their having a child before marriage. A couple that has a child prior to marriage might be less equipped to handle the stress of the transition into parenthood. Marriage prior to childbirth may increase family social and economic resources, which may buffer the impact of stress during this transition. Because they do not follow social norms, fragile family relationships are often uncertain and ambiguous. For fragile families, the transition into parenthood prior to forming a marital bond might lead to other disruptions in the family life course, such as a separation of the biological parents, a marriage to a stepparent, or continuing cohabitation (e.g., no marriage). Therefore a series of "off-time" events might exacerbate family stress by increasing the instability of the family.

Family structure instability and change. Family composition or structure may also be a significant stressor (Carlson & Corcoran, 2001). Family structures may change with the addition of a member (e.g., birth, marriage, adoption) or with the loss of a member (e.g., divorce,

separation, death). Hill (1958) points to changes in the parents' marital and romantic relationships as a major source of stress because the entrance or exit of a romantic partner in the family creates adjustments in status and require role changes. Recently scholars have recognized that "the increasing fluidity of family structures" is a serious family stressor (Price, 2010, p. 2). Hofferth (2010) cites previous literature that shows divorce and parental separation to be significantly stressful events in the children's lives. Experiencing several family structural transitions during childhood can be particularly distressing to the child. The child might feel angry or upset and insecure in the new family environment and respond with aggression or withdrawal (Hill, 1958 as cited in McLanahan, 1985).

One reason fragile families are considered 'fragile' is because of the high probability that the family structure that existed at the time of the child's birth will change and dissolve. Instability in the family can occur during times of transitions or family structure changes. Instability in the home is a risk factor for negative child outcomes (Walsh, 2006). Children who experienced family change and instability during their early years of life had poorer social relationships, were less popular at school, and had higher self-rated loneliness (e.g., an internalizing behavior) (Cavanagh, 2008). Family structures and other family resources that encourage stability may allow for better functioning amidst stressful events and reduce the likelihood of future stressful structure changes.

Resources

Family resources are also important to understanding family stress, the child's level of distress, and consequential behavior problems. According to family stress theory, hardships and change are exceptionally distressing when the family does not have adequate resources to cope well with the adversity (Hill, 1958). There are many types of family resources, including

financial or physical resources (e.g., what the family has), social support (e.g., feeling loved and cared for), and network support (Volling, 2012). In addition are individual characteristics (e.g. health, education) and family characteristics (e.g., family cohesions, unity, adaptability). Family resources are a critical element for families to overcome family stress and adversity because they buffer or reduce the impact of the stressor experienced by the family (Price, 2010; Hill, 1958). Families who do not have sufficient family resources tend to experience crises in response to stressors rather than coping and adapting well (Volling, 2012). Family resources are important for child wellbeing and critical for efficient family functioning (Brown, 2010). Theory suggests that stressful and challenging periods provoke "disordered behaviors [for children]… unless psychological resources and environmental supports for coping with the stress are in place" (Volling, 2012, p. 498-499).

Fragile families tend to lack important family resources. For instance, fragile families tend to have fewer financial resources (e.g., lower income), individual resources (e.g., lower education), and may also lack some important family characteristics. Hill (1958) explains that families who are adequately organized, agree on roles and responsibilities, and are able to move collectively as a unit towards family goals are better able to withstand the blow of external stressors. Families who are well organized prior to a hardship will continue with this organization through the crisis, which is predictive of a positive recovery (Hill, 1958). Weaker organization may result in a longer period of disorganization, role confusion, and insecurity during stressful periods. When the lines are clear about who is in this family unit, the family is able to pull together during times of crisis and create greater solidarity. Cohabitation and frequent structure changes, which are more common among fragile families, result in ambiguity about roles and family membership. Hill (1958) also explained that a critical family resource is

integration or unity, which includes healthy family relationships (e.g., common interests, affection), the subordination of personal ambitions to fulfill family goals, and economic interdependence. Some fragile families may lack unity as evidenced and/or caused by the fact that they did not marry prior to the child's birth. Poorer relationship quality was one reason why many fragile family parents did not marry prior to the child's birth. In addition, cohabiting or "visiting" parents are much less likely to be economically interdependent than parents who are married.

In sum, family stress theory is based on the premise that an external or interpersonal stressor can have a negative impact on a family, both on the individual members and family processes, if the family is not able to balance the demands of the stressor with family resources (Patterson, 2002). A child's problem behavior is an indicator or a symptom of a family system under significant distress or crisis. This theory is particularly helpful in explaining and predicting how changes in the parents' romantic relationships (e.g., post-birth marriages) are related to the child's behavior problems. As described above, fragile families might be at greater risk for child behavior problems because they frequently experience stressors (e.g., economic hardship, family structure change, "off-time" family transitions). In addition, these families tend to have fewer resources, both economic and family (e.g., unity, organization), which may increase the likelihood that the presence of an external stressor results in family crisis and child behavior problems.

Post-birth Marriage: A Resource or a Stressor?

Very little is known about how a post-birth marriage functions for fragile families. What kind of family environment does marriage create for the family when it occurs after the birth of a child? As detailed above, the presence or absence of family stress would have a direct impact on

the child and contribute to the occurrence of either negative or positive child behaviors. If a post-birth marriage changed the family unit's level of stress, it could directly explain part of the child's change in behavior problems. Furthermore, as described above, family stress may also influence family processes (in addition to the individuals in the family), which means that if a post-birth marriage impacts the level of family stress, this might then contribute to parenting practices, positive or negative. These parenting behaviors explain how post-birth marriage might also indirectly impact child behavior problems.

Family stress theory could explain each possible outcome – a post-birth marriage predicts greater child behavior problems, fewer behavior problems, or is not significantly related to behavior problems (see Figure 2). First, a post-birth marriage is a family transition, and theoretically would bring change, disequilibrium, and stress. The family would experience a change in the parents' marital status and possibly see changes in the household income, employment arrangements, family roles and responsibilities, and may also include family structure changes (e.g. biological father entry, marriage to a step-father, etc.). These changes would disrupt the family's state of normalcy and this period of disequilibrium might be significantly distressing to the child. Therefore, even though marriage is generally thought as positive, a post-birth marriage could be experienced as a significant stressor for family, which would be evident by an increase in child behavior problems.

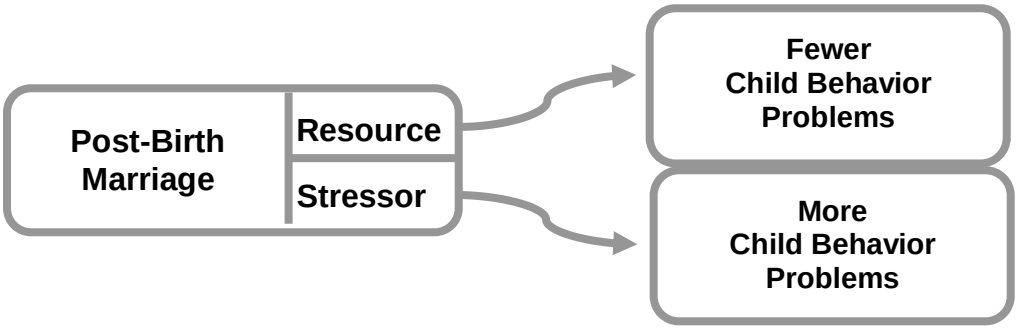

Figure 3. Theoretical Model of the Relationship of Post-birth Marriage and Child Behaviors

An alternative view supported by theory is that a post-birth marriage does not function as a stressor but a resource. A post-birth marriage will likely increase family resources, which might both reduce family stress and buffer against other family stressors. Marriage provides greater economic resources through specialization, pooling resources, and an increase in productivity due to social learning (e.g., learning skills from other family members) (Liu & Heiland, 2012). Married couples also are eligible for economic benefits from the government (e.g., tax breaks). A marital commitment might also increase the stability of the family environment by decreasing the likelihood of future family structure changes. Marriage might also provide valuable emotional support to the spouses as they rear young children. Therefore, a post-birth marriage might bring greater resources and reduce the stress experienced by the child in the home who would respond with positive behaviors.

A third possible outcome is that a post-birth marriage has no relationship to child behaviors. According to family stress theory, this would indicate that the post-birth marriage does not function as a stressor or a resource. Another possible explanation might be that the post-birth marriage brings some resources to the family, but these are not sufficient to buffer against the severe stressors of deprivation experienced by most of the fragile families. Such a result would indicate that post-birth marriages do not bring the same level of positive benefits to fragile families as it might to families who married prior to the child's birth.

Because post-birth marriages among fragile families include multiple dimensions (e.g., timing, partner selection, trajectory, etc.), it is possible that each element may function differently; meaning that one type of post-birth marriage might act as a resource whereas another type would be a stressor. For example, an early post-birth marriage (within the first year of the child's life) might be a resource for the family across the first five years, whereas a late post-

birth marriage (e.g., at year 5) might be experienced as a family stressor. In order to tease out these complexities, this study conducted a systematic analysis of these dimensions in order to learn how a post-birth marriage impacts the family and the child's behavior. Because stress on the child was not measured directly, stress is inferred by the outcome – whether the child has more or fewer behavior problems. In the mediation analysis, parental stress was included to directly measure this construct.

Section IV: Hypotheses and their Justification

Details about how family stress theory predicts outcomes to each research question are presented below. Three research questions are outlined, followed by a review of relevant literature. This section is followed by an outline of the theoretical rationale, a summary of each corresponding hypotheses, and concludes with a summary of the current study and hypotheses.

Research Question 1 (RQ1): Which characteristics predict a post-birth marriage among fragile families?

The first aim of this study was to examine the patterns of romantic relationships of parents in fragile families, specifically who marry in the first five years following the birth of the child. The differences between these two groups might explain, in part, differences in parenting behaviors and child behaviors between these two types of families. Therefore, it was important to test for selectivity by first examining the characteristics that predict a post-birth marriage for fragile family mothers.

Resources. Large percentages of fragile family parents eventually marry someone, and some marry each other very quickly after the birth of the child (Gibson-Davis, 2011). Those who

marry post-birth must overcome some of the barriers that kept them from marrying in the first place (see *Section I: Why Not Marry?).* Family stress theory would suggest that mothers with greater resources would be able to endure this stressful time well enough to be able to marry. Likewise, families with fewer resources would likely not be able to overcome the barriers that inhibit them from marriage. Theory would also suggest that external and interpersonal stressors would keep fragile families from marrying post-birth. Parents under great stress may not be able to form and sustain healthy romantic relationships.

A few studies indicate that greater physical/financial resources predict a post-birth marriage for fragile families. Liu and Heiland (2012) found significant differences in family resources between fragile family mothers who married and those who never married. Specifically, older, better educated, and employed mothers with higher household income were more likely to have married. In an earlier study, Heiland & Liu (2006) found that White mothers who owned their own apartment were more likely to marry, or at least continue to cohabit with the biological father of the child (Heiland & Liu, 2006). Another study found that greater family resources, such as the father's income and the mother's education, predicted post-birth marriage (Carlson, et al., 2004). Osborne (2005) found that mother's education predicted marriage in the first year for cohabiting parents and mother's earning predicted marriage for visiting parents.

Some studies suggest that resources may not be a predictive factor for post-birth marriage. Bogle (2012) found that income and education varied significantly between married and cohabiting fragile family couples at year 5; however, these variables did not predict a post-birth marriage. Also of note was that no differences in economic resources were found between cohabiting families that later transitioned into marriage and those who remained cohabiting (Bogle, 2012).

Relationship quality. Resources might also include relationship quality and commitment. One study found that relationship quality was a predictor of a post-birth marriage for fragile families (Bogle, 2012). For example, when negative aspects of the relationship were present (e.g., disagreement, conflict, violence), couples were more likely to stay in a long-term cohabiting relationship rather than get married. Osborne (2005) found better relationship quality and lower conflict predicted marriage for both cohabiting and visiting parents. Emotional support was not predictive of marriage. Another found that couples who were cohabiting at the time of the child's birth were more likely to later marry than couples in other relationship statuses (e.g., visiting, just friends, etc.) (Liu & Heiland, 2012). Cohabiting couples may have had greater commitment to the relationship than parents who were just friends or had no relationship.

Beliefs. Some social and intrapersonal resources have been shown to predict post-birth marriage. Mothers who married following the birth were more likely to be Catholic and attend religious services frequently and the fathers who married were less likely to have suggested an abortion (Liu & Heiland, 2012). Religious communities might provide social support and religious beliefs might be helpful for coping with stressors. Beliefs about marriage and family stemming from the Catholic religion might be powerful motivators to marry. Thus women who are member of groups (e.g., religious, racial/ethnic, etc.) that value marriage highly might be more likely to marry following the child's birth than those who do not. Positive perceptions about marriage (e.g., attitudes, and expectations) and the mother's trust of men also predicted post-birth marriage (Carlson, et al., 2004; Bogle, 2012). In contrast, Osborne (2005) found that attitudes towards marriage did not predict a post-birth marriage for cohabiting and visiting parents (Osborne, 2005).

Other stressors. While resources may predict a post-birth marriage, additional stressors, such as additional children, might further inhibit mothers from marrying. All of these families are dealing with some stress from becoming a new parent, but some have the additional stress of caring for other children. These competing obligations might impede the mother's ability to marry because she may not have the time or emotional energy to invest in romantic relationships. Likewise, if the father (or romantic partner) has children from another relationship, he might be less motivated to marry into a new family when he has other children for which he is obligated to provide. Hofferth & Anderson (2004) explain that obligations to children from previous relationships may interfere with the father's ability to invest in new relationships. Thus some family characteristics might increase stress and might make a post-birth marriage less likely.

In sum, fragile family mothers who are able to marry following an out-of-wedlock birth may differ in important ways from mothers who never marry. According to previous findings, mothers who marry will likely have greater economic and social resources, value marriage, and have a higher-quality relationship than those mothers who never marry. Statistical tests are needed to determine if other maternal characteristics, such as physical health, age, or race/ethnicity, predict a post-birth marriage.

Theory & Hypothesis:

According to family stress theory, greater family resources and fewer stressors will enable the mother to cope well enough with current stressors to be able to invest in her romantic relationship, making a post-birth marriage more likely.

- *It was hypothesized family resources, relationship quality, valuing marriage, and the family structure (i.e., relationship status, other children) will increase the likelihood of a post-birth marriage among fragile family mothers.*

Research Question 2 (RQ2): What is the relationship between post-birth marriage and child behavior problems?

The second purpose of this study was to learn how post-birth marriage is related to child behavior problems. As described above, the theory suggests three plausible outcomes: 1) greater child behavior problems, indicating that a post-birth marriage is a stressor, or 2) fewer behavior problems, indicating that a post-birth marriage is a resource, or 3) no relationship among variables, indicating that a post-birth marriage is neither a resource nor stressor (see Figure 2). It is possible that due to the many complexities of post-birth marriage, the relationship between post-birth marriage and child behavior may vary by sub-group. For example, factors such as the timing of the post-birth marriage, the biological relationship of the spouse with the child, and others, may be relevant in its impact on the child's behavior. Therefore, in order to carefully examine these complexities, RQ2 included five sub-questions that address these various elements of post-birth marriage and how they relate to child behavior problems. A description of each question, a brief review of pertinent literature, and a summary of the hypotheses are outlined.

RQ2a: If she marries: Occurrence of any post-birth marriage?

The first step to understanding the relationship between post-birth marriage and child behavior was to determine if the occurrence of any post-birth marriage in the first five years of the child's life significantly predicts child behavior outcomes at age 5. Existing literature on the topic of post-birth marriage and child behavior problems among fragile families is sparse and the findings are mixed and have many limitations. In one study, no differences in child behavior were found when cohabiting mothers who married post-birth were compared to those who remained in stable cohabiting relationships (FFCWS data) (Osborne, et al., 2003). Thus, a post-birth marriage did not improve child behavior within the first three years of the child's life

among previously cohabiting parents. These findings are limited by the fact that the authors examined outcomes only at three years and included only families who were cohabiting at birth.

Bzostek (2008) examined child behavior (i.e., anxious/depressive, withdrawn, and aggressive behavior) at years 1 and 3 among families whose mothers married following the birth and those who continued to cohabit (FFCWS data). Biological parents who married after the child's birth exhibited higher levels of aggressive behaviors than children living with stably cohabiting biological parents (Bzostek, 2008). Unfortunately, the authors gave no explanation for these findings.

Using FFCWS data, Heiland & Liu (2006) compared biological parents who were cohabiting, visiting, or had no relationship at the time of the child's birth and examined the relationship between marriage (vs. no marriage) of the biological parents at year 1 and child behavior when the child was 1 year old. Behavior was measured using six questions: is the child shy, fussy or cries often, gets upset easily, reacts strongly when upset, is sociable, and is friendly to strangers. Parental SES and demographic characteristics were tested as possible mediators in one model and then as control variables in another model. Their findings showed that children whose parents married in the first year had better behavior outcomes than those whose parents remained unmarried. Likewise, parents who were not romantically involved at age 1 were more likely to report poorer child behavior. Parent relationship at the time of the child's birth did not mitigate these effects. The events were limited only to marriages between biological parents up to year 1.

Liu & Heiland (2012) examined the impact of post-birth marriage by year 3 on child behavior among fragile families (FFCWS data) who were romantically involved at the birth of the child. The authors address the selection into marriage by using a matching method to identify

the treatment effect of marriage on these children. Child behavior in this study was measured by aggressive behavior, ADHD, oppositional defiant disorder, and pro-social behavior. They found that marriage during the first three years of the child's life was significantly associated with increased child cognitive abilities (i.e., increase of 1 point relative if the parents had married), but found no evidence that marriage reduced the risk of child behavior problems. They conclude that the differences in parenting behaviors by marital status influenced cognitive abilities but not behavior. These findings were limited only to child outcomes at year 3 and post-birth marriages of biological parents who were romantically involved at birth.

In sum, the few studies on the impact of post-birth marriage among fragile families reported mixed findings. One found that post-birth marriage of biological parents was associated with poor behavior problems (Bzostek, 2008), another found evidence that post-birth marriage might lead to better child behavior (Heiland & Liu, 2006), and others found that post-birth marriages were not related to child behavior (Osborne, McLanahan, & Brooks-Gunn, 2003; Liu & Heiland, 2012). These mixed finding may be due to the limitations to these studies. First, with the exception of the Heiland and Liu (2006) study, all of these researchers limited their study to a comparison of only two family structures (i.e., those who married post-birth to stably cohabiting couples). A second limitation was that all of these studies were focused exclusively on biological parents. A third limitation is that child behavior was measured at either year 1 or year 3. Child behavior problems may be difficult to measure in very young children and benefits of a post-birth marriage may be more evident after some time has passed. Another reason for these mixed findings is the heterogeneity of the sample, suggesting that different groups might experience different effects of a post-birth marriage. The current study added to the current literature by including all fragile family parents (e.g., romantic and non-romantic relationships at birth) and

by measuring child behavior outcomes when the child is 5 years old. Because the literature does not give a clear direction for this relationship, the hypothesis was based on theory.

Theory & Hypotheses:

According to family stress theory, if the occurrence of a post-birth marriage does in fact decrease family stress (i.e., resource) for fragile families then it would be expected that the occurrence of a post-birth marriage would be related to fewer child behavior problems. If the occurrence of a post-birth marriage does increase family stress (i.e., stressor) for fragile families then it would be expected that the occurrence of a post-birth marriage would be related to fewer child behavior problems.

- *It was hypothesized that a post-birth marriage between birth and year 5 will predict child behavior problems at age 5, direction not predicted.*

RQ2b: When she marries: Timing of post-birth marriage

It is possible that the impact of a post-birth marriage may vary by when the marriage occurred. Because the studies above were limited to just a few years after the child's birth, it was not possible to examine how the timing of a post-birth marriage impacted later behavioral outcomes. More waves of data are now available, making it possible to examine data from birth to early childhood (until year 5) and investigate the significance of marriage timing on child behaviors. Theory exclusively guided this hypothesis because of the lack of prior research. Family stress theory postulates that children are impacted by and respond to stressful family environments. The impact of a post-birth marriage on the child's behavior may differ based on the amount of time the child lives in a stressful family environment. If a post-birth marriage functions as a resource for fragile families, children who have lived in the married-parent environment longer would experience less accumulation of stress and would exhibit fewer

behavior problems. Children whose parents marry quickly after the child's birth (within the first year) would potentially experience the benefits of this marriage longer than children whose parents marry after many years. In theory, the child who lives in an unmarried family for more time is exposed to greater family stress and fewer benefits of the marriage (i.e., resources, stability) and would therefore respond with poor behavior. Alternatively, if a stressor, the later post-birth marriage might predict more child behavior problems at year 5 due to the timing of the stressful event. Families tend to find a new state of normalcy after some time has passed. Therefore, a child is more likely to misbehave during or shortly after the turmoil of the family change. In either case, the timing of the post-birth marriage theoretically would explain part of the variation in child behavior problems.

Theory & Hypotheses:

According to family stress theory, children who experience greater stress (due to a lack of resources) for longer periods of time are most likely to exhibit behavior problems. Family stress (due to a transition) is most acute during and immediately following the stressful event.

- *It was hypothesized that the timing of post-birth marriage will significantly predict child behavior*
    a. *If a post-birth marriage contributes to a reduction in the family stress (i.e., resource), families who marry earlier will exhibit fewer behavior problems than those who marry later or never marry.*
    b. *If a post-birth marriage is a stressful event, children who have most recently experienced this event (e.g. later marriage) will exhibit greater behavior problems.*

RQ2c: Whom she marries: Does biology matter?

Another way fragile families who marry differ is by the partner the mother chooses to marry. Most fragile family couples are in a romantic relationship at the time of the child's birth (McLanahan & Beck, 2010). This means that contrary to some depictions of unmarried parenthood, fathers are participating, at least initially, in these families (England & Edin, 2007). As time passes, however, fragile family mothers are less likely to marry the biological father of her child (Gibson-Davis, 2011). Thus, children born to fragile families tend to see the dissolution of their biological parent's relationship and as a consequence, spend time living with the mother's new romantic partner(s). Father figures in fragile families vary by their biological relationship with the child (i.e., biological father or non-biological father) and their marital status (Table 2). Non-biological fathers who are married to the child's mother are called "step-fathers," and when unmarried and cohabiting with the child's mother they are called "social fathers" (Bzostek, 2008).

Whether the mother marries the child's father or another man might make a difference in how a post-birth marriage influences the child's behaviors. In addition, the biological relationship of the mother's partner to the child might also make a difference for children living in unmarried/cohabiting fragile families. According to theory, if the father's biological relationship with the child contributes to the stress of the family environment or reduces the stress by increasing resources, this relationship would predict child behavior problems.

Fathers typically contribute to family resources by adding economic support and/or emotional support to the mother (e.g., reducing the strain of single parenting), and the child (e.g., warmth, father involvement). Greater family economic resources have been linked to better child behaviors (Abada & Gillespie, 2007). Greater father involvement (both biological and non-

biological) is linked to better child behaviors among young children in fragile families (Bzostek, 2008). When fathers remain in a committed relationship with the child's mother, they also create a more stable family environment, which decreases the risk of child behavior problems. Some scholars have asked whether it is the marriage or the biological relationship with the child that influences child behavior outcomes.

Marriage. Marriage might increase the production and availability of family resources in ways that would be important to child wellbeing (e.g., economic, parenting, time, emotional) (Heiland & Liu, 2006). Therefore, according to theory, a post-birth marriage to either a biological or stepfather would increase economic, social, and emotional resources and therefore reduce the impact of family stress. Married biological fathers are both socially and legally expected to provide financial and emotional support to their children. Married, non-biological (step) fathers are socially expected to contribute financially to the children, but are not legally obligated to do so. In contrast, unmarried, non-biological "social fathers" have minimal legal and social expectations for child support and involvement (Hofferth & Anderson, 2004). Marriage provides stability, legal protection, legitimacy of the family relationships, as well as a clearer definition of the father's role in the family. When fragile family mothers re-partnered, the majority (60%) chose a man with higher economic capabilities than the child's biological father (Bzostek, McLanahan, & Carlson, 2012). This means that for fragile family mothers, marriage to a new partner might be better for the family due to an increase in financial stability. According to theory, marriages to fathers who bring the greatest resources (step or biological) would predict the fewest child behavior problems.

Biology. In contrast, it might be the presence of the biological father in the home, whether married or cohabiting, that is the greatest resource to the family and may be more

important than marriage. The exit of a biological father from the home and the entrance of a new father figure are stressful transitions. Therefore, whether married or not, biological fathers remaining in the home might predict better outcomes because these children do not experience these stressful family structure transitions. The biological fathers may also be more willing to invest financially and emotionally in their children than non-biological fathers, which could be an important resource for the family. First, biological fathers are legally obligated to invest, at least financially, in their children (Hofferth & Anderson, 2004). Fathers may have an interest in continuing the family lineage (Heiland & Liu, 2006). There may also be a stronger social expectation for the biological father to take on the father role, whereas stepfathers and social fathers are expected to be friendly and supportive, but take on less of the parent role (e.g., offers less monitoring and discipline) (see Hofferth & Anderson 2004). Furthermore, children living with non-biological fathers might not only experience less positive parenting behaviors but also experience harsher treatment or abuse (see Hofferth & Anderson 2004). Because biological fathers were likely to have been living with the child since birth and may have a longer-lasting relationship, the child might have had more opportunity to form a positive attachment to the biological father (Hofferth & Anderson 2004). Biological fathers might be more emotionally attached to the child and feel more interest in investing in the child's wellbeing (Heiland & Liu, 2006). In sum, having the biological father in the home might mean greater resources and less stress (e.g., avoiding the transition) and lead to fewer child behavior problems.

Alternatively, unmarried biological fathers and social fathers tend to have the fewest resources and unmarried fathers have fewer incentives to allocate family resources to benefit the child (Heiland & Liu, 2006). This may be partly due to the fact that cohabiting relationships tend to be less stable, have a shorter duration, and lack the security and legal commitment of

marriage. Both biological and social, unmarried cohabiting fathers experience greater ambiguity about their family roles and obligations, which increases stress and reduces paternal involvement (Hofferth & Anderson, 2004; Hill, 1958).

Literature. Although limited, the current research gives some indication of whether biology or marriage would matter most for child behavior outcomes. Hofferth and Anderson (2004) used a large nationally representative dataset (PSID) to explore the importance of biology and marriage for paternal investment and found that children living with unmarried biological parents experienced less engaged time and warmth from their fathers than children living with married biological parents. The levels of paternal involvement were no different for children living with either type of unmarried cohabiting parents (i.e., biological or social fathers). When the differences among fathers were controlled, marriage encouraged paternal investment levels, but biology did not. Bzostek (2008) examined FFCWS data (both fragile families and married families) and found that involvement from either a biological father or a social father predicted fewer behavior problems (i.e., anxious/depressed, withdrawn, and aggressive) among children ages 1 and 3. These studies suggest that the biological relationship with the child may not be significant in determining paternal investment and child behavior.

One study found marriage to either the biological or stepfather to benefit child behavior. In a sample of low-income, ethnically diverse, urban families, Bachman (2011) found that 8-year-old children in married-mother families (both biological and step-fathers) exhibited greater emotional and behavioral functioning than children in non-married families. Furthermore, there were no differences in child behavior among unmarried families (e.g., single-mother, cohabiting with biological father, social father families). The authors did not measure the timing of the marriage therefore it is not clear if fragile families were included. However, these findings

suggest that marriage to any father might be better for the child than cohabiting with the biological father or another man.

In contrast, one study highlights the significance of living with the biological father. Berger and McLanahan (2012) found that children living with non-biological fathers, both married and cohabiting, reported higher internalizing and externalizing behavior problems than those living with biological fathers. After controlling for the characteristics of the family at the birth of the child, they found that the biological relationship of the father with the child played a more significant role in predicting child behavior problems than marital status. These findings suggest that living with a biological father greatly determines child behaviors and may be more important than living with married parents.

It is possible that marriage and biology are similarly important to determining the child's behaviors. Artis (2007) studied 5-year-old children living in various family structures and examined the differences in child outcomes, specifically sadness/loneliness and self-control (i.e., lack of aggressive behaviors). Children in cohabiting-biological-parent families had lower self-control than children in married-biological-parent families. Children in cohabiting stepfamilies exhibited lower self-control than children in married stepfamilies. There were no differences in sadness/loneliness by family type. However, after controlling for the child's characteristics, parental education, and economic resources, there were no significant differences among married stepfamilies, cohabiting two-bio parent families, and married two-bio families in any indicator of child behavior. Differences in psychosocial development remained only between cohabiting stepfamilies and married-biological-parent families, the latter reporting better outcomes. In another study of children ages 3-12 living with biological and non-biological married and unmarried parents, Hofferth (2006) found that children living with parents that were both

married and biologically-related to the child exhibited the best outcomes. These findings suggest that the contribution of both marriage and biology may be important to determining child behavior.

Although there are some indications in the literature that both biology and marriage are important, there is a need to ask this question of fragile families, specifically, and to consider both the impact of a post-birth marriage and the biological relationship of the child to the father. The literature is unable to provide a clear indication of which factor(s) predict positive behavior outcomes for fragile-family children.

Theory & Hypotheses:

Family stress theory suggests that family resources can diminish the impact of family stress on children. If both marriage and biology were resources, children in fragile families with both or one of these resources would do better those living with neither a biological or married parent.

- *Children whose biological parents marry will exhibit the fewest behavior problems because these families have both "biology" and "marriage" resources.*
- *Children who live with social fathers will exhibit the greater behavior problems because these families lack both "biology" and "marriage" resources.*
- *It is not certain if the marriage resource is more significant than the biology resource. If marriage is more important, children living with stepfathers (i.e., marriage, but no biology) will exhibit fewer behavior problems than the children living with cohabiting biological fathers (i.e., biology, but no marriage), because the increase in resources from the marriage will be potentially great enough to buffer any stress from transitioning into a new family structure. If biology were more important, the children who remain with the*

biological father, even though they do not marry, would exhibit fewer behavior problems than those who experienced the theoretically stressful transition of a stepfather marriage.

Table 2. Types of Father Figures in Fragile Families

	Marry	**Do not marry**
Biological Father	1. Married Bio-Father	3. Bio-Cohabiting Father
Non-biological Father	2. Step Father	4. Social Father

Research Question 2d: Relationship trajectories

Fragile families experience a variety of relationship trajectories, some of which result in a post-birth marriage. The pattern of post-birth marriage has shifted from the majority marrying the biological father shortly after the birth (e.g., shot-gun wedding) to waiting many years and likely marrying a new partner (Gibson-Davis, 2011). This means that the children in fragile families may be impacted by changes in the mother's romantic relationships. At the time of the child's birth, the majority (82%) of the mothers were in a romantic relationship with the child's biological father (49% were cohabiting, 33% dating); the remaining 18% were not romantically involved with the biological father of the child (Heiland & Liu, 2006). Despite their high hopes for a future marriage, most of the mothers are not able to sustain this romantic relationship for long (McLanahan & Beck, 2010). Five years following the birth of the child, 60% of mothers in fragile families were not romantically involved with the child's father (30% were involved in a new romantic relationship and 30% were not in any romantic relationship) (Bzostek, 2007). Of those mothers who were in new romantic relationships, 15% had re-partnered one year after the child's birth, 17% re-partnered between year 1 and year 3, and 23% re-partnered between the third and fifth year (Bzostek et al., 2012). Thus, children in fragile families may experience a variety of family states in their early years of life.

How the mother arrives at marriage (or another relationship status) may vary significantly among fragile families and might impact the level of family stress and ultimately the child's behavior. For example, the children whose mother experiences several breakups and startups of relationships before she eventually marries may have different experiences than those whose mother marries quickly after birth and remains married. Re-partnering changes the family structure and realigns family roles; these changes can generate significant stress that may weaken family functioning (Brown, 2010).

Rather than the marriage itself having an impact, the increase of commitment in the parental dyad may create greater family unity (a resource) and encourage improved functioning in the face of stressors. A marriage would signify that the couple has a high level of commitment and stability. Heiland and Liu (2006) theorized that relationship trajectories that indicate greater parental commitment and investment would also be linked to improved parenting and increases in economic resources and would therefore be associated with positive child outcomes. According to the family stress theory, the trajectory that is most unstable would produce the most family stress and be related to the poorest child behaviors. The trajectory that enhances family stability, family resources, and, therefore, a reduction in family stress would produce fewer child behavior problems. At the very least, the various relationship trajectories create a different contextual experience for the child, which could impact their behavior. Relationship patterns among fragile family parents have received little attention in the literature, but may be relevant to understanding child behaviors (Brown, 2010).

Literature. In a representative sample of Canadian preschool and elementary school children, Abada and Gillespie (2007) found that those children whose families had transitioned from two married parents to a single parent household experienced the highest levels of

emotional disorders and the highest levels of destructive behaviors. Children who transitioned from single to a married stepparent family experienced an improvement in household income, which helped reduce the negative effects of living in a single parent family (Abada & Gillespie, 2007). Although these findings were based on a general population (i.e., not fragile families) they suggest that a transition into a more committed and stable relationship may improve child behaviors, whereas a transition into a less-committed relationship might have opposite effects. More study is needed to see if these effects are similar for children in fragile families.

In their study of fragile families (FFCWS data), Heiland and Liu (2006) also examined the relationship trajectory of the biological parents in the first year after birth and postulated that relationships that transitioned into greater commitment would be related to better child outcomes. However, they only found evidence that relationships that became less committed or ended completely were related to behavior problems. Children born to visiting parents (i.e., romantic but non-cohabiting) who ended their relationship within the first year exhibited more behavior problems than continuously cohabiting families. Furthermore, their findings suggest that a transition from visiting to cohabiting benefited the child more than a transition from cohabiting to married by age 1. Although these findings are limited to the first year and to the biological parent's relationship (e.g., does not include mother's relationship transitions with other partners), this evidence suggests that the relationship trajectory experienced by the mother in the first five years of life might be significant to predicating child behavior. Pathways that lead to greater commitment might enhance family stability, decrease stress, and lead to positive child behaviors.

Table 3. Relationship Trajectory Possibilities among Fragile Families

Level of Commitment	Relationship Trajectory
Increase in Commitment	Visiting/Cohabit to married Visiting to Cohabit No relationship to Cohabit or Married
Decrease in Commitment	Cohabit to single Visiting to single Cohabit to married to divorced
No Change (comparison groups?)	Stably Single (no relationship) Stably Cohabiting

Theory & Hypotheses:

Family stress theory points to an increase in family unity and stability as important family resources that could buffer the impact of external stressors.

- *It was hypothesized that relationship trajectories that provide more stability, resources, and less family stress will predict better child behavior outcomes, while those that lead to an increase in stress, instability, and a decrease in resources would predict poorer child behavior outcomes.*

Research Question 2e: Family Instability

Another reason why post-birth marriage might be beneficial for children in fragile families is the relationship of marriage to family stability. Family stability promotes consistency in parental care and increased availability of resources for the children. In contrast, transitions and instability may lead to stress and disruption of family relationships and processes (Bachman, 2011). The children in married parent families experience more stability and fewer transitions than children in other non-married family types (Berger & McLanahan, 2012). Therefore, transitioning into a marriage post-birth might provide greater stability.

Magnuson and Berger (2009) define a family structure transition as any change in the household composition, regardless of the marital status of the parents (Magnuson & Burger, 2009). Marriage of previously cohabiting parents, according to Bachman and colleagues (2011), is experienced as a transition by the child because it represents a transition from a state of ambiguity to a more formalized union (p. 1150). Therefore, family transitions both in and out of relationships are important to examine among fragile families.

Parents in fragile families are likely to end their relationship while the child is still very young and potentially re-partner multiple times during the child's life. This means that even if the mother eventually marries, children in fragile families will have experienced significantly more parental partnership changes than children born to parents who are married (Osborne & McLanahan, 2007; Brown, 2010). Close to half of children in fragile families experienced three or more family changes before age 5 (Cooper, et al, 2011). In contrast, "instability is a hallmark of cohabiting relationships" (Artis, 2007, p.225). Children whose parents continue to cohabit are more likely to experience greater instability during the first years of life than those who marry prior to birth (Osborne, 2007; Brown, 2010). It is likely that a post-birth marriage might introduce similar levels of stability to a fragile family, but the impact of the transitions experienced by the family (prior to marriage) on young children's social and emotional behavior has yet to be determined.

Family stress theory points to periods of transition and instability as major stressors because they create a temporary disturbance in the family's processes and organization. Parents and children respond to this temporary disequilibrium with changes in behavior that are negative when there are not sufficient resources to cope well. Family stress theory also posits that stress can accumulate across time. As families pass through stressful events and transitions, they might

experience a pileup of stressors or an accumulation of demands, which may intensify the level of strain felt by family members (Volling, 2012). Because of the cumulative nature of stress, theory would suggest that children in families that experience a greater number of family transitions and other stressors are likely to exhibit more negative consequences (Carlson & Concoran, 2001; Hofferth, 2010). Therefore, if entering into a post-birth marriage enhances family stability, children growing up in these families might avoid the stress of many transitions as experienced by other fragile family children.

Previous research on the impact of family structure transitions on family and child wellbeing gives some guidance on how frequent transitions might impact children in fragile families. In general, children who experience family instability (i.e., the transition of their parental relationship) are at greater risk for child behavior problems (Heiland & Liu, 2006; Osborne & McLanahan, 2007; Cavanagh, 2008). Two studies reported non-significance (Artis, 2007; Osborne, 2004).

Bachman and colleagues (2011) examined a sample of low-income urban families and found that the number of total transitions experienced from birth to middle childhood was related to anxious, somatic, and conduct problems. The more recent transitions and the dissolution of relationships most consistently predicted behavior problems. They explain that such familial disruptions may keep the child from forming healthy attachments and having access to social and economic resources, both of which might seriously stress the child's coping skills (Bachman, et al., 2011). In contrast, a transition into a new marriage was unrelated to behavior problems.

Cooper and colleagues (2011) examined the FFCWS data and found that children who experienced a higher number of partnership transitions were more likely to exhibit externalizing behavior problems at age 5 than children with few transitions (internalizing behavior was not

significant). They found that, among fragile families, dating transitions were the most common in the first 5 years after the child's birth; dating and co-residential transitions were associated with higher externalizing problems. They also note a gender difference; although boys and girls experienced similar levels of transitions in their first five years, boys tended to respond more negatively to transitions than girls. However, boys in general exhibited more externalizing and attention problems, whereas girls had more social problems; both exhibited similar levels of internalizing problems (Cooper, et al., 2011). These studies, among others, offer evidence that family transitions will predict child behavior problems in fragile families.

Some scholars have concluded that stability is more important than marriage, pointing to findings that children do better in stable environments, regardless of the structure, in terms of health and cognitive functioning (Heiland & Liu, 2006; Waldfogel, et al., 2010). Others have reported that children living in stable cohabiting homes do just as well as children living with cohabiting parents who eventually marry (Carlson & Corcoran, 2001; Waldfogel, et al., 2010). However, stability alone is not consistently linked to better outcomes. For example, Osborne (2004) found that children living in stable single parent homes had worse behavioral outcomes than all other family types (as cited in Waldfogel, et al., 2004).

Some studies have shown that, in addition to child behavior, family transitions and instability predicted parenting behaviors and family stress. Osborne and McLanahan (2007) found that child behavioral problems were intensified with each change in family structure (e.g., changing from single to cohabiting parent, cohabiting to single, etc.). Both maternal stress and parenting quality were shown to be partial mediators of the relationship between transitions and child behaviors (Osborne & McLanahan, 2007). Beck and colleagues (2010) studied the relationship changes that occurred during the first five years following the birth of the child to a

non-marital union using the FFCWS data. They found that the instability that accompanied relationship transitions was associated with higher stress and harsher parenting behaviors for mothers in cohabiting and dating relationships. Recent transitions had a greater effect than distal transitions (Beck, et al., 2010). Thus, transitions may impact child behavior though the parents' behaviors, which is in line with the family stress theory described above.

Most children experience substantial amounts of stress during and following family transitions (Magnuson & Burger, 2009). Stressful disruptions in early childhood may have long-term consequences for development in middle childhood and early adulthood (Bachman et al., 2011; Cavanagh & Huston, 2006). According to family stress theory, stress caused by a change in the mother's relationships would directly impact her ability to parent. Furthermore, the stress felt by parents during these transitions reduces the quality of the parenting (Beck, et al., 2010; Osborne & McLanahan, 2007). Therefore, children in fragile families who have behavior problems may be responding to the instability and stress brought about by a family transition. In sum, theory and prior literature would support the hypothesis of a positive relationship between the number of family transitions and child behavior, in that the greater number of family transitions would predict more child behavior problems.

Theory & Hypothesis:

Family stress theory suggests that each family transition, whether positive or negative, would result in a period of disequilibrium and stress and the accumulation of these stressful periods across time would impact child behavior outcomes.

- *It was hypothesized that the number of family transitions the child experiences in the first five years of life will significantly predict child behavior outcomes: lower frequency of transitions will predict fewer behavior problems.*

Research Question 3 (RQ3): Parental stress and behaviors as mediators?

The third research question examined the process though which a post-birth marriage influences child behavior. Family stress theory assumes that when families do not have adequate resources to cope with stress, healthy family processes suffer. When family stressors increase parental stress, this disrupts positive parenting practices (i.e., warmth, involvement) and increases harsher discipline or greater neglect, which contributes to child behavior problems (Conger & Conger, 2004; Campbell, et al., 1996).

Several family stress theorists have conceptualized parenting behaviors as the mediating process by which stress impacts children's behaviors. Campbell and colleagues (1996) proposed and found support for a model that included maternal parenting behaviors (i.e., nurturance and control) as a mediator of family stress (i.e., stressful life events) and externalizing behavior problems among boys ages 4 and 9. They found that family stress disrupted parenting, which in turn was associated with more behavior problems in children. Bozek and Beck (2011) also based their study on a similar model where family stress (i.e., frequency of change or transitions) changed parenting behavior. They hypothesized that a decrease in positive parenting would negatively impact child-wellbeing. Conger and Conger (2004) also pointed to the parent-child interaction as the primary mechanism through which external stressors impact the child's behaviors. They propose that external stressors can impact the parents directly and cause them to disengage from their children and use more hostile parenting behaviors, which in turn causes the child to feel distressed and insecure and respond with aggression or withdrawal. "It is the hardship-related emotions and behaviors of the parents that create adversity in the lives of the children" (Conger & Conger, 2004, p. 364). Figure 3 depicts the theoretical model. Below is some literature that reports on the relationships among these variables.

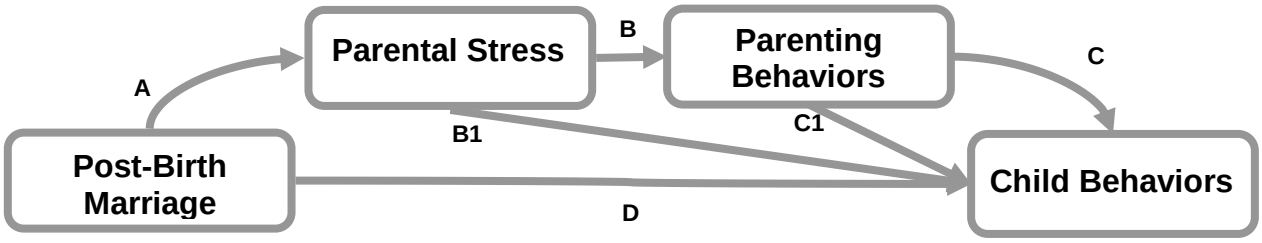

Figure 4. Theoretical Mediation Model with Parental Stress and Parenting Behaviors

Parenting Behaviors and Child Behaviors (C)

It is generally acknowledged that the way a parent behaves towards a child impacts the child's behavior. Baumrind (1966) classified parenting styles by dimensions of nurturance (i.e., warmth and involvement) and control (i.e., demands, discipline). Children whose parents engaged in more nurturing practices (e.g., warmth, reading, quality time, etc.) exhibited significantly fewer behavior problems (Heiland and Liu, 2006). In contrast, dysfunctional parenting behaviors such as hostile parenting, neglect, excessive control, or physical aggression (e.g. spanking) were linked to greater behavior problems (Abada & Gillespie, 2007; Baumrind, 1966; Heiland & Liu, 2006). These studies are a few of the many that support the conclusion that high warmth, engagement, and positive discipline is best for children.

Parental Stress and Parenting Behaviors (B)

Parental stress may reduce the quality of parenting behaviors in early childhood. Parental stress during early childhood is typically very high, although it declines with the age of the child (Williford, et al., 2007). However, a fragile-family mother might experience greater stress during this already stressful period due to a lack of social and economic resources and greater family instability. Conger and Conger (2004) found that external stressors not only raise the level of stress experienced by the parent, but also impact the parent's ability to provide warm and sensitive care. Hilton and colleagues (2002) explain that parents who were not married were

under greater stress due to limited resources and having to raise a child alone, which decreased the quality of parenting behaviors. Beck and colleagues (2010) also provide some evidence that stress and instability are significantly related to harsher parenting.

Post-birth Marriage and Parental Stress (A)

For reasons described previously, a post-birth marriage might reduce or buffer the impact of stress felt by the parent. Likewise, those who remain unmarried (single and cohabiting) may have fewer resources and greater instability and therefore higher stress than post-birth married parents (Beck, et al, 2010). Williford and colleagues (2007) found marital status predicted parenting stress; specifically, unmarried parenthood was related to higher parenting stress (it was unclear if cohabiting parents were part of this category). Another study reported that single (unmarried) mothers reported greater distress than married parents, believing their children dominate their lives and feeling that they have less control of their children' s behaviors (Hilton, et al., 2001). Beck, Cooper, McLanahan, and Brooks-Gunn (2010) found that the instability of co-residential and dating relationships increased maternal stress in a sample of fragile families (FFCWS data).

Parental Stress and Child Behaviors (B1)

Williford and colleagues (2007) found that parental stress was linked to the child's externalizing behaviors and reported that a mother who is under significant stress might not be able to parent effectively, which would significantly impact the child's social behavior. Another study found that children in single (unmarried) families responded to higher levels of parental stress with behavior problems (Hilton, et al., 2002). Osborne and McLanahan (2007) found the

combination of mothers' poor parenting skills and higher levels of stress explain close to half of the relationship between family structure and behavior problems (Osborne & McLanahan, 2007).

Post-birth Marriage and Parenting Behaviors (C1)

Studies show that marital status, both before and after birth, is related to parenting behaviors. Mothers who are married consistently exhibit higher quality behaviors, followed by cohabiting mothers, and with single mothers showing the lowest quality of parenting (Waldfogel, 2010). Another study found stably married parents reported the lowest scores on ineffective parenting (Abada & Gillespie, 2007). Hilton and colleagues (2001) compared equal numbers of single mothers, single fathers, and intact families and found that married mothers reported more positive parenting behaviors than single/unmarried mothers. One study found that mothers who remained in dating and cohabiting relationships exhibited harsher parenting (Beck, et al., 2010). An extensive body of research links cohabiting and single-parenthood to higher levels of child abuse and neglect (Berger, Paxson, & Waldfogel, 2009).

Research also shows that a post-birth marriage might be linked to an improvement in parenting practices. Thompson and colleagues (2004) report that post-birth marriage or re-partnership was linked to discipline, supervision, and the parent-child relationship. Mothers who marry or re-partner yelled less and spanked their children less; children in these families reported that the intact partnership improved their relationship with the mother. However, this study also reported that supervision was greatest in stable single-mother (un-partnered) families. Another study reported that fragile family mothers who marry have less difficulty positively and successfully parenting than those who never marry (Mclanahan, Haskins, Garfinkel, Mincy, & Donahue, 2010). Heiland and Liu (2006) found that fragile family mothers who were cohabiting

at the child's birth but later married invested more time per week interacting with their children through reading, singing, and playing games and used fewer hours of alternative childcare.

Some findings suggest that a post-birth marriage for fragile families might be linked to poorer parenting practices. Abada and Gillespie (2007) found that parents of preschool and elementary school children who transitioned from single to married reported the highest levels of hostile parenting, which led to social and emotional child problems. Another reported that mothers who transitioned into marriage showed significantly lower child involvement than mothers in long-term cohabiting relationships (Bogle, 2012).

Other studies found no difference in parenting behaviors by marital status of fragile families. For instance, those who married following the birth parented very similarly to those who did not marry by year 3. They were equally as likely to discipline their children using physical or negative verbal punishment (e.g., yelling, cursing, and threatening) (Liu & Heiland, 2012). Another study of fragile families (FFCWS data) found no differences between married and cohabiting families in parenting behaviors, except that married fathers used spanking more than cohabiting fathers (Berger & McLanahan, 2012). Others also found no differences in parenting behaviors when comparing long-term stable fragile family relationships (e.g., married vs. stably cohabiting) (Bogle, 2012).

Much research regarding parenting behaviors and marital status concludes that married parents are better able to parent. However, the relationship between marriage and positive parenting is not consistent for fragile families who marry following the birth of the child. The body of research on a post-birth marriage and parenting is small and has produced mixed findings, which indicates a need for further study.

Theory & Hypotheses:

If a post-birth marriage reduces the mother's stress by increasing the fragile family's resources and enhancing stability, consequently less maternal stress allows for more effective parenting, which would be evident by children exhibiting fewer behavior problems. When added to the model, parental stress and parenting behavior would reduce the relationship between post-birth marriage and child behavior problems, thus mediating the relationship of post-birth marriage and child behaviors.

- *(A) Post-birth marriage would predict low parental stress.*
- *(A1) Post-birth marriage would predict positive parenting behavior (i.e., high warmth, high involvement, positive discipline).*
- *(A2) Post-birth marriage would predict fewer child behavior problems.*
- *(B) Low parenting stress would predict positive parenting behavior (i.e., high warmth, high involvement, positive discipline); high parenting stress will predict negative parenting behavior (i.e., neglect, physical aggression, hostile parenting).*
- *(C) Positive parenting behavior would predict fewer child behavior problems, negative parenting behavior would predict greater child behavior problems.*

Current Study

Study Purpose

Fragile families are a growing but largely understudied population. During the last two decades, there has been an increase in studies focused on this population. By definition, the reason they are classified as "fragile" is because the parents were not married at the time of the child's birth. Much literature supports the idea that the traditional two-parent married family structure is best for the development of positive child behaviors. However, these findings are

based on marriage prior to birth and cannot be generalized to fragile families, even those who marry after a child's birth. Little is known regarding the value and impact of marriage following a birth out-of-wedlock on child behaviors. What research exists is limited by lack of attention to the many complexities of the post-birth marital experience.

The purpose of this study was to explore the impact of post-birth marriages on child behavior among fragile families and the family process that mediated this relationship. A family stress framework was used to predict and explain the relationship among variables. There were several ways in which this study contributed to the current body of knowledge. First, the study focused on an understudied, disadvantaged population – mothers and young children in fragile families. Second, the study went beyond the static comparisons of family structure by including various relevant complexities of post-birth marriage and fragile family romantic relationships (see RQ2a-e). Third, this study utilized four waves of longitudinal data, spanning five critical developmental years of the child's life. Fourth, this study explored the possible mediation process of parental stress and parenting behaviors. The findings have implications for future research, program development, and public policy.

Summary of Hypotheses

RQ1 Hypothesis: Family resources, relationship quality, valuing marriage, and the family structure (i.e., relationship status, other children) will increase the likelihood of a post-birth marriage among fragile family mothers.

RQ 2a Hypothesis: A post-birth marriage between birth and year 5 will predict child behavior problems at age 5, direction not predicted.

RQ 2b Hypothesis: The timing of post-birth marriage will significantly predict child behavior:

- If a post-birth marriage contributes to a reduction in the family stress (i.e., resource), families who marry earlier will exhibit fewer behavior problems than those who marry later or never marry.
- If a post-birth marriage is a stressful event, children who have most recently experienced this event (e.g. later marriage) will exhibit greater behavior problems.

RQ 2c Hypotheses (refer to Table 2 above):

- Children whose biological parents marry will exhibit the fewest behavior problems because these families have both "biology" and "marriage" resources.
- Children who live with social fathers will exhibit greater behavior problems because these families lack both "biology" and "marriage" resources.
- It is not certain if the marriage resource is more significant than the biology resource. If marriage is more important, children living with stepfathers (i.e., marriage, but no biology) will exhibit fewer behavior problems than the children living with cohabiting biological fathers (i.e., biology, but no marriage), because the increase in resources from the marriage will be potentially great enough to buffer any stress from transitioning into a new family structure. If biology is more important, the children who remain with the biological father, even though they do not marry, would exhibit fewer behavior problems than those who experienced the theoretically stressful transition of a stepfather marriage.

RQ 2d Hypothesis (refer to Table 3 above): Relationship trajectories that increase stability and resources will predict better child behavior outcomes, while those that lead to greater stress and instability will predict poorer child behavior outcomes.

RQ 2e Hypothesis: The number of family transitions the child experiences in the first five years of life would significantly predict child behavior outcomes: lower frequency of transitions would predict fewer behavior problems.

RQ3 Hypotheses: If a post-birth marriage reduces the mother's stress by increasing the fragile family's resources and enhancing stability, consequently less maternal stress allows for more effective parenting, which would be evident by children exhibiting fewer behavior problems. When added to the model, parental stress and parenting behavior would reduce the relationship between post-birth marriage and child behavior problems, thus mediating the relationship of post-birth marriage and child behaviors.

- (A) Post-birth marriage would predict low parental stress.
- (A1) Post-birth marriage would predict positive parenting behavior (i.e., high warmth, high involvement, positive discipline).
- (A2) Post-birth marriage would predict fewer child behavior problems.
- (B) Low parenting stress would predict positive parenting behavior (i.e., high warmth, high involvement, positive discipline); high parenting stress will predict negative parenting behavior (i.e., neglect, physical aggression, hostile parenting).
- (C) Positive parenting behavior would predict fewer child behavior problems; negative parenting behavior would predict greater child behavior problems.

CHAPTER 3: METHODS

This chapter begins with an overview of the Fragile Families and Child Wellbeing Study (FFCWS), followed by the survey design, and a description of the participants in the current study. Next the chapter provides details of the independent, dependent, and mediating variables, followed by an outline of the analytic methods that were used. The chapter concludes with a statement regarding the protection of human subjects in research.

Data

Description of the Data

Data for this study were drawn from first four waves of the FFCWS. The FFCWS followed a cohort of mothers, two-thirds of whom were unwed at the time of the child's birth. The data are representative of unmarried families living in large cities in the United States at the end of the 20st century. Information regarding the parents' relationships, attitudes, and parenting behaviors, as well as demographic characteristics, health, economic status, employment status, neighborhood characteristics, and program participation was collected at the time of the child's birth and at follow-up interviews at years 1, 3, 5, and 9. The FFCWS also collected information on the children's cognitive and emotional development, behaviors, health, and home environment (Reichman, Teitler, Garfinkel, & Mclanahan, 2001).

Participants and Survey Design

The participants in FFCWS are 4,897 parents and their children; the children were born in large United States cities between 1998 and 2000. Two-thirds (approximately 3,600) of these participants were not married at the time of the child's birth and were categorized as "fragile families." The remaining 1,200 married participants were part of a comparison group. The

participants were selected at the time of their child's birth from 75 different hospitals in 20 large cities (i.e., populations greater than 200,000) across the United States. Baseline interviews (wave I) were conducted between 1998 and 2000 and follow-up interviews and in-home assessments were conducted when the child was age 1 (wave II), 3 (wave III), 5 (wave IV), and 9 (wave V) (Reichman et al., 2001). In addition to these core surveys, an in-home assessment was conducted at year 3 and year 5. This assessment includes questions from the Child Behavior Check List (CBCL) as well as questions regarding marital/relationship status and history, family structure, and parenting behaviors.

The FFCWS used random stratified sampling to select participants at each wave. Sampling occurred in three stages: first, sampling the cities; second, sampling the hospitals; and third, sampling the births within the hospitals. A stratified sample of all large US cities was based on policy environments and labor market conditions in the cities (Reichman et al., 2001). The cities selected were Indianapolis, IN; Austin, TX; Boston, MA; Santa Ana, CA; Richmond, VA; Corpus Christi, TX; Toledo, OH; New York, NY; Birmingham, AL; Pittsburgh, PA; Nashville, TN; Norfolk, VA; Jacksonville, FL; San Antonio, TX; Philadelphia, PA; Chicago, IL; Newark, NJ; Oakland, CA; Detroit, MI; and San Jose, CA.

Hospitals from within each city were randomly selected in an effort to be representative of the births to unmarried parents in that city. For a list of the specific hospitals included in the study and further details regarding the sampling process, please see Reichman et al. (2001). Within each hospital, a random sample of married and unmarried births was collected until the quotas were reached that matched the 1996-1997 percentages of non-marital births in that city.

It should be noted that the sample of marital births is not representative of marital births in each city. The focus of the FFCWS was unmarried families; the married sample data were

collected only for comparison purposes. In addition, the FFCWS data are not representative of fragile families in the United States in general, but only those living in large cities (Reichman, et al. 2001). The percentages of racial/ethnic minorities are higher in this sample of fragile families than in fragile families in the United States in general. However, the weighted FFCWS sample is representative of unmarried families living in large cities in the United States (Reichman, et al 2001).

Analytic Samples

The full analytic sample contained exclusively fragile families (i.e., unmarried mothers at baseline). Because the present study used data from the first four waves (up through age 5), participants without valid wave IV weight values were excluded. For the analysis of variables that predict the occurrence of post-birth marriage (RQ1), participants who did not have complete data on all variables were dropped from the sample. For the analysis of child behavior outcomes (RQ2 and RQ3), the sample was further defined to only include participants who had non-missing values on the independent (marital and relationship information) and dependent variables (child behavior). The analytic sample for RQ3 included only those who were not missing on any of the mediator variables (parenting) as well as the independent and dependent variables. Figure 5 illustrates the selection and the number of participants in each sample.

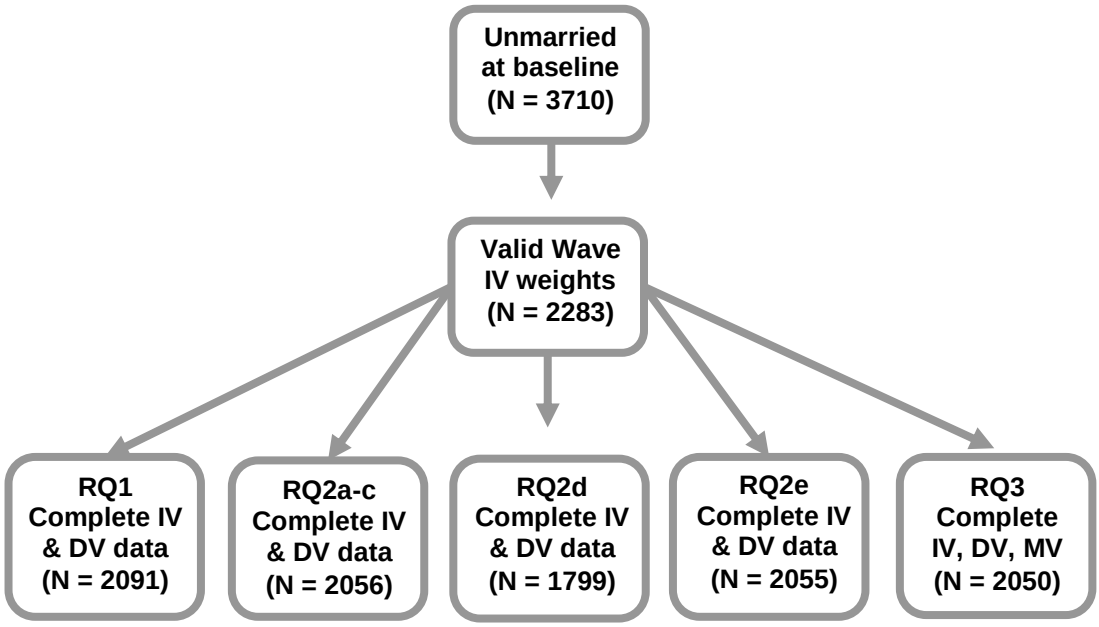

Figure 5. Selection Process and Total Sample Size of Each Analytic Sample[1]

Missing Data

There were two strategies for missing data, one was to delete the cases with missing data on the independent or dependent variables for the research question (a complete case approach); the second was imputation of missing control variables using the expectation-maximization (EM) algorithm. Because each research question included different variables, as noted above, the analytic samples for each research question varied slightly due to differences in missing data on independent, mediator, and dependent variables. Below is a description of how these two strategies were used to deal with missing data for each analytic sample and research question.

The missingness of the dependent variable (post-birth marriage) for RQ1 was minimal (*n* = 43, less than 2% of the total sample). According to Tabachick and Fidell (2007), when missing data are less than 5%, "deletion is a good alternative" (p. 63). However, when the missing values of the dependent variable were dropped, the missingness of the independent variables was

[1] Note: Abbreviations for Figure 5, IV = Independent Variable, DV = Dependent Variable, MV = Mediator Variables

roughly 6.5% of the total sample (*n* = 149). A test of mean differences (t-test) was conducted to determine if these were missing at random. The results indicate differences by race/ethnicity and education. Specifically, a higher proportion of those who were missing were Hispanic (t(203.96) = -4.01, p < .001; mean difference = -.15) and a higher proportion of participants who did not complete high school had missing information (t(221.29) = -2.23, p = .03; mean difference = -.08). Because the bias was minimal, participants with incomplete data on the independent and dependent variables in RQ1 were dropped from the sample.

The number of missing data on the dependent variables (child behaviors) for RQ2 was high (*n* = 227, 9.9% of the total sample) and therefore a test of mean differences (t-test) was conducted to investigate any demographic differences between the participants who were missing data and those who had completed the survey. The findings indicate very few differences, suggesting that the data were missing at random. The emotionality score means were significantly different (t(198.71) = -2.30, p = .02; mean difference = -.19), in that participants who did not complete the questions regarding the child's behaviors at year 5 reported slightly higher emotionality behaviors for their child at year 1. The groups also varied by race/ethnicity; a lower proportion of Blacks were among those with missing data (t(282.93) = 5.29, p < .001; mean difference = .18) and a higher proportion of Hispanics were among those with missing data (t(267.05) = -3.69), p <. 001; mean difference = -.13). No statistically significant differences were found on any other demographic characteristics. Because the differences between the two groups were very minor and there was little indication of bias, the participants who did not have complete data for the two child behavior scales were dropped from the sample.

After selecting the sample based on non-missing values of the dependent variable, there were no missing data on the independent variables for RQ2a-c, and one missing for RQ2e, and

this participant was dropped from the RQ2e analytic sample. However, the number of missing on the independent variable for RQ2d was quite high (*n* = 360, 16% of the total sample) because multiple variables across several waves were used to create trajectories; therefore a t-test was conducted to investigate the pattern of missing trajectory data. The results indicated some statistical differences between the missing and non-missing groups by race/ethnicity, education, income, and religiosity. Specifically a lower proportion of White participants (t(2030) = 2.12, p = .03; mean difference of .05) and a higher proportion of Hispanic participants did not complete the data compared to other races (t (323.62) = -1.93, p = -.06). Participants who did not complete the trajectory items also had a lower education (i.e., a higher proportion did not complete high school (t(328.67) = -2.40, p = .02; mean difference = -.08), a lower income (t(2054) = 2.14, p = .03; mean difference of approximately $3,400), and a lower proportion of the participants attended church more than once a month (t(342.36) = 2.43, p = .02; mean difference = .07). Thus, missingness was not likely to be random; it is likely that some of the characteristics of this group may have inhibited the participants from completing the survey items (e.g., low-education). Nonetheless, all participants who were missing the trajectory independent variable were dropped from the sample for RQ2d analysis. Therefore this potential bias must be considered when interpreting the results of this analysis.

For the analysis of RQ3, after selecting the sample based on those with complete data on the independent (post-birth marriage) and dependent (child behaviors) variables, the number of missing values of the mediator variables was very small (spanking, *n* = 6, < .01% of the adjusted sample); maternal involvement (*n* = 1, < .001% of the adjusted sample), and there were no missing data on parenting stress), therefore, following the recommendations of Tabachick and Fidell (2007), these participants were dropped from this analytic sample.

After selecting the samples based on complete data for the dependent, independent, and mediating variables, several control items still had a few missing data. In an effort to produce a consistent sample, the missing values on all controls were estimated using an EM algorithm. This procedure was conducted for all research question samples except for RQ1 because this model did not include any control variables. In sum, those who were missing on dependent, independent, and mediating variables were dropped from each sample and those who were missing on controls were retained with estimations of these values.

Weights

In order to adjust for the complex sample design and make the sample representative, the data were weighted using the PROC SURVEY procedures in SAS to incorporate the weights and replicate weights provided by the FFCWS. All descriptive analyses, correlations, and regressions were conducted using the weighted sample. As was recommend by the FFCWS all OLS regression analyses incorporated the delete -1 jackknife variance estimation method (VARMETHOD = JACKKNIFE).

Variables

Independent Variables

The independent variables for RQ1 are fourteen characteristics of the mother, the child, and family, as reported at baseline. These were grouped into two categories: (1) Mother's Characteristics: (a) demographic characteristics (i.e., age, race/ethnicity, religiosity), (b) economic resources (i.e., income, employment, education), (c) maternal wellbeing (i.e., health status), and (d) mother's value of marriage (i.e., hopes to marry, value of marriage); (2) Family & Child Characteristics: (a) family structure (i.e., other biological children, multiple births,

relationship status with child's father), (b) relationship quality (i.e., relationship quality, relationship conflict), and (c) child characteristics (i.e., sex of the child). These variables were all created using items from the baseline Core Survey Questionnaire. For RQ2 and RQ3, the independent variables are the various dimensions of the mother's post-birth marriage/romantic relationships. These were created using data from the Core Survey Questionnaires from the first four waves of the FFCWS. Below are details of how each construct was measured and defined.

Mother's Characteristics

Age. Participants reported their ages at the time of the child's birth. This information was used to code participants into three categories: teen (age 19 and younger), early adulthood (20 to 29), and middle aged (30 and older).

Race/ethnicity. The race/ethnicity of the mother was determined by using two questions, one asking the race of the mother, and the other asking whether or not she is of Hispanic ethnicity. Using this information, participants were coded into the following categories: Non-Hispanic White, Non-Hispanic Black, Hispanic (any race), Asian, American Indian, and other. Because of the small numbers of participants who reported Asian or American Indian race/ethnicity, these groups were added to the "other category," leaving four categories.

Church attendance. The frequency that the participant attended church was determined from a question asking the mother how often she attends religious services. Response options were *once a week or more (1), several times a month (2), several times a year (3), hardly ever (4), not at all (5).* Using this information, participants were coded into three categories: never (5), rarely (3 or 4), and frequently (1 or 2).

Income. The total household income, as reported by the mother at baseline, was divided by 1000.

Employment. This variable was created from an item asking the last month and year that the mother worked in a regular job (earning a regular paycheck) for more than two consecutive weeks. Respondents were coded as having been previously employed at some point prior to giving birth (1) or never had been employed (0).

Education. This variable was created from an item regarding the mother's education at baseline. Participants were coded into three categories (using dummy variable coding) based on her highest level of education completed: "more than high school" includes those who have attended any college, graduate school, and/or technical school; "high school" includes those with a high school diploma, or G.E.D.; "less than high school" includes women with any schooling less than high school.

Health. This variable was created from an item regarding the mother's health at the time of the child's birth. The mother's health was determined by her report of whether her health was generally *excellent (1), very good (2), good (3), poor (4) or very poor (5).* Participants were coded into the categories of poor or very poor health (1) or good to excellent health (0).

Hopes to marry. The mother's desire or expectation that she will someday marry was determined by two questions, one asking the participant to report her perception of the chances that she will marry the baby's father in the future (i.e., *no chance (1), a little chance (2), a 50-50 chance (3), a pretty good chance (4), an almost certain chance (5)).* A second question was asked to those who responded with anything less than a 5, asking the chances she would ever marry someone. Responses from these two items were combined and higher scores indicated greater hope or more certain expectation of a future marriage.

Value of marriage. The mother's ideas, assumptions, and values about marriage were assessed using six items, which ask the mother to report her level of agreement with the

following statements: *a) The main advantage of marriage is that it gives financial security; b) All in all, there are more advantages to being single than to being married (reverse coded); c) A mother living alone can bring up her child as well as a married couple (reverse coded); d) It is better for a couple to get married than to just live together; e) It is better for children if their parents are married; and f) Living together is just the same as being married (reverse coded).* Response options were on a 4-point-scale, strongly agree (4), agree (3), disagree (2), and strongly disagree (1), (don't know was given a score of -2). Several items were reverse coded (as indicated above) so that higher scores indicated a stronger value for marriage. Any valid response was summed and averaged based on the number of non-missing valid responses. The Cronbach's alpha for the value of marriage scale was $\alpha = .42$.

Family & Child Characteristics

Number of other biological children. This variable was derived from two questions, one asking whether or not the mother had any other biological children and if so, how many. Therefore, the number of children reported was one less than the total of biological children because it does not include the child of focus.

Multiple births. The number of babies born at the time of the baseline interview was determined using a variable constructed by the FFCWS administrators (cm1numb). Mothers reported one or two births, (i.e., there were no multiple births other than twins), therefore participants were coded as having a singleton (0) or twin (1) pregnancy/birth.

Relationship with child's father. The relationship of the child's mother and father was determined using two items, one in which the mother reported her current relationship status with the baby's father at the child's birth, and the other indicating whether or not she is currently living with the child's father. Participants were coded into the following four groups:

romantic/cohabiting, visiting (i.e., romantic/non-cohabiting), friends (i.e., friends, and non-romantic/non-cohabiting), and no relationship (i.e., no relationship, non-cohabiting).

Relationship quality. The quality of the mother and father's relationship was assessed using five items, which asked the following questions regarding the participant's experience with the child's father: a) *He is fair and willing to compromise when you have a disagreement (reverse coded); b) He hits or slaps you when he is angry; c) He expressed affection or love for you (reverse coded); d) He insults or criticizes you or your ideas; e) He encourages or helps you to do things that are important to you (reverse coded).* Response options were on a 3-point-scale, often (1), sometimes (2), and never (3). Several items were reverse coded (as indicated above) so that higher scores indicated higher quality relationships. Any valid response was summed and averaged based on the number of non-missing valid responses. These questions were asked to both participants who were currently in a romantic relationship with the child's father and those who were not. The Cronbach's alpha for this scale for mothers in a romantic relationship was $\alpha = .56$ and for mothers who were not in a romantic relationship, was $\alpha = .65$.

Low relationship conflict. The amount of conflict in the relationship between the participant and the child's father was determined using six items, which ask the mothers to report the frequency of disagreements over the following topics: *a) money, b) spending time together, c) sex, d) the pregnancy, e) drinking or drug use,* and *f) being faithful.* Response options were on a 3-point-scale, often (1), sometimes (2), and never (3). Higher scores indicate lower conflict, and therefore better quality relationships. Valid responses were summed and averaged based on the number of non-missing valid responses. These questions were asked of participants who were currently in a romantic relationship with the child's father and those who were not. The

Cronbach's alpha for the low relationship conflict scale for mothers in a romantic relationship was $\alpha = .56$ and for mothers who were not in a romantic relationship, was $\alpha = .65$.

Child's sex. The sex of the child who had just been born at the time of the baseline interview was reported as either male or female, and coded accordingly in a dummy variable "female" (1 yes, 0 no).

Mother's Romantic Relationships

Post-birth marriage. The independent variable for RQ2a was post-birth marriage, or whether the mother married anyone during the first five years following the child's birth. This variable was derived from a series of FFCWS constructed variables that indicated whether or not the mother was married to the child's father or married to a new partner at year 1 (wave II), year 3 (wave III), and year 5 (wave IV). Participants were dichotomously coded into groups to indicate if they married (1) or did not marry (0) in the first five years following the birth.

Timing of the marriage. The independent variable for RQ2b was the timing of the first post-birth marriage. This variable was derived from the same series of FFCWS constructed variables that indicated whether the mother was married to the child's father or to a new partner at each wave. Participants were coded into one of three categories: a) early marriage, indicating that the first marriage following the child's birth (to either the child's father or to a new partner) occurred within the first year following the child's birth; b) late marriage, indicating that the first marriage following the child's birth (to either the child's father or to a new partner) occurred by year 3 or year 5; c) never married, indicating that the mother did not report being married to the child's father or a new partner at any of the follow-up time points. Separate dummy variables were constructed for each category. It should be noted that 10 participants married twice within

the time of this study; all of whom married had married the father by year 1, but had married a new partner by year 5. These were categorized in the "early marriage" group.

Biological relationship. The independent variables for RQ2c indicated the biological and marital relationship of the mother's spouse or partner to the child at year 5 (wave IV). This was determined by using a series of FFCWS constructed variables. Participants were coded into one of five categories: a) married to the child's biological father, b) married to a non-biological/step father, c) cohabiting with the child's biological father, d) cohabiting with a non-biological/social father, e) neither married nor cohabiting with any partner (i.e., single). Separate dummy codes were created for each variable.

Relationship trajectory. The independent variables for RQ2d were the various relationship trajectories – the mother's romantic relationship pattern across the five years following the child's birth. These variables were created from a series of questions, asked at each wave, regarding the mother's current relationship with the child's father, whether or not she was currently living with him, and when applicable, her relationship and cohabiting status with a new partner. In phase 1, participants were coded into groups according to their current relationship status at each wave (Table 4). In phase 2, new categories were systematically created for every possible type of relationship transition (e.g., romantic/cohabiting with father at wave I to married with father at wave II). These were created for each transition, a) transition 1: wave I to wave II, b) transition 2: wave II to wave III, c) transition 3: wave III to wave IV, making a total of 120 unique transitions. In phase 3, each of these transition categories was coded by the change of commitment in the relationship (Table 5). During phase 4, each of the commitment categories created in transition 1 was systematically grouped with each commitment category created from transition 3 to create a series of trajectory variables, 78 in all. For example, the first commitment

category in transition 1, (increase commitment with father) was grouped with each of the possible transition 3 categories to make new variables such as "increase commitment with father at T1 – increase commitment with father at T3," "increase commitment with father – no change in commitment with father at T3," and so on until all possibilities were accounted for. Because data had to be complete at all transition points to create trajectory variables, missing data at any point would result in the loss of that participant. Therefore, in an effort to retain the greatest number of participants, transition 2 categories were not included in this phase, and some simplifying assumptions were made regarding these years. For example if the phase 4 category was "increase with child's father at T1 and end with new partner and increase with father at T3" then it was assumed that at some point between wave II and wave III the relationship with the child's father ended and a relationship with a new partner began. Since the purpose of this question was not to count the number of changes (see RQ2e) but rather report the differences in the relationship trajectory, these simplifications were deemed acceptable. In phase 5, the phase 4 categories were further simplified and condensed into groups that indicate the pattern of commitment and the partner with whom the mother was in a relationship at wave IV. The final variable includes ten mutually exclusive categories (Table 6), which were then coded into separate dummy variables.

Table 4. Phase 1 Relationship Trajectory Coding

Year and Wave	Categories
Baseline / Wave I	Romantic/cohabiting with child's father Visiting child's father None (no partner – single)
Year 1 / Wave II	Married to the child's father Romantic/cohabiting with child's father Visiting with child's father Married to new partner Romantic/cohabiting with new partner Visiting new partner None (no partner – single)
Year 3/ Wave III	Married to the child's father Romantic/cohabiting with child's father Visiting with child's father Married to new partner Romantic/cohabiting with new partner Visiting new partner None (no partner – single)
Year 5 / Wave IV	Married to the child's father Romantic/cohabiting with child's father Visiting with child's father Married to new partner Romantic/cohabiting with new partner Visiting new partner None (no partner – single)

Table 5. Phase 3 Relationship Trajectory Coding

Transition & Waves	Categories
Transition 1 (Wave I to Wave II)	No commitment change – remained with the father Increase commitment with the child's father Decrease commitment with the child's father Breakup with child's father – single Breakup with child's father and increase commitment with a new partner Increase commitment with a new partner No commitment change – remains single
Transition 2 (Wave II to Wave III)	No commitment change – remained with the child's father Increase commitment with the child's father Decrease commitment with the child's father Breakup with child's father – single Breakup with child's father and increase commitment with a new partner No commitment change – remains with a new partner Increase commitment with a new partner Decrease commitment with a new partner Breakup with new partner and increase commitment with child's father Breakup with new partner -- single No commitment change – remains single
Transition 3 (Wave III to Wave IV)	No commitment change – remained with the child's father Increase commitment with the child's father Decrease commitment with the child's father Breakup with child's father – single Breakup with child's father and increase commitment with a new partner No commitment change – remains with a new partner Increase commitment with a new partner Decrease commitment with a new partner Breakup with new partner and increase commitment with child's father Breakup with new partner -- single No commitment change – remains single

Table 6 Phase 5 Relationship Trajectory Coding

Category	Description
(1) No commitment change -- Steady romantic, unmarried, cohabiting with child's father	The mother cohabits with the child's father, with no change, across all transition points.
(2) Increase Commitment with father	At one or more points the mother and child's father increase their commitment to each other and remain together at wave IV.
(3) Breakup with father and remains single	The romantic relationship between mother and child's father dissolves at some point. The mother never enters a new relationship remains without a partner at wave IV.
(4) Breakup with father and later with a new partner	The romantic relationship between mother and child's father dissolves and the mother forms a relationship with a new partner and remains with this partner at wave IV.
(5) Single to new partner	At baseline the mother reported no romantic or cohabiting relationship with the child's father (i.e., single) but forms a romantic relationship with a new partner and remains with the new partner at wave IV.
(6) Steadily Single	At baseline the mother reported no romantic or cohabiting relationship with the child's father (i.e., single) and remains single through all waves.
(7) Steady relationship with new partner	At baseline mother reported some romantic relationship with the child's father, but by year 1 she was with a new partner and remained with this new partner steadily through all other waves.
(8) Multiple Transitions, ending with the father	This category includes a variety of trajectories, all of which included a decrease in commitment and (in most cases) the dissolution of the relationship with the child's father, but also a re-partnership with the father by wave IV. Many of these mothers also began and ended a relationship with a new partner during this time.
(9) Multiple Transitions, ending with a new partner	This category includes a variety of trajectories. These mothers transitioned back and forth from the father to a new partner, and ended with a new partner at wave IV.
(10) Multiple Transitions, ending with no partner (single)	This category includes a variety of trajectories. These mothers transitioned back and forth from the father to a new partner, but by wave IV they were without a partner (single).

Family instability. The independent variable for RQ2e is family instability–the total number of transitions or changes in the mother's romantic relationships within the first five years post-birth. A transition may be a change in living arrangements (e.g., cohabiting to not), the formation of a new relationship, or dissolution of a relationship. This variable was created from a series of questions, asked at each wave, regarding the mother's current relationship with the child's father, whether or not she was currently living with him, and when applicable, her relationship and cohabiting status with a new partner. As was done for phase 2 of RQ2d, participants were systematically coded as having zero, one, or two transitions for each of the three transitions points. Each known relationship change was counted and the total indicated the number of transitions that occurred in that wave. If the relationship had not changed between the two time points, this category was assigned a 0. If the relationship changed but the mother remained with the same person (e.g., visiting with the child's father to romantic/cohabiting with the child's father), this category was assigned a 1, if the relationship changed and the mother was also with a new person (e.g., romantic cohabiting with the child's father to visiting a new partner), this category was assigned a 2 (i.e., ending the first relationship and starting a new relationship was counted as two transitions). Next, the total number of transitions across the five years was created by summing the number of transitions at each of the three transitions. A categorical variable was created to indicate four groups of transitions: a) zero transitions, b) one transition, c) two transitions, and d) three or more transitions. These were then coded into separate dummy variables.

Dependent Variables

Post-birth marriage. The outcome variable for RQ1 was the occurrence of post-birth marriage. As described above, FFCWS constructed variables derived from questions from the

Core Survey Questionnaire that indicated the participant's marital status at each wave was used to create this variable. Mothers who reported being married (to the child's father or a new partner) at any of the four time points were coded as 1, having a post-birth marriage, and all unmarried mothers were coded 0.

Child behavior problems. The dependent variables for RQ2a-e, and RQ3 were two types of child behavior problems: aggressive behaviors and internalizing behaviors. Child behavior was measured in the FFCWS using 72 of the original 113-item Achenbach's (1992) Child Behavior Checklist (CBCL). The CBCL is a widely used measure of problem behavior. The FFCWS used the preschool version, aimed at children ages 18 months to 5 years. Questions were asked to both parents in the Core Study Questionnaire and the In-Home Assessments follow-up interviews for Wave III (year 3) and Wave IV (year 5). Interviewers read each question to the mother, whereupon she responded on a scale from 0 to 2 indicating how true the statement was for her child (*0 = not true, 1 = somewhat true, 2 = very true or often true*). It has been reported that the mother's observations of her child's behaviors correspond closely with the appraisals made by an independent observer (Meadows, McLanahan, & Brooks-Gunn, 2007). Items in the CBCL are grouped into 8 constructs: social withdrawal, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior. Items are also grouped into internalizing (anxious/depressed, withdrawn) and externalizing problems (aggressive, delinquent) (Achenbach & Ruffle, 2000).

For this study, the two subscales (internalizing and aggressive behaviors) were constructed from wave IV (year 5) data, as suggested by FFCWS researchers (see Scales Documentation and Question Sources for Five-Year Questionnaires, 2008). For a full list of the

items included in each scale, please refer to Appendix A. A mean score for each scale was calculated by summing across items and dividing by the total number of items.

The internalizing scale consisted of the anxious/depressed and withdrawn subscales. The correlations between the subscales of the internalizing behavior scale were examined and revealed that the two scales were significantly correlated ($r = 0.57$, $p < .001$), suggesting internal consistency. The internalizing scale in the total FFCWS sample is highly reliable (total scale $\alpha = .82$; anxious/depressed $\alpha = .69$; withdrawn $\alpha = .74$).

The total externalizing scale in the full FFCWS sample was also highly reliable ($\alpha = .88$), however, the aggressive subscale had a much higher reliability ($\alpha = .86$) than the delinquent subscale ($\alpha = .64$). For this reason, and because the delinquent behavior items were not applicable for very young children, the full externalizing scale was not used; rather the aggressive behavior subscale was analyzed.

Additional factor analyses of these subscales confirmed the validity of these scales within this study's analytic sample. The reliability remained high for both the internalizing behavior scale ($\alpha = .81$) and for the aggressive behavior scale ($\alpha = .85$) in the analytic sample. Aggressive behavior and internalizing behavior were highly correlated ($r = .48$, $p < .001$) confirming internal and external validity. An analysis of the distribution of the internalizing behavior scale and aggressive behavior scale showed that each had positive skewed and kurtosis values; internalizing (kurtosis = 7.69, skewness = 1.93) and aggressive (kurtosis = .88, skewness = .92), which indicated problems with the assumption of normality. Because this is an assumption that must be met for regression analyses, the data were transformed by calculating the log for the internalizing and aggressive behavior scales and increased by one (i.e., *log(internalizing +1)*). Following the log transformation of the data, internalizing behaviors had a skewness value of

1.06 and a kurtosis of 1.75; aggressive behavior had a skewness value of .28 and a kurtosis of -.24. In both cases, the log function adjusted the data so that it followed more closely the normal distribution pattern. For the final analyses, the logs of internalizing and aggressive behavior variables were used.

Mediators

Parental Stress

RQ3 analyzed several mediator variables, the first of which was parental stress. This variable was derived from four questions included in the Core Survey Questionnaire for waves II, III, and IV. This parental stress scale measures parenting stress brought on by factors in the parent's life. Several items came from the Parent Stress Inventory (Abidin, 1995) and were part of the aggravation in parenting scale used in the Child Development of the Panel Study of Income Dynamic (PSID) and the Job Opportunities and Basic Skills Training Program Child Outcome Study (JOBS) by Child Trends, Inc. Their 5-question scale has an alpha of 0.69 (FFCWS Scales Documentation).

Participants were read several statements about being a parent and were asked to report their level of agreement (strongly agree (1), somewhat agree (2), somewhat disagree (3), or strongly disagree (4)). The statements were as follows: *a) being a parent is harder than I thought it would be; b) I feel trapped by my responsibilities as a parent; c) I find that taking care of my children is much more work than pleasure; d) I often feel tired, worn out, or exhausted from raising a family.* Items were reversed coded so that higher scores indicated greater parental stress. Scores at each wave were summed and then divided by the total number of valid responses. A preliminary correlation analysis of the parenting stress at each wave indicated that they were all highly correlated. Thus, a mean score of all three waves was calculated, summing

the mean scores of each individual wave and dividing by the number of valid scores. The Cronbach's alpha for this scale is $\alpha = .77$.

Parenting Behaviors

Maternal warmth. Maternal warmth is the expression of affection and appreciation, both verbally and physically of a mother to the child. This variable was measured by three items taken from the Core Survey Questionnaire at Wave III. These items are as follows: *Hugs or shows physical affection to (him/her); Tell (CHILD) that you love (him/her); Tell (CHILD) that you appreciated something (he/she) did.* Participants were asked to report the frequency (number of days per week) that she engaged in this behavior with her child. Items were summed and divided by the total number of valid responses to get a mean score. The Cronbach's alpha for this scale was .62 (raw .45). The mothers in this sample generally reported very high maternal warmth. The responses could range anywhere from 0 to 7 (days per week) and the mean score was 6.73, with a median of 7 and a mode of 7 (SD = 2.08). Upon further analysis of this variable, it was discovered that maternal warmth did not follow a normal distribution, in that it was negatively skewed (-4.08) and sharply peaked (kurtosis = 23.96). In addition, maternal warmth had very little variance. Therefore, for these reasons, and because maternal warmth was highly correlated to maternal involvement, maternal warmth was dropped from the final analysis.

Maternal involvement. Maternal involvement is the playful interaction of the mother and child, including behaviors such as reading stories, telling stories, playing games, singing songs, playing with toys with the child. The scale consists of the following four items that were included Wave I, Wave III, and Wave IV of the Core Survey Questionnaire: *a) Plays inside with toys such as blocks or Lego's with (CHILD); b) Reads stories to (CHILD); c) Sings songs or nursery rhymes with (CHILD); d) Tell stories to (him/her).* Mothers were asked to report the

frequency (number of days per week) that she engaged in this behavior with her child. The scores of identical items at each wave were summed and divided by the total number of valid responses to get a mean score of that question. The average score across the three waves of each item were then summed and divided by the total number valid responses to get a mean score indicating the maternal involvement across all waves. The Cronbach's alpha is $\alpha = .77$.

Spanking. Spanking is representative of physical discipline and was derived from two questions asked at wave II, III, and IV regarding the occurrence of spanking in the past month (yes/no) and prevalence of spanking (*a) every day or nearly every day, b) a few times a week, c) a few times this past month, or d) only once or twice*). Participants were coded into one of three categories for each wave: 1) no spanking, 2) rarely spanks, 3) frequently and recently spanks. The final variable for analysis was created to indicate the prevalence of spanking across all three waves. a) "Never spanked" if the mother reported 0 on all three time points; b) "Frequent spanking" if the mother reported a 3 at each time point; c) "Inconsistent spanking," for all other mothers who do not fall into the first two categories. The variable used for analyses was a dichotomous variable, dummy coded to indicate having ever spanked (1) or never spanked (0). The Cronbach's alpha for this scale is $\alpha = .47$.

Control Variables

Child Characteristics

Sex. The sex of the child who had just been born at the time of the baseline interview was reported in the Core Survey Questionnaire as either male or female, and coded accordingly in a dummy variable "female" (1 yes, 0 no).

Temperament. The temperament of the child was measured by assessing the levels of emotionality (i.e., the tendency to become aroused easily and intensely) at age 1. This variable

was derived from three items taken from the Core Survey Questionnaire at Wave II. Participants were asked to use a 5-point scale to report how much the following items describes the child: *a) (He/She) often fusses and cries, b) (He/She) gets upset easily, c) (He/She) reacts strongly when upset.* A mean score was calculated by summing the responses and dividing by the number of valid responses. These items have been shown to measure heritable personality traits (see Buss & Plomin, 1984; Plomin, et al. 1988) and originate from the Emotionality sections of the Emotionality, Activity, and Sociability (EAS) Temperament Survey for Children. An analysis this scale in the FFCWS data produced a Cronbach's alpha of $\alpha = .60$.

Mother's Characteristics

Age. Participants reported their ages at the time of the first interview in the Core Survey Questionnaire. This information was used to code participants into three categories: teen (under 20 years old), early adulthood (20 to 29), and middle aged (30 and older).

Race/ethnicity. The race/ethnicity of the mother was determined by using two questions in the Core Survey Questionnaire, one asking the race of the mother, and the other asking whether or not she is of Hispanic ethnicity. Using this information, participants were coded into the following categories: Non-Hispanic White, Non-Hispanic Black, Hispanic (any race), Asian, American Indian, and other. Because of the small numbers of participants who reported Asian or American Indian race/ethnicity, these groups were added to the "other category" leaving four categories.

Education. The mother's level of education was determined from an item regarding the mother's education in the baseline Core Survey Questionnaire. Participants were coded into three categories (using dummy variable coding) based on her highest level of education completed: "college" includes those who have attended any college, graduate school, and/or technical

school; “high school” includes those with a high school diploma, or G.E.D.; anything less than high school is the final category.

Income. The total household income, as reported by the mother in the baseline Core Survey Questionnaire, was divided by 1000. In order to adjust for a skewed distribution, the log of each household income score was calculated. This new variable was used for analysis as a control.

Church attendance. The frequency that the participant attended church was determined from a question from the Core Survey Questionnaire asking the mother how often she attends religious services. Response options were *once a week or more (1), several times a month (2), several times a year (3), hardly ever (4), not at all (5).* Using this information, participants were coded into three categories: never, which included those who responded 5, rarely, which included those who responded 3 or 4, and frequently, which included responses of 1 or 2.

Analyses

As described in the previous chapter, three research questions were proposed, each with several parts to address the complexities of a post-birth marriage and the family processes that might explain this relationship. Below is a description of the analyses used for each question.

Analytic Design

Means and frequencies demographic characteristics of the participants at baseline were estimated. Descriptive statistics and correlation analyses were conducted on all independent and dependent variables. Data were assessed to ensure that the assumptions of normality, linearity, and homoscedasticity were met. T-tests were run on the key demographic variables comparing missing and non-missing data for key outcome variables (i.e., aggressive and internalizing

behaviors). The data were then weighted using the wave IV longitudinal national weights (provided by the FFCWS) in order to create a nationally representative sample. The missing data on the demographic variables (i.e. controls) were estimated for the analysis of the 2nd and 3rd research questions. All analyses were conducted using the statistical software SAS version 9.2 (SAS Institute, Inc. Cary, North Carolina). The follow is a description of the statistical analyses used for each research question.

RQ1: Who Will Marry?

The first research question was aimed at learning which maternal, child, and family characteristics predict the occurrence of a marriage within the first five years following the birth, and if these differences account for the variation in child behavior by family structure. The independent variables were the mother's employment, education, health, age, frequency of church attendance, attitudes about marriage, and race/ethnicity. Family characteristics, such as the sex of the child, the number of births, the number of the mother's other biological children, the father and mother's relationship status, relationship quality, and levels of conflict were also independent variables. The dependent variable was the occurrence of any post-birth marriage by year 5. Additional analyses included sub-categories of this variable, any post-birth marriage to the child's father, and any post-birth marriage to a new partner. Because the outcome variable was dichotomous, a survey logistic multivariate regression analysis was conducted.

RQ2: Post-birth Marriage & Child Behavior

Multivariate regression analyses were conducted to determine the association between internalizing and aggressive behaviors at year 5 and the various dimensions of the mother's post-birth marriage/romantic relationships. The following were tested as independent variables: (a)

the occurrence of any post-birth marriage, (b) the timing of the post-birth marriage, (c) the biological relationship of the spouse to the child, (d) the relationship trajectory, and (e) the number of transitions.

RQ2a: If she marries: Occurrence of any post-birth marriage. Multivariate linear regression analyses were used to test whether the dichotomous variable for post-birth marriage occurrence (YES/NO) predicted internalizing and aggressive child behaviors. A second model that included all control variables was also tested.

RQ2b: When she marries: Timing of post-birth marriage. Multivariate linear regression analyses were used to test whether the three-level variable for the timing of post-birth marriages (EARLY/LATE/NEVER) predicted child behavior. The "never" category was the referent group. A second model that included all control variables was also tested.

RQ2c: Whom she marries: Does biology matter? Multivariate linear regression analyses were conducted to determine the significance of the association between child behavior problems and whether the mother marries the biological father, adjusted for the control variables. Two models were tested, one in which "single – no father" was the referent group; another in which "married to the biological father" was the referent group. A second model that included all control variables was also tested.

RQ2d: Relationship trajectory. Multivariate linear regression analyses were conducted to determine which relationship trajectory predicted internalizing and aggressive behavior problems. The "steady/cohabiting with biological father" group was left out as the referent group. A second model that included all control variables was also tested.

RQ2e: Family instability. Multivariate linear regression analyses were conducted to determine if the number of relationship transitions predicted internalizing and aggressive

behavior problems. The category of "zero transitions" was the referent group. A second model that included all control variables was also tested.

RQ3: Mediators

The final aim of the study was to determine some of the processes that mediate the relationship of post-birth marriage and child behavior outcomes. In order to achieve this aim, several steps of analyses were required (see Figure 1).

Post-birth marriage and child behavior. First, in order for a mediating relationship to exist, there must first be a relationship between post-birth marriage and the child behaviors. Analyses were conducted for both internalizing and aggressive behavior problems and post-birth marriage (see Figure 6, arrow C).

Post-birth marriage, parenting behaviors, and parental stress. Second, in order for parenting behaviors and parental stress to be a mediator, post-birth marriage must significantly influence each of these variables. A multivariate linear regression was conducted to test this relationship, controlling for potentially confounding variables (see Figure 6, arrow A).

Parenting behaviors, parenting stress, and child behaviors. Third, parenting behaviors and parenting stress would need to be significantly associated with child behavior. Therefore, child behaviors were regressed on parenting behaviors and parenting stress (control variables included) (see Table 6, arrow B).

Test for mediation. Parenting behaviors and parental stress were tested as mediator variables. According to Baron and Kenny (1986) a mediator variable reduces the relationship between the predictor and outcome. The significant difference among regression coefficients was assessed using the Sobel test to determine if the effect of post-birth marriage on child behaviors was diminished by the addition of parenting behaviors to the model (Baron & Kenny, 1986).

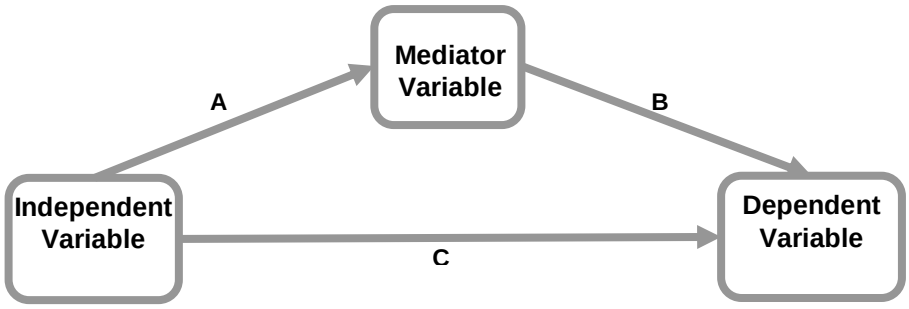

Figure 6. Baron and Kenny's Model for Mediation

Human Subjects Protection

This study conducted a secondary data analysis of a public national data set. The participants' informed consent was obtained during the initial recruitment process by the primary investigators of the FFCWS. The data used in this study did not include any identifying information (e.g., names, addresses) but were identified by code numbers. The primary concern for the protection of human subjects is in preserving the individual subject's confidentially. All data were stored on a password-protected computer. In addition, all reports used aggregate data across the analytic data sample only, with no reports on individual participants. There were no foreseeable risks or benefits to the participants in this study prior to conducting this study. The research proposal was submitted to the University of Maryland Human Institutional Review Board and on October 18, 2012, notification was received that this was not designated as human subject research.

CHAPTER 4: RQ1 RESULTS

Descriptive Analyses

RQ1 is centered on the characteristics and qualities of the mother, child, and family that might predict the occurrence of marriage. The analytic sample for this question includes all mothers who were unmarried at baseline with complete data on the independent and dependent variables (N = 2091). This sample was weighted (using wave IV weights) to make the sample nationally representative. All of the independent variables were created from information reported by the mothers at baseline and the dependent variable included data from each wave. For a full summary of the means and proportions of each variable, please refer to Table 7.

Dependent Variable

The dependent variable for this question was post-birth marriage, the marriage of the mother to the father or another man at any point during the first five years of the study. Within this sample, only 26% of the mothers married at any point during the five years of the study. Just 21% of the sample married the child's father and 6% married a new partner (note: eight participants married both the child's father and a new partner during the five year span). The following are characteristics that were expected to be associated with the occurrence of marriage for these fragile family mothers (Table 7).

Independent Variables

The independent variables for RQ1 were divided into two groups: a) characteristics of the mother, and b) family and child characteristics. Within these categories were variables that measured the demographic characteristics, economic resources and maternal wellbeing, and the

mother's values and expectations of marriage, family structure, relationship status, and child characteristics. Each variable was based on baseline data (wave I).

Mother's Characteristics

Demographic characteristics. The fragile family mothers in this sample self-identified as non-Hispanic Black (40%), Hispanic (33%), non-Hispanic White (22%), and "other" (4%). The majority of mothers (58%) were in their twenties (ages 20-29) and the average age was 23.6 years. A little more than a quarter of the sample (26%) were teen mothers (ages 15-19), and 16% were between the ages of 30 and 43. In terms of religiosity, 89% identified as having a religious affiliation; 35% reported frequently attending church, 50% attended occasionally, whereas 15% never attended (Table 7).

Economic resources and wellbeing. Economic resources were education, employment, and income. At the time of the child's birth, only a small percentage (19%) of the mothers in this sample had received any education beyond high school and 44% had not completed high school. Although most of these mothers were employed or had been employed at some point prior to the child's birth (88%), as a group they were earning very little. The median income of the weighted sample at baseline was $17,500. The mother's report of her health status was the only indicator of wellbeing. A small percentage (9%) of the sample reported being in poor health at the time of the birth; the majority were in either good or excellent health (Table 7).

Hopes and values of marriage. How the mother valued marriage, measured by her attitudes and beliefs concerning marriage (e.g., *It is better for a couple to get married than to just live together, etc.)*, ranged from 1.3 to 3.83 with a mean of 2.46. Mothers ranked the chances she would marry, whether it would be the child's father or some other partner, on a scale of 1 to 5. The mean score was 3.98 (SD = 15.89). Responses indicated that 44% were almost certain, 25%

were somewhat certain, 21% gave a 50-50 chance, 6% said very little chance, and 4% said there was no chance of a future marriage. Thus, most mothers held at least some hope to marry, and the sample in general held high expectations for a future marriage (Table 7).

Child & Family Characteristics

Child characteristics & family structure. Half of the children born at baseline were male (53%). Almost half were firstborn (45%); however, 29% of the mothers reported having one other biological child than the child born at baseline and 26% had 3 to 12 other biological children. Less than 4% of the mothers had given birth to twins at the time baseline data were collected. In terms of the mothers' relationships with the fathers, 82% were in a romantic relationship, of which 51% were also cohabiting and 32% were only visiting. The rest were either in a non-romantic relationship (i.e., just friends) (9%) or reported having no relationship with the child's father at the birth (8%) (Table 7).

Relationship quality. All participants, both those who were in a romantic relationship with the child's father at the time of the birth and those who were not, reported the frequency of disagreements they had with the child's father and the quality of this relationship. On both scales, higher scores indicated better relationships (i.e., higher quality, lower conflict). Relationship quality ranged from 1.2 to 3, and conflict from 1 to 3. The mean conflict score was 2.56, indicating relatively low conflict, and the mean relationship quality score was 2.66, indicating relatively high relationship quality. Thus, many mothers held a positive view of the relationship with the child's father at baseline (Table 7).

Table 7. Sample Characteristics, Means & Proportions (RQ1)

Summary of Weighted Characteristics of Sample (RQ1), Proportions and Means [a]

Variable	RQ1 Sample (N = 2091)
Post-birth marriage	.26(6.20)
Household income (in thousands)	23.38(302.11)
Previous employment	.88
Education	
More than high school	.19
High school	.37
Less than high school (reference)	.44
Health status	
Poor	.09
Not poor (reference)	.90
Relationship quality	2.66(5.06)
Low relationship conflict	2.56(5.61)
Church attendance	
Frequently	.35
Rarely (reference)	.50
Never	.15
Hopes to marry	3.98(15.90)
Values marriage	2.46(5.38)
Sex of child (female)	.47
Multiple births	
Twins	.04
Single birth (reference)	.96
Other biological children	1.07(20.70)
Relationship status with child's father	
Romantic/Cohabiting	.51
Romantic/Visiting	.32
Non-romantic/Just friends	.09
No relationship (reference)	.08
Age	23.60(82.78)
Teen (15-19)	.26
Young Adult (20-29) (reference)	.58
Middle Age (30-43)	.16
Race/ethnicity	
Black	.40
Hispanic	.33
White (reference)	.22
Other	.04

[a] Note: The standard deviation is in parentheses.

Bivariate Analyses

Dependent Variable

The occurrence of a post-birth marriage was positively correlated with several independent variables, specifically household income, previous employment, education (i.e., more than high school), high relationship quality, low relationship conflict, high value of marriage, high hope to marry, being in a romantic/cohabiting relationship at the time of the birth, being White or of "other" racial/ethnic background, and being a young adult mother. Post-birth marriage was negatively correlated with a less than high school education, poor health, having given birth to twins, the number of other biological children in the family, being in a non-cohabiting relationship with the father at birth (i.e., visiting, just friends), having no relationship with the father at birth, being of Black race/ethnicity, and being under the age of 19 or 30 and older when the child was born.

Independent Variables

Although many of the other independent variables were significantly correlated, only the relationships that were moderately correlated ($r > .20$) are reported below. Please refer to Table 18 in Chapter 5 for a summary of the bivariate correlations of the demographic characteristics, otherwise see Table 8 below. The age and race/ethnicity of the mother were correlated with several factors. For instance, being a teen mom was negatively correlated with having had previous employment ($p < .001$, $r = -.21$), positively correlated with a less than high school education ($p < .001$, $r = .28$). Being a young adult mother was negatively correlated with having completed less than high school ($p < .001$, $r = -.20$). The number of other biological children was negatively correlated with being a teen mother ($p < .001$, $r = -.33$) and positively correlated with

being a middle-aged mother ($p < .001$, $r = .38$). A less than high school education was correlated with Hispanic race/ethnicity ($p < .001$, $r = -.21$). Compared to White mothers, Black mothers reported higher conflict with the child's father ($p < .001$, $r = -.21$).

Family structure and relationship characteristics were also correlated. Mothers in a romantic/cohabiting relationship with the father at baseline tended also to report higher hopes to marry ($p < .001$, $r = .32$), higher household incomes ($p < .001$, $r = .22$), and higher relationship quality ($p < .001$, $r = .30$). Having no relationship or being in a non-romantic relationship with the child's father at baseline was correlated with lower hopes to marry ($p < .001$, $r = -.20$; $p < .001$, $r = -.28$), as well as poorer relationship quality ($p < .001$, $r = -.20$; $p < .001$, $r = -.39$).

Hopes to marry. In addition to being correlated with family structure, the mother's hope to marry was positively correlated with relationship quality ($r = .34$, $p < .001$) and the mother's value of marriage ($r = .21$, $p < .001$). In general, relationships with high quality also tended to have low conflict ($p < .001$, $r = .29$).

Table 8. Correlations of Exclusively RQ1 Variables and Post-birth Marriage

Summary of Weighted Intercorrelations of Exclusively RQ1 Variables and Post-birth Marriage (RQ1) [a]

	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Post-birth marriage (any)	.86***	.41***	.06**	-.07**	.21***	.14***	.26***	.09***	-.07***	-.05*	.24***	-.16***	-.07***	-.10***
2. Post-birth marriage (father)	--	-.11***	.06**	-.09***	.25***	.14***	.26***	.10***	-.10***	-.06**	.30***	-.17***	-.13***	-.13***
3. Post-birth marriage (new)		--	.01	.04	-.03	.03	.03	-.01	.04	.01	-.08**	.00	.08***	.04
4. Previous employment			--	-.06**	.09***	-.11***	.07***	.04*	-.07**	-.02	.03	-.02	.01	-.02
5. Poor Health				--	-.06**	-.05*	-.12***	-.01	.03	.08***	.05**	-.04	-.03	-.00
6. Relationship quality					--	.29***	.34***	.06**	-.11***	-.07***	.30***	.02***	-.19***	-.39***
7. Low relationship conflict						--	.08***	-.01	.01	-.15***	.10***	-.05*	.01	-.11***
8. Hopes to marry							--	.21***	.01	-.06**	.32***	-.06**	-.28***	-.20***
9. Values marriage								--	.84***	.04	.02	.06**	-.04	-.09***
10. Twins									--	.10***	.01	-.01	.05	-.06**
11. Number of other children										--	.10***	-.01	-.05**	-.10***
12. Romantic/Cohabiting											--	-.70***	-.32***	-.30***
13. Visiting with father												--	-.22***	-.20***
14. Just friends													--	-.09***
15. No relationship														--

[a] Note: Weighted sample (N = 2091).
* p > .05, ** p > .01, *** p > .001

Multivariate Regression Analysis

Post-birth Marriage

A logistic regression model tested which mother, child, and family characteristics predicted the occurrence of marriage in the first five years post-birth for fragile families. Several factors significantly predicted the occurrence of any marriage during this time. Mothers who reported higher household income and some college education were more likely to marry. For each $1,000 increase in income, the odds of a post-birth marriage increased by 1%. The odds of getting married were 91% greater for mothers who had some education beyond high school than for mothers who did not graduate from high school. The results also showed that those who expressed a high hope to marry at the time of the child's birth were more likely to actually marry in the first five years. For each additional increment of "hope to marry" held by the mother there was an increase of 46% in the odds of a post-birth marriage. Race/ethnicity also played a role in predicting marriage, specifically, the odds of getting married were 58% lower for Black mothers compared to White mothers. No difference was found between White mothers and the other racial/ethnic groups in their likelihood to marry. Relationship quality, relationship status, church attendance, the mother's age, the mother's value of marriage, and all child and family characteristics had no impact on the mothers' choice to marry. Regression coefficients are summarized in Table 9.

Table 9. Predictors of Any Post-birth Marriage (RQ1)

Predictors of Any Post-birth Marriage (RQ1)

Variable	β	SE β	OR	95% CI
Intercept	-7.11***	1.16		
Household income (in thousands)	.01**	<.01	1.01	[1.00, 1.02]
Previous employment				
Yes	.07	.38	1.08	[.51, 2.25]
No (reference)	omitted	omitted	omitted	Omitted
Education				
Less than high school (reference)	omitted	omitted	omitted	Omitted
More than high school	.64*	.28	1.91	[1.10, 3.29]
High school	.19	.28	1.21	[1.21, 2.10]
Health Status (not poor)				
Poor	-.25	.54	.78	[.27, 2.25]
Not poor (reference)	omitted	omitted	omitted	Omitted
Relationship quality	.72	.40	2.06	[2.06, 4.53]
Low relationship conflict	.54	.33	1.71	[1.71, 3.28]
Church attendance				
Never attends church	-.05	.36	.95	[.95, 1.91]
Rarely attends church (reference)	omitted	omitted	omitted	Omitted
Frequently attends church	.27	.29	1.31	[.75, 2.30]
Hopes to marry	.38***	.12	1.46	[1.46, 1.84]
Values marriage	.38	.31	1.46	[.79, 2.70]
Number of births				
Single (reference)	omitted	omitted	omitted	Omitted
Twins	-1.25	3.25	.29	[<.001, 167.43]
Sex of Child				
Male (reference)	omitted	omitted	omitted	Omitted
Female	-.19	.21	.83	[.55, 1.24]
Number of other biological children	.03	.10	1.03	[1.03, 1.24]
Relationship with child's father				
Romantic/Cohabiting	.40	.36	1.46	[1.49, 3.00]
Visiting with father	-.21	.32	.81	[.42, 1.52]
Just friends	.30	.45	1.35	[.56, 3.25]
No relationship (reference)	omitted	omitted	omitted	Omitted
Race/Ethnicity				
Black	-.87***	.25	.42	[.42, .68]
Hispanic	-.29	.29	.75	[.42, 1.33]
White (reference)	omitted	omitted	omitted	Omitted
Other	-.16	.49	.85	[.32, 2.25]
Age				
Teen	-.36	.27	.70	[.42, 1.18]
Young Adult (reference)	omitted	omitted	omitted	Omitted
Middle Age	-.34	.39	.71	[.33, 1.54]

Note: Logistic regressions in a weighted sample of N=2091. SE = standard error; OR = odds rations; CI = confidence interval
* p < .05, **p < .01, *** p < .001

Post-birth Marriage to the Child's Biological Father

Additional regressions were run to determine which characteristics predicted marriage to the biological father and if any predicted marriage to a new partner. A logistic regression with "marriage to the child's biological father" as the dependent variable was run with all the independent variables listed above. Similar to the results above, income, high hopes to marry, and race/ethnicity predicted a marriage with the biological father of the child. In addition to these, family structure, relationship quality, and church attendance were also significant. Unlike post-birth marriage to any partner, education was not a predictor. For each $1,000 increase in income, the odds of a post-birth marriage increased by 1%. Those who expressed a high hope to marry were more likely to marry the child's father; for each additional increment of "hope to marry" held by the mother there was an increase of 42% in the odds of a post-birth marriage. In terms of race/ethnicity, the odds of getting married were 50% lower for Black mothers compared to White mothers. The odds of getting married to the child's father were 427% higher if she was in a romantic and cohabiting relationship with the child's father at baseline. Another aspect of family structure that approached significance ($p = .06$) was if the mother gave birth to twins; the odds that she married the child's father were 99% lower than if she had given birth to a single child. The mother's relationship quality with the father was also important, for each additional increment of relationship quality there was an increase of 216% in the odds of a post-birth marriage. Lastly, if the mother reported frequent church attendance at baseline, the odds of her marrying the child's biological father were 99% greater than those of mothers who rarely attended. Regression coefficients are summarized in Table 10.

Table 10. Predictors of Post-birth Marriage to Child's Biological Father (RQ1)

Predictors of Post-birth Marriage to the Child's Biological Father (RQ1)

Variable	β	SE β	OR	95% CI
Intercept	-10.25***	1.44		
Household income (in thousands)	.01**	< .01	1.01	[1.00, 1.02]
Previous employment				
Yes	.29	.48	1.33	[.51, 3.42]
No (reference)	omitted	omitted	omitted	Omitted
Education				
Less than high school (reference)	omitted	omitted	omitted	Omitted
More than high school	.46	.34	1.58	[.81, 3.08]
High school	-.01	.31	.99	[.54, 1.82]
Health Status (not poor)				
Poor	-.78	.53	.46	[.16, 1.31]
Not poor (reference)	omitted	omitted	omitted	Omitted
Relationship quality	1.15**	.38	3.16	[1.50, 6.62]
Low relationship conflict	.44	.42	1.55	[.68, 3.54]
Church attendance				
Never attends church	.27	.38	1.32	[.95, 1.91]
Rarely attends church (reference)	omitted	omitted	omitted	Omitted
Frequently attends church	.69*	.30	1.99	[.61, 2.82]
Hopes to marry	.35*	.15	1.42	[1.09, 3.61]
Values marriage	.52	.29	1.68	[.95, 2.97]
Number of births				
Single (reference)	omitted	omitted	omitted	Omitted
Twins	-4.30	2.27	.01	[<.001, 1.17]
Sex of Child				
Male (reference)	omitted	omitted	omitted	Omitted
Female	.08	.21	.72	[.72, 1.64]
Number of other biological children	-.04	.12	.97	[.77, 1.22]
Relationship with child's father				
Romantic/Cohabiting	1.67*	.78	5.27	[1.14, 24.42]
Visiting with father	.61	.76	1.84	[.42, 8.13]
Just friends	.16	.98	1.17	[.17, 7.93]
No relationship (reference)	omitted	omitted	omitted	Omitted
Race/Ethnicity				
Black	-.69*	.31	.50	[.27, .92]
Hispanic	-.01	.26	1.00	[.59, 1.67]
White (reference)	omitted	omitted	omitted	Omitted
Other	-.18	.45	1.20	[.49, 2.90]
Age				
Teen	-.19	.33	.82	[.43, 1.56]
Young Adult (reference)	omitted	omitted	omitted	Omitted
Middle Age	-.14	.41	.87	[.38, 1.93]

Note: Logistic regressions in a weighted sample of N=2091. SE = standard error; OR = odds rations; CI = confidence interval
* p < .05, **p < .01, *** p < .001

Table 11. Predictors of a Post-birth Marriage to a New Partner (RQ1)

Predictors of Post-birth Marriage to a New Partner (RQ1)

Variable	β	SE β	OR	95% CI
Intercept	-3.21***	2.12		
Household income (in thousands)	< .01	<.01	1.01	[.99, 1.01]
Previous employment				
Yes	-.62	1.70	.54	[.02, 15.25]
No (reference)	omitted	omitted	omitted	omitted
Education				
Less than high school (reference)	omitted	omitted	omitted	omitted
More than high school	.89	.63	2.44	[.71, 8.39]
High school	.69	.39	2.00	[.92, 4.35]
Health Status (not poor)				
Poor	.84	.78	2.32	[.50, 10.75]
Not poor (reference)	omitted	omitted	omitted	omitted
Relationship quality	-.08	.74	.92	[.22, 3.90]
Low relationship conflict	.54	.37	1.72	[.82, 3.58]
Church attendance				
Never attends church	-.87	.62	.42	[.12, 1.44]
Rarely attends church (reference)	omitted	omitted	omitted	omitted
Frequently attends church	-.93*	.47	.34	[.16, .99]
Hopes to marry	.35*	.16	1.42	[1.03, 1.96]
Values marriage	-.05	.43	.95	[.41, 2.19]
Number of births				
Single (reference)	omitted	omitted	omitted	omitted
Twins	.07	5.50	1.08	[<.001, >999]
Sex of Child				
Male (reference)	omitted	omitted	omitted	omitted
Female	-.60	.47	.55	[.22, 1.40]
Number of other biological children	.21	.20	1.23	[.83, 1.83]
Relationship with child's father				
Romantic/Cohabiting	-1.59*	.70	.20	[.05, .80]
Visiting with father	-.83	.55	.44	[.15, 1.80]
Just friends	.25	.76	1.28	[.29, 5.72]
No relationship (reference)	omitted	omitted	omitted	omitted
Race/Ethnicity				
Black	-.83*	.56	.44	[.14,1.32]
Hispanic	-1.06	.60	.35	[.11, 1.12]
White (reference)	omitted	omitted	omitted	omitted
Other	-.70	1.13	.50	[.05, 4.56]
Age				
Teen	-.46	.53	.63	[.23, 1.78]
Young Adult (reference)	omitted	omitted	omitted	omitted
Middle Age	-.81	1.71	.45	[.02, 12.67]

Note: Logistic regressions in a weighted sample of N=2091. SE = standard error; OR = odds rations; CI = confidence interval
* p < .05, **p < .01, *** p < .001

Post-birth Marriage to a New Partner

A logistic regression, with "marriage to a new partner" as the dependent variable, showed that church attendance, hope to marry, and family structure were the only characteristics that predicted a marriage to a new partner. Specifically, the odds of marrying a new partner in the first five years were 80% lower for mothers who were in a romantic and cohabiting relationship with the child's father at baseline. High hope to marry predicted higher chances of marriage to a new partner, in that for each additional increment of "hope to marry" held by the mother there was an increase of 42% in the odds of a post-birth marriage. Lastly, odds of marrying a new partner were 61% lower for mothers who frequently attended church, compared to those who rarely attended at baseline. Regression coefficients are summarized in Table 11.

Predictors of Child Behaviors

After RQ1 analyses found that the household income, mother's education, the mother's hope to marry, and the mother's race/ethnicity were significant predictors of a post-birth marriage, further analyses were conducted to determine whether these variables also predicted the child behavior outcomes. In a linear regression analysis which included these variables as predictors of internalizing behaviors, the mother's education, the mother's race/ethnicity, and the mother's hopes to marry were significant. The mothers with high hopes to marry and those with more than a high school education reported fewer internalizing behaviors from her child ($b = -.02$, $p < .001$; $b = -.05$, $p < .001$). Those who were of Hispanic race/ethnicity reported higher internalizing behaviors from her child ($b = .03$, $p < .01$). The linear model predicting aggressive behaviors showed that income was the only significant predictor, higher household income at baseline predicting lower aggressive behaviors ($b < -.01$, $p = .02$).

In the next chapter these and other demographic characteristics were entered into the models as controls, except for the hope to marry variable. This variable was tested in the models as a control, but was not significantly linked to child behavior. This indicates that although the mother's hope to marry was a significant predictor of a later marriage, this characteristic did not significantly influence internalizing or aggressive behaviors. These tests suggest that the results in the next chapter (RQ2) are due in greater part to the family structure variables themselves rather than to selectivity of those who marry.

CHAPTER 5: RQ2 RESULTS

Descriptive Analyses

RQ2 inquires about the relationship of various dimensions of post-birth marriage or the parent's romantic relationship to child behaviors (i.e., internalizing and aggressive behaviors). There were two subsamples used for analysis, one for RQ2a-c and e and the second used for RQ2d. Both analytic samples contained only participants who were unmarried at baseline, had complete wave IV weights, and had complete information on the independent and dependent variables (RQ2a-c, N = 2056; RQ2d, N = 1799; RQ2e, N = 2055). All samples were weighted using wave IV weights and the missing data on the controls were estimated using an EM algorithm. Below, organized by sub-questions, are descriptions of the participant characteristics for each subsample, followed by the descriptions of the dependent variables and independent variables.

Participant Characteristics

The participants' age, race/ethnicity, education, income, church attendance, and child characteristics are described for each sample below, with a full summary of all characteristics in Table 12. Fifty-nine percent of the participants were in their twenties (ages 20-29) at the time of the child's birth, 25% were teenagers (age 15-19), and 16% were 30 or older (age 30-43). In terms of race/ethnicity, there was some variation between subsamples. The RQ2d sample had 2% fewer Hispanic mothers, 1% more White mothers, and 1% more mothers of "other" racial/ethnic backgrounds than the RQ2a-c, e sample. In both subsamples, 40% were Non-Hispanic Black. In terms of education, mothers without a high school degree made up the largest group for both subsamples (45% and 42%). However, a slightly greater percentage of mothers in the RQ2d

sample had completed higher education than mothers in the RQ2a-c, e sample. The mean household income also varied slightly between subsamples from $23,309 (RQ2a-c, e) to $23,938 (RQ2d), a difference of $629. Church attendance varied little between samples, with the majority (50% (RQ2d) or 51% (RQ2da-c)) rarely attending religious services (i.e., at least once a year but less than once a month). In both subsamples, 48% of the children born at baseline were female. Mothers reported a mean emotionality score of 2.82 in the RQ2a-c, e sample and 2.80 in the RQ2d sample. Comparing these subsamples it is evident that the variations are insubstantial.

Table 12. Sample Characteristics, Means & Proportions, (RQ2)

Summary of Characteristics of Samples (RQ2a-e)Weighted Proportions and Means [a]

Variable	RQ2a-c, e Sample [b] (*n* = 2056)		RQ2d Sample (*n* = 1799)	
Internalizing behavior	.20	(2.48)	.20	(2.45)
Aggressive behavior	.43	(3.25)	.43	(3.19)
Temperament (emotionality)	2.82	(14.98)	2.80	(15.22)
Female	.48		.48	
Age	*23.65*	*(85.59)*	*23.63*	*(82.52)*
Teen (ages 15-19)	.25		.25	
Young adult (20-29) (reference)	.59		.59	
Middle aged (30-43)	.16		.16	
Race/ethnicity				
Non-Hispanic/Black (reference)	.40		.40	
Hispanic	.35		.33	
Non-Hispanic/White	.22		.23	
Other	.03		.04	
Education				
More than high school	.18		.19	
High school	.37		.39	
Less than high school (reference)	.45		.42	
Household income (in thousands)	23.309	(315.23)	23.938	(319.15)
Church attendance				
Frequent	.35		.35	
Rarely (reference)	.51		.50	
Never	.16		.15	

[a] Note: The standard deviation is in parentheses.
[b] Note: the sample for RQ2e is N=2,055, one less than is listed here.

Dependent Variable: Child Behavior

The dependent variable for all RQ2 was child behavior, specifically internalizing and aggressive behaviors. The score ranged from 0 to 2, with higher scores indicating greater behavior problems. The internalizing scale (an average score transformed by the log function) had a range of 0-1.10 and a mean of .20 (SD = .16). The aggressive behavior scale (an average score transformed by the log function) ranged from 0-1.10, with a mean of .43 (SD = .22). Thus, it would appear that in general the children in the sample exhibited few internalizing behavior problems and somewhat higher aggressive behavior. These values did not vary between samples (Table 12).

Independent Variables (RQ2a-c): Dimensions of Post-birth Marriage

The dependent variables for the first three sub-questions for RQ2 were various dimensions of post-birth marriage. Each is described in greater detail below (Table 13).

Post-birth marriage (RQ2a). Twenty-seven percent of the sample had married at some point during the five years of the study. Those who married consisted of two groups: 1) those who married the child's father (21%), and 2) those who married a new partner (7%). It should also be noted that there were 9 participants (.04% of the sample) who had married both the child's father and a new partner by year 5.

Timing (RQ2b). Ten percent of the sample married early, before the first follow-up interview (age 1/wave II), 17% married late, at some point following the first follow-up interview and before wave IV (age 5), and 73% of the sample did not marry.

Biological relationship (RQ2c). At wave IV (age 5), 17% of the sample were married to the child's biological father, 6% were married to a new partner, 19% were cohabiting with the

child's biological father, 17% were cohabiting with a new partner, and 42% were single (i.e., in no romantic or cohabiting relationship with any partner).

Table 13. Independent Variables: Dimensions of Post-birth Marriage (RQ2a, b, c)

Summary of Weighted Proportions of Post-birth Marriage Variables (RQ2a-c IVs)

	RQ2a-c Sample (N = 2056)
RQ2a Post-birth marriage	.27
RQ2bTiming	
Early	.10
Late	.17
Never	.73
RQ2c Partner's relationship to child	
Married biological Father	.17
Married step-father	.06
Cohabiting biological father	.19
Cohabiting social father	.17
No partner	.42

Independent Variables (RQ2d-e): Relationship Changes

Relationship trajectories (RQ2d). There was much variation in the trajectories experienced by the fragile families in this sample (N = 1799) (Table 14). Some children spent their first five years in families in which the mother's romantic relationships changed little. For instance, almost one-fifth of mothers (18%) continuously cohabited with the child's biological father throughout all five years. These families did not marry, but the romantic relationship of the parents was steady and did not dissolve. A small percentage of mothers were consistently without a partner (3%); although these families had no father figure, they did not experience significant family structure changes.

Fragile family children more commonly experienced a variety of adjustments to the mother's romantic relationship and consequently to the family structure. Almost 18% of the children saw their parent's relationship increase in commitment across the five years, which included transitions from visiting to cohabiting or cohabiting to marriage. However, the majority (61%) of the children in these fragile families experienced the dissolution of the parent's

romantic relationship at some point in these first five years. Many of these mothers remained single after the breakup (17.37%), others later began a relationship with a new partner (15.70%). Some mothers who ended the relationship with the father prior to the birth were single for a while but ended up with a new partner (4.42%), whereas others began a relationship with a new partner early in the child's life (within the first year) and remained in a steady relationship with that partner (4.16%).

Just under a quarter of the children of the sample experienced a series of changes in their mother's relationship in these earliest years of life. In many of these cases, the mother transitioned in and out of romantic relationships with the child's father and with new partners. These series of changes led some mothers to be without any partner (9%), others to be with a new partner (7%), and others to be back with the child's father (5.41%) by age 5.

Table 14. Independent Variable: Relationship Trajectory (RQ2d)

Summary of Weighted Proportions of Relationship Trajectory Categories (IV for RQ2d)

Variable	RQ2d Sample (N = 1799)
1. Steady unmarried/cohabiting with child's father	.18
2. Increase commitment with father	.19
3. Breakup with father and remains single	.14
4. Breakup with father and later is with a new partner	.16
5. Single to new partner	.04
6. Steadily single	.03
7. Steady relationship with new partner	.04
8. Multiple changes, ending with the father	.05
9. Multiple changes, ending with a new partner	.07
10. Multiple changes, ending with no partner (single)	.09

Family instability (RQ2e). The number of total transitions across all waves of data ranged from 0 to 6, with a mean of 1.66 (SD = 1.06). The distribution of this variable follows a normal curve, with a slight positive skew (.30) and negative kurtosis (-.35). The total number of transitions indicates the degree of instability and change experienced by the family. In this

sample, 16% of the fragile families experienced no changes in the mother's romantic relationship; however, 35% experienced one transition, 29% experienced two transitions, and 21% experienced three to six transitions in the first five years of the child's life (Table 15).

Table 15. Independent Variable: Family Instability (RQ2e)

Summary of Weighted Proportions of Number of Transitions (IV for RQ2e)

Variable	RQ2e Sample (N = 2055)
0 Transitions	.16
1 Transition	.35
2 Transitions	.29
3-6 Transitions	.21

Bivariate Analyses

RQ2a Correlations

The dependent variables, internalizing and aggressive behaviors, were significantly correlated with the independent variable (post-birth marriage), as well as several of the control variables (Table 16). Both internalizing and aggressive behaviors were negatively correlated with the occurrence of post-birth marriage, meaning that mothers who married reported fewer child behavior problems in both categories. Internalizing and aggressive behaviors were also both highly positively correlated with the child's temperament (i.e., level of emotionality) (Table 17). The correlations among control variables were modest and there was no multicollinearity among variables (Table 17). All correlations between the post-birth marriage and the demographic control variables are listed in Table 18. As was found in RQ1 analyses, income, race/ethnicity, and education were moderately correlated with the occurrence of any post-birth marriage.

RQ2b Correlations

Internalizing and aggressive behaviors were significantly correlated with the independent variable, the timing of the post-birth marriage (Table 16). All of the correlations between post-birth marriage timing, child behavior, and demographic controls are in Tables 17-18, but only highly significant correlations ($r > .20$) are described here. Children in families whose mothers married (early or late) tended to have lower internalizing behavior scores, while those whose mothers never married had higher scores. For aggressive behaviors, children whose mothers never married had higher aggressive behavior scores, but only children whose mothers married late had lower scores (Table 17). The timing of marriage variables were correlated with the emotionality of the child, the mother's age, race/ethnicity, education, income, and church attendance. Children in families whose mother never married tended to have higher emotionality scores, while those in married families (both early and late) had lower emotionality (Table 18).

RQ2c Correlations

Internalizing and aggressive behaviors were significantly correlated with some of the variables indicating the relationship of the mother's partner to the child. Children whose biological parents were married at age 5 showed significantly lower internalizing and aggressive behavior scores. Cohabiting with the biological father was correlated with higher internalizing behaviors and living in a family with no father figure was correlated with higher aggressive behaviors (Table 16). Marriage to the biological father was highly correlated with higher household income at baseline (Table 18).

RQ2d Correlations

The dependent variables were correlated with several relationship trajectories (Table 19). Internalizing behavior was higher when the child experienced the dissolution of the parental relationship and later experienced the mother being a relationship with a new partner (trajectory 4). Children exhibited lower internalizing behaviors when their mothers were in a steady relationship with a new partner (trajectory 7). Aggressive behavior was lower when a child's mother steadily cohabited with the child's father (trajectory 1), when she increased her commitment to the child's father (trajectory 2), and when she entered into a relationship with a new partner after being single (trajectory 5). Aggressive behaviors were higher when the relationship of a child's mother and father ended and the mother began a relationship with a new partner (trajectory 4), when the family experienced multiple changes and the mother ended up with the father (trajectory 8), and when the family experienced multiple changes and the mother ended up without a partner (trajectory 10).

RQ2e Correlations

The correlations of family instability and child behaviors are shown in Table 16 and the correlations with the demographic controls are in Table 20. Internalizing behavior was not significantly correlated to any category of relationship transitions. Aggressive behavior was negatively correlated with 0 and 1 relationship transitions and positively correlated with 3-6 transitions. Thus, children who experienced 0 or 1 transitions exhibited fewer aggressive behaviors and children who experienced 3 or more transitions exhibited more aggressive behaviors.

Table 16. Correlations of Child Behavior and Post-birth Marriage Dimensions (RQ2 a-c, e)

Summary of Weighted Intercorrelations of Child Behavior Scales and Post-birth Marriage Variables (IVs for RQ2a-c, e) [a]

	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Internalizing	0.53***	-.08***	-.06**	-.04	.08***	-.11***	-.03	.06**	-.01	-.02	.02	-.04	-.00	.03
2. Aggressive	--	-.05*	-.01	-.05*	.05*	-.11***	.04	-.01	-.02	.09***	-.04*	-.10***	.03	.13***
3. Post-birth marriage		--	.56***	.74***	-.10***	.73***	.40***	-.24***	-.22***	-.38***	-.25***	-.29***	-.11***	.01
4. Early marriage			--	-.15***	-.56***	.48***	-.02	-.13***	-.10***	-.17***	-.15***	.25***	-.11***	-.04*
5. Late marriage				--	-.74***	.48***	.49***	-.18***	-.18***	-.32***	-.18***	.14***	-.05*	.05*
6. Never married					--	-.73***	-.40***	.24***	.22***	.38***	.25***	-.29***	.12***	-.01
7. Married to child's bio-father						--	-.11***	-.22***	-.20***	-.38***	-.18***	.45***	-.17***	-.18***
8. Married to step-father							--	-.12***	-.11***	-.21***	-.10***	-.02	-.04	.16***
9. Cohabit with bio-father								--	-.22***	-.41***	.56***	-.18***	-.12***	-.16***
10. Cohabit with social father									--	-.38***	-.14***	-.17***	.26***	.04*
11. Single – no partner										--	-.16***	-.06**	.05*	.16***
12. 0 transitions											--	-.32***	-.28***	-.22***
13. 1 transitions												--	-.46***	-.37***
14. 2 transitions													--	-.33***
15. 3-6 transitions														--

[a] Note: Intercorrelations for the sample of Unmarried Mothers with complete IV and DV for RQ2a-c and e, weighted (N = 2055).
* p > .05, ** p > .01, *** p > .001

Table 17. Correlations of Child Behavior and Demographic Controls

Summary of Weighted Intercorrelations of Child Behavior Scales and Demographic Control Variables [a]

	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Internalizing	.53***	.19***	-.04	-.00	.06**	-.07**	-.04*	.12***	-.05*	-.13***	.03	.07**	-.05*
2. Aggressive	--	.21***	-.06**	.09***	-.04	.02	.01	-.02	-.03	-.05*	.05*	-.01	.02
3. Emotionality		--	.06**	-.00	-.07**	.05*	-.07**	.02	-.05*	-.08***	-.03	.09***	-.11***
4. Teen			--	-.69***	-.29***	.09***	.02	-.08***	-.06**	-.08***	-.12***	.27***	.03
5. Young adult				--	-.51***	-.01	.02	-.04	.08***	.12***	.11***	-.20***	-.06**
6. Middle age					--	-.10***	-.05*	.16***	-.03	.06**	.01	-.05	.05*
7. Black						--	-.43***	-.59***	-.15***	.02	.07	-.04	.05*
8. White							--	-.39***	-.10***	.00	.18***	-.18***	.18***
9. Hispanic								--	-.14***	-.08***	-.16***	-.22***	-.05*
10. Other race									--	.15***	-.05*	-.07***	.03
11. More than HS										--	-.36***	-.43***	.25***
12. High school											--	-.69***	.02
13. Less than HS												--	-.21***
14. Income													--

[a] Note: Intercorrelations for the sample of Unmarried Mothers with complete IV and DV for RQ2a-c, weighted (N = 2056).
* p > .05, ** p > .01, *** p > .001

Table 18. Correlations of Post-birth Marriage (RQ2a-c) and Demographic Controls

Summary of Weighted Intercorrelations of Demographic Control Variables Post-birth Marriage Variables (IVs for RQ2a-c) [a]

	Post-birth Marriage	Early Marriage	Late Marriage	Never Married	Married – Bio-father	Married – Step-Father	Cohabit – Bio-Father	Cohabit – Social-dad	No father
Female	-.00	-.00	-.00	.00	.00	-.04*	-.06**	.03	.04*
Emotionality	-.11***	-.08***	-.07**	.12***	-.08***	-.04	.00	.10***	.00
Mother's age									
Teen	-.11***	-.07**	-.07***	.11***	-.07**	-.04	-.06**	.18***	-.02
Young adult	.10***	.04*	.08***	-.10***	.06**	.07***	-.02	-.07***	-.00
Middle age	-.00	.02	-.02	.00	.01	-.05*	.10***	--.11***	.02
Race/ethnicity									
Black	-.18***	-.05**	-.17***	.18***	-.15***	-.06**	-.05*	.08***	.12***
White	.14***	.01*	.15***	-.14***	.10***	.14***	-.11***	-.04	-.03
Hispanic	.03	.01	.03	-.03	.05*	-.05*	.13***	-.06**	-.08***
Other race	.08***	.08***	.02	-.08***	.05*	-.03	.04	.01	-.05
Education									
More than HS	.13***	.10***	.07**	.03	.10***	-.00	-.05*	-.09***	.04
High school	.04	-.01	.06**	-.04	-.00	.07***	.02	-.08***	.01
Less than HS	-.14***	-.06**	-.11***	.14***	-.07***	-.07**	-.02	.15***	-.04
Income	.19***	.08***	.16***	-.19***	.21***	.03	-.03	-.14***	-.03
Church Attendance									
Frequently	.01	.05**	-.03	-.01	.05*	-.08***	-.03	-.00	.02
Rarely	.01	-.07***	.07***	-.01	-.05**	.10***	.02	.01	-.03
Never	-.03	.03	-.06**	.03	.01	-.04*	.01	-.01	.01

[a] Note: Intercorrelations for the sample of Unmarried Mothers with complete IV and DV for RQ2a-c, weighted (N = 2056).
* p > .05, ** p > .01, *** p > .001

Table 19. Correlations of Child Behavior, Controls and Relationship Trajectories (RQ2d)

Summary of Weighted Intercorrelations of Child Behavior scales, Demographic Control Variables, and Relationship Trajectories (IV for RQ2d) [a]

	1	2	3	4	5	6	7	8	9	10
Dependent Variables										
Internalizing	.02	-.04	-.02	.06*	-.01	-.02	-.05*	.02	-.01	.04
Aggressive	-.08***	-.05*	.00	.13***	-.07**	-.03	-.03	.07**	-.02	.05*
Controls										
Female	-.03	-.02	.04	.01	-.07**	.06**	-.09***	.04	.05*	-.01
Emotionality	.03	-.06*	-.07**	.12***	-.02	.04	.04	-.02	-.10***	.03
Mother's age										
Teen	-.01	-.07**	-.09***	.02	.03	.09***	.10***	-.04	.03	.07**
Young adult	-.05*	.05*	.03	-.01	.02	.08***	-.05*	.03	.02	.00
Middle age	.09***	.02	.06**	-.01	-.07**	-.00	-.06*	.02	-.06**	-.09***
Race/ethnicity										
Black	-.14***	-.02	.02	.02	.06*	-.05*	-.01	-.01	.04	.14***
White	.06**	-.04	-.06**	.05*	-.06**	.04	.07**	-.10***	.07**	-.04
Hispanic	.10***	.03	.01	-.04	.01	.02	-.06*	.09***	-.11	-.09***
Other race	-.01	.05*	.06*	-.06**	-.01	-.02	.02	.01	.02	-.05
Education										
More than HS	-.06**	.08***	.02	-.03	-.03	-.00	-.00	.03	.00	-.01
High school	.00	.02	.01	.05*	-.02	-.07**	-.07**	-.04	.01	.01
Less than HS	.05*	-.08***	-.03	-.03	.05*	.07**	.07**	.02	-.02	-.01
Income	.06**	.09***	.02	-.06**	-.07**	-.07**	-.01	-.04	-.00	-.01
Church Attendance										
Frequently	-.06**	.03	.05*	-.09***	.10***	.01	-.00	.04	.01	.00
Rarely	.10***	-.07**	-.05*	.09***	-.10***	.05*	-.01	-.04	.03	-.03
Never	-.06*	.07**	.00	.01	.01	-.06**	.01	-.00	-.05	.04

[a] Note: Intercorrelations for the sample of Unmarried Mothers with complete IV and DV for RQ2d, weighted (N = 1799). The trajectory categories are as follows 1) Steady romantic / cohabiting with child's father; 2) Increase Commitment with father; 3) Breakup with father and remains single; 4) Breakup with father and later is with a new partner; 5) Single to new partner; 6) Steadily Single; 7) Steady relationship with new partner; 8) Multiple changes, ending with the father; 9) Multiple changes, ending with a new partner; 10) Multiple changes, ending with no partner (single). * p > .05, ** p > .01, *** p > .001

Table 20. Correlations of Demographic Controls and Family Instability (RQ2e)

Summary of Weighted Intercorrelations of Demographic Control Variables and Number of Transitions (IV for RQ2e) [a]

	0	1	2	3-6
Female	.01	-.03	.02	.01
Emotionality	.03	-.05*	.04	-.02
Mother's age				
Teen	.00	-.06**	.03	.04
Young adult	-.07***	.04*	-.03	.04
Middle age	.10***	.01	.00	-.11***
Race/ethnicity				
Black	-.11***	-.03	.03	.10***
White	-.02	.03	-.04	.02
Hispanic	-.11***	.01	-.00	-.12***
Other race	.02	-.01	.00	-.01
Education				
More than HS	-.05*	.00	.05*	-.01
High school	-.01	.01	-.08***	.09***
Less than HS	.04	-.01	.04	-.07***
Income	-.02	.11	-.05*	-.05*
Church Attendance				
Frequently	-.09***	.07**	.05*	-.06**
Rarely	.13***	-.12***	-.04	.08***
Never	-.06**	.08***	-.01	-.03

[a] Note: Intercorrelations for the sample of Unmarried Mothers with complete IV and DV for RQ2e, weighted (N = 2055).

* p > .05, ** p > .01, *** p > .001

Multivariate Analyses

This section describes the results from each multivariate analysis for RQ2, organized by research question and child behavior outcome. Because the control variables did not change with each question, their significance is reported in a separate paragraph below. The significant predictors of the child behavior outcomes remained significant, with only slight variations on the coefficient values, in each regression analysis of RQ2, unless otherwise noted (RQ2d, RQ2e).

Controls

Regression analysis showed that different control variables predicted internalizing and externalizing behavior. For internalizing behaviors, the control variables alone accounted for 6.9% of the variance of internalizing behaviors ($F(12, 2043) = 5.09$, $p < .001$), with child temperament, mother's race/ethnicity, and education as significant predictors. Specifically, higher emotionality predicted a 3% increase of internalizing behaviors ($b = .03$, $p < .001$). Also being of Hispanic ethnicity (compared to Black) predicted a 4% increase of internalizing behaviors ($b = .04$, $p = .02$), whereas the mother having attended some school beyond high school predicted 5% decrease of internalizing behaviors ($b = -.05$, $p = .02$).

For aggressive behaviors, the control variables alone were statistically significant in predicting aggressive behaviors, $F(12, 2043) = 4.17$, $p < .001$, and accounted for approximately 5.9% of the total variance. Both the child temperament and mother's age were significant predictors of aggressive behavior. Greater emotionality scores ($b = .05$, $p < .001$) were related to 5% increase of aggressive behaviors, while having a mother who was under 20 years old at the time of the birth predicted a 5% decrease of aggressive behaviors ($b = -.05$, $p = .03$).

RQ2a: The Occurrence of any Post-birth Marriage and Child Behaviors

Internalizing behaviors. The occurrence of a post-birth marriage did not significantly predict internalizing behaviors in the unadjusted analysis (Table 21). When adjusted for the demographic controls, the full model was significant ($F(13, 2042) = 4.52$, $p < .001$), but post-birth marriage was still not a significant predictor of internalizing behaviors. As described above, child temperament, mother's race/ethnicity, and education were significant.

Aggressive Behaviors. In an unadjusted analysis, the occurrence of a post-birth marriage did not predict aggressive behaviors (Table 21). The full model, with all controls, significantly predicted aggressive behaviors, explaining 6% of the variation ($F(13, 2042) = 3.93$, $p < .001$); however, post-birth marriage was not a significant predictor. As described above, the mother's age at baseline and the child's temperament were the only significant predictors.

Table 21. RQ2a Regression Results

Predictors of Aggressive Behavior and Internalizing Behaviors (RQ2a)

	Aggressive Behaviors		Internalizing Behaviors	
Variables	Model 1 *B*	Model 2 *B*	Model 1 *B*	Model 2 *B*
Intercept	-.43***	.33***	.21***	.12**
Post-birth marriage	-.03	-.02	-.03	-.02
Female		<-.01		<-.01
Emotionality		.05***		.03***
Mother's age				
Teen		-.05*		-.02
Young adult (reference)		omitted		omitted
Middle aged		-.03		.01
Mother's race/ethnicity				
Black (reference)		omitted		omitted
White		.01		.01
Hispanic		<-.01		.04*
Other		.02		<-.01
Mother's Education				
More than High School		-.01		-.05*
High School		.02		<.01
Less than High School (reference)		omitted		omitted
Income		<-.01		<-.01
Church Attendance				
Frequent		<-.01		.01
Rare (reference)		omitted		omitted
Never		.02		<-.01
R^2	<.01	.06	.01	.07
F	1.01	3.93***	1.82	4.52***

Note. N = 2056. * p < .05 ** p < .01 ***p < .001

RQ2b: Timing of Post-birth Marriages and Child Behaviors

Internalizing behaviors. The timing of a post-birth marriage did not significantly predict internalizing behaviors in the unadjusted analysis. When adjusted for the demographic controls, the full model was significant (F(14, 2041) = 4.11, p < .001), but neither early nor late marriage significantly predicted internalizing behaviors. Child temperament, mother's race/ethnicity, and education remained significant (Table 22).

Aggressive behaviors. In an unadjusted analysis, neither early nor late marriage predicted aggressive behaviors. The full model, with all controls, significantly predicted aggressive behaviors, explaining 6.1% of the variance (F(14, 2041) = 3.63, p < .001); however,

the timing of marriage was not significant. The mother's age and the child's temperament remained significant predictors (Table 22).

RQ2c: The Relationship of the Mother's Partner to the Child and Child Behaviors

Internalizing behaviors. The overall unadjusted analysis was not significant in explaining the variance of internalizing behaviors ($F(4, 2041) = 1.71$, $p = .18$). However, being married to the biological father at age 5 was a significant predictor of fewer internalizing behaviors at age 5 ($b = -.08$, $p = .02$); none of the other categories was significantly related. After adjusting for the demographic controls, the full model was significant ($F(16, 2039) = 3.76$, $p < .001$), but being married to the child's father variable was reduced to significance at the trend level ($b = -.07$, $p = .06$). Child temperament, race/ethnicity, and education were significant (Table 23).

An additional analysis with married to child's biological father as the referent group showed that children living without any father figure and those with unmarried cohabiting biological parents exhibited higher internalizing behavior problems ($b = .04$, $p = .02$; $b = .06$, $p = .04$). However, when the demographic controls were introduced into the model, having no father figure only predicted internalizing behaviors at the trend level ($b = .04$, $p = .06$) but having unmarried cohabiting biological parents no longer was statistically significant ($b = .05$, $p = .09$). The significance of the controls remained the same as the previous model (Table 24).

Aggressive behaviors. The unadjusted analysis overall was significant and explained 1.8% of the variance of aggressive behaviors ($F(4, 2051) = 2.60$, $p = .05$). Compared to having no partner, being married to the child's biological father by age 5 predicted less aggressive behavior ($b = -.08$, $p = .02$); the other categories were not significant. The full model, with all controls, also significantly predicted aggressive behaviors, explaining 7.4% of the variance ($F(4,$

2051) = 6.13, p < .001). Even when controlled for demographic characteristics, being married to the child's biological father remained a significant predictor of fewer aggressive behaviors at age 5 (b = -.07, p = .04). Being in a family with married biological parents, compared to living without any father figure, was associated with a 7% decrease of aggressive behavior. The mother's age and the child's temperament remained significant predictors (Table 23).

An additional analysis with married to child's biological father as the reference group showed how the other four categories differed from this one. The analysis showed that having no partner when the child was 5 years old significantly predicted higher aggressive behavior at that same age (b = .08, p =.02), whereas the other groups were not significant. The pattern remained even after adjusting for demographic characteristics (b = .07, p =.04). Thus, being in a family with no father figure, compared to living with married biological parents, was associated with a 7% increase in aggressive behaviors (Table 24).

Table 22. RQ2b Regression Results

Predictors of Aggressive Behavior and Internalizing Behaviors (RQ2b)

	Aggressive Behaviors		Internalizing Behaviors	
Variables	Model 1 *B*	Model 2 *B*	Model 1 *B*	Model 2 *B*
Intercept	.43***	.33***	.21***	.12***
Married Early	-.02	< -.01	-.04	-.02
Married Late	-.03	-.03	-.02	-.02
Never Married (ref)	omitted	omitted	omitted	omitted
Female		< -.01		< -.01
Emotionality		.05***		.03***
Mother's age				
Teen		-.05*		-.02
Young adult (ref)		omitted		omitted
Middle aged		-.03		.02
Mother's race/ethnicity				
Black (ref)		omitted		omitted
White		.02		.01
Hispanic		-.01		.04*
Other		-.02		-.01
Mother's Education				
More than HS		-.01		-.05*
High School		.02		<.01
Less than HS (ref)		omitted		omitted
Income		< -.01		< -.01
Church Attendance				
Frequent		< -.01		.01
Rare (ref)		omitted		omitted
Never		.02		< -.01
R^2	<.01	.06	.01	.07
F	.05	3.63***	1.50	4.11***

Note. N = 2056. * p < .05 ** p < .01 ***p < .001

Table 23. RQ2c Regression Results

Predictors of Aggressive Behavior and Internalizing Behaviors (RQ2c)

	Aggressive Behaviors		Internalizing Behaviors	
Variables	Model 1 *B*	Model 2 *B*	Model 1 *B*	Model 2 *B*
Intercept	.45***	.35***	.21***	.11**
Married biological father	-.08*	-.07*	-.04*	-.04
Married step-father	.01	<.01	.02	.03
Cohabiting biological father	-.03	-.03	.02	.01
Cohabiting social father	-.03	-.04	-.01	-.01
No partner (reference)	omitted	omitted		
Female		< -.01		< -.01
Emotionality		.05***		.03***
Mother's age				
Teen		-.05*		-.02
Young adult (reference)		omitted		omitted
Middle aged		-.03		.02
Mother's race/ethnicity				
Black (reference)		omitted		omitted
White		.02		.01
Hispanic		< -.01		.04*
Other		-.01		< -.01
Mother's Education				
More than High School		-.01		-.05*
High School		.01		<.01
Less than High School (reference)		omitted		omitted
Income		-.01		< -.01
Church Attendance				
Frequent		<.01		.01
Rare (reference)		omitted		omitted
Never		.02		<.01
R^2	.02	.07	.01	.08
F	2.60*	6.13***	1.71	3.76***

Note. N = 2056. * p < .05 ** p < .01 ***p < .001

Table 24. RQ2c Regression Results (additional analysis)

Predictors of Aggressive Behavior and Internalizing Behaviors (RQ2c, additional analyses)

	Aggressive Behaviors		Internalizing Behaviors	
Variables	Model 1 *B*	Model 2 *B*	Model 1 *B*	Model 2 *B*
Intercept	.37***	.27***	.16***	.07
Married biological father (reference)	omitted	omitted	omitted	omitted
Married step-father	.09	.08	.06	.06
Cohabiting biological father	.05	.04	.06*	.05
Cohabiting social father	.05	.03	.04	.03
No partner	.08*	.07*	.04*	.04
Female		< -.01		< -.01
Emotionality		.05***		.03***
Mother's age				
Teen		-.05*		-.02
Young adult (reference)		omitted		omitted
Middle aged		-.03		.02
Mother's race/ethnicity				
Black (reference)		omitted		omitted
White		.02		.01
Hispanic		< -.01		.04*
Other		-.01		< -.01
Mother's Education				
More than High School		-.01		-.05*
High School		.01		<.01
Less than High School (reference)		omitted		omitted
Income		-.01		< -.01
Church Attendance				
Frequent		<.01		.01
Rare (reference)		omitted		omitted
Never		.02		<.01
R^2	.02	.07	.01	.08
F	2.60*	6.13***	1.71	3.76***

Note. N = 2056. * p < .05 ** p < .01 ***p < .001

RQ2d: Relationship Trajectories and Child Behaviors

Internalizing behaviors. The unadjusted model testing the association between relationship trajectories and internalizing behaviors was not significant overall ($F(9, 1789) = 1.19$, $p = .34$) and none of the trajectories was significant in predicting internalizing behaviors, when compared with families who steadily cohabited (trajectory 1). While the full model was significant ($F(21, 1777) = 11.76$, $p < .001$) and explained 7.10% of the variance of internalizing behaviors, none of the relationship trajectories was a significant predictor. Unlike other models, child temperament was the only significant predictor ($b = .03$, $p < .01$) (i.e., race/ethnicity and education were not significant in this model) (Table 25).

Aggressive behaviors. The overall unadjusted model with relationship trajectories predicting aggressive behaviors was significant ($F(9, 1789) = 4.73$, $p < . 001$) and explained 3.6% of the variance in aggressive behaviors. When compared to children whose mothers remained in an unchanging cohabiting relationship with the child's father (trajectory 1), the unadjusted model showed that the following predicted higher aggressive behaviors: trajectory 4 (i.e., a breakup with the father, later with a new partner) ($b = .11$, $p < .001$), trajectory 8 (i.e., multiple changes, ending with the father) ($b = .11$, $p < .01$), and trajectory 10 (i.e., multiple changes, ending without a partner) predicted higher aggressive behaviors ($b = .07$, $p = .05$). When demographic controls were introduced into the model, trajectory 10 was reduced to non-significance ($b = .06$, $p = .08$), whereas trajectory 4 and trajectory 8 remained significant predictors of aggressive behaviors ($b = .09$, $p < .01$; $b = .11$, $p < .01$). Unlike other models, child temperament was the only control variable that significantly predicted aggressive behavior ($b = .04$, $p < .001$) (i.e., age was not significant). The overall model, with controls, significantly accounted for 10.2% of the variance of aggressive behavior ($F(21, 1777) = 8.02$, $p < .001$).

Therefore, compared to families in which the biological parents remained in a steady cohabiting relationship (trajectory 1), the trajectory in which the biological parent's relationship dissolved and the mother re-partnered (trajectory 4) was related to a 9% increase in aggressive behaviors. Similarly, the trajectory of many transitions and re-partnering with the child's biological father (trajectory 8) was related to an 11% increase in aggressive behaviors (Table 25).

In an adjusted model, with category 4 (i.e., mother in a relationship with a new partner) as the reference group, both trajectories 1 and 5 predicted fewer aggressive behaviors ($b = -.09$, $p < .01$; $b = -.13$, $p = .02$). Trajectory 5, included mothers who were not in a romantic relationship with the father at baseline, remained single through the first year, and then entered into a relationship with a new partner by the time the child was 5 years old, was related to a 13% decrease in aggressive behaviors. Trajectory 1, steadily cohabiting with the biological father, was related to a 9% decrease in aggressive behaviors. Similarly, when trajectory 8 (i.e. multiple changes, but ending with the father) was treated as the reference group, and after controlling for demographic characteristics, both trajectory 1 ($b = -.11$, $p < .01$) and trajectory 5 ($b = -.14$, $p < .01$) predicted fewer aggressive behaviors. Compared to trajectory 8, trajectory 5 was related to a 14% decrease in aggressive behaviors and trajectory 1 was related to an 11% decrease in aggressive behaviors. With trajectory 5 as the reference group, trajectory 8 ($b = .14.$ $p < .01$) and trajectory 4 ($b = .13$, $p = .02$) predicted higher behaviors, but category 1 was not significant. Trajectory 4 and 8 was related to 13% and 14% increases in aggressive behaviors, respectively.

Table 25. RQ2d Regression Results

Predictors of Aggressive Behavior and Internalizing Behaviors (RQ2d)

	Aggressive Behaviors		Internalizing Behaviors	
Variables	Model 1 *B*	Model 2 *B*	Model 1 *B*	Model 2 *B*
Intercept	.39***	.32***	.21***	.13**
1. Steady romantic / cohabiting with child's father	omitted	omitted	omitted	omitted
2. Increase Commitment with father	.02	.02	-.02	-.01
3. Breakup with father and remains single	.04	.05	-.02	< -.01
4. Breakup with father and later is with a new partner	.11***	.09**	.02	.02
5. Single to new partner	-.03	-.04	-.02	-.01
6. Steadily Single	.01	.01	-.03	-.02
7. Steady relationship with new partner	.01	<.01	-.05	-.03
8. Multiple changes, ending with the father	.11**	.11**	.01	.01
9. Multiple changes, ending with a new partner	.02	.04	-.01	.02
10. Multiple changes, ending with no partner (single)	.07	.06	.01	.03
Female		< -.01		< -.01
Emotionality		.04***		.03***
Mother's age				
Teen		-.03		-.02
Young adult (reference)		omitted		omitted
Middle aged		-.03		.02
Mother's race/ethnicity				
Black (reference)		omitted		omitted
White		-.01		<.01
Hispanic		-.01		.05*
Other		-.04		.01
Mother's Education				
More than High School		-.01		-.05*
High School		.02		<.01
Less than High School (reference)		omitted		omitted
Income		-.02		< -.01
Church Attendance				
Frequent		<.01		<.01
Rare (reference)		omitted		omitted
Never		.05		<.01
R^2	.04	.10	.01	.08
F	4.73***	8.02***	1.19	11.76***

Note. N = 1799. * p < .05 ** p < .01 ***p < .001

RQ2e: Family Instability and Child Behaviors

Internalizing behaviors. The unadjusted model was not significant in explaining the variance of internalizing behaviors ($F(3, 2051) = .50$, $p = .69$), nor were any individual transition variables significant predictors. The adjusted model was significant ($F(15, 2039) = 4.03$, $p < .001$) and child temperament, mother's race/ethnicity, and mother's education remained significant predictors of internalizing behaviors, but none of the transition variables was significant (Table 26).

Aggressive behaviors. In the unadjusted model, having experienced 3-6 transitions predicted higher aggressive behavior problems ($b = .08$, $p < .001$) and the overall model explained 2.3% of the variance of aggressive behaviors ($F(3, 2051) = 7.29$, $p = < .001$). After controlling for demographic differences, the effect of 3-6 transitions remained significant ($b = .08$, $p < .01$). Unlike previous models, child temperament was the only control variable that significantly predicted aggressive behaviors in this model ($b = .05$, $p < .001$) (i.e., age was not significant). The overall adjustment model explained 8.2% of the variance of aggressive behaviors ($F(15, 2039) = 5.98$, $p < .001$). Therefore, being in a family in which the mother experienced three or more relationship transitions over the course of five years, compared to families who did not experience any changes, was associated with a 8% increase in aggressive behavior (Table 26).

Table 26. RQ2e Regression Results

Predictors of Aggressive Behavior and Internalizing Behaviors (RQ2e)

	Aggressive Behaviors		Internalizing Behaviors	
Variables	Model 1 *B*	Model 2 *B*	Model 1 *B*	Model 2 *B*
Intercept	.40***	.30***	.21***	.11**
0 Transitions (reference)	omitted	omitted	omitted	omitted
1 Transition	.03	-.01	-.01	< -.01
2 Transitions	.03	.03	-.01	<.01
3-6 Transitions	.08***	.08**	<.01	.02
Female		< -.01		< -.01
Emotionality		.05***		.03***
Mother's age				
Teen		-.05**		-.02
Young adult (reference)		omitted		omitted
Middle aged		-.02		.02
Mother's race/ethnicity				
Black (reference)		omitted		omitted
White		.02		.01
Hispanic		< -.01		.04*
Other		-.02		-.01
Mother's Education				
More than High School		-.02		-.05*
High School		.01		<.01
Less than High School (reference)		omitted		omitted
Income		-.01		< -.01
Church Attendance				
Frequent		<.01		<.01
Rare (reference)		omitted		omitted
Never		.03		<.01
R^2	.02	.08	<.01	.07
F	7.29***	5.98***	.50	4.03***

Note. N = 2055. * p < .05 ** p < .01 ***p < .001

CHAPTER 6: RQ3 RESULTS

Descriptive Analyses

RQ3 explores the possible mediation of parenting and stress in the relationship between post-birth marriage variables and child behaviors. Because RQ2 analyses found that none of the post-birth marriage/relationship variables predicted internalizing behaviors (except for the unadjusted model of RQ2c), aggressive behavior was the only dependent variable analyzed for RQ3. A total of three mediation analyses were conducted, including only significant predictors of aggressive behavior, namely the biological/marital relationship of the mother's partner to the child (RQ2c), relationship trajectories (RQ2d), and number of transitions (RQ2e). For simplicity of reference, these analyses are labeled RQ3a-RQ3c.

Analytic samples for each mediation test of RQ3 contained only participants who were unmarried at baseline, had complete wave IV weights, had complete information on the independent and dependent variables, as well as complete information on all the mediating variables. Therefore, the size of each sample is as follows: RQ3a (RQ2c variables as IV) N = 2050; RQ3b (RQ2d variables as IV) N = 1797; RQ3c (RQ2e variables at IV) N = 2049. Because these samples only varied slightly from the samples described in Chapter 5 no further description of the independent and dependent variables or participants' characteristics will be given in this chapter (Tables 12-15). Descriptions of the mediating variables are given below.

Mediators

The following are a description of the variables tested as mediators. For reasons described in Chapter 3, maternal warmth was not included in these analyses. The statistics

reported below were conducted using the information in the largest weighted analytic sample for RQ3 (N = 2050). A summary of dependent and mediator variables are in Table 27.

Parental stress. The mother's parental stress, reported at waves II, III, and IV and averaged across all three waves, ranged from 1 to 4, with higher scores indicating greater stress. The sample mean was 2.24 (SD = 8.67). The variable's distribution in the unweighted sample followed a normal curve, with a slight positive skew (.30) and a slight negative kurtosis (-.23).

Maternal involvement. The mother's level of activity with her child, specifically the number of days per week she spent reading/telling stories, singing, and playing with toys with her child, averaged across wave II, wave III, and wave IV, ranged from 0.42 to 7 days per week. Within this sample, the mothers were actively interacting with their children on average 4.90 days per week (SD = 19.42). The distribution for this variable in the unweighted sample followed a normal distribution, with a slightly negative skew (-.51) and negative kurtosis (-.03).

Spanking. The spanking variable, coded as a dummy variable, indicated if the parent had ever spanked (1) or never spanked (0). This variable took into account reports at wave II, wave III, and wave IV. Approximately 70% of the mothers in the sample had at one time or another spanked their child (67.18% of the mothers reported inconsistent spanking, and 2.57% of the mothers reported consistently and frequently spanking) and 30% of the mothers never spanked their child at any time point.

Table 27. Summary of Aggressive Behavior and Parenting Variables (RQ3)

Summary of Weighted Means/Proportions of Aggressive Behavior/Parenting Variables (RQ3) [a]

Variable	RQ3a, c sample [b] (N = 2050)	RQ3b (N = 1797)
Aggressive Behavior	.43 (3.26)	.43 (3.19)
Parental Stress	2.24 (8.67)	2.23 (8.56)
Maternal Involvement	4.90 (19.42)	4.87 (18.84)
Spanking (ever spanked)	.70	.65

[a] Note. The standard deviation is in parenthesis. [b] RQ3c sample is one less than listed here (N = 2049).

Bivariate Analyses

Aggressive behavior was significantly correlated with each of the mediator variables. Higher aggressive behavior was correlated with higher parental stress ($r = .20$, $p < .001$), lower maternal involvement ($r = -.10$, $p < .001$) and having ever spanked ($r = .15$, $p < .001$). Higher parental stress was correlated with lower maternal involvement ($r = -.23$, $p < .001$) and having ever spanked ($r = .11$, $p < .001$), while lower maternal involvement was moderately correlated with having ever spanked ($r = -.08$, $p < .001$) (Table 29). The mediator variables were significantly correlated with many of the demographic control variables (Table 28). However, these analyses show that the correlations were modest and that there was no multicollinearity among variables.

Table 28. Correlations of Demographic Controls and Parenitng Variables (RQ3)

Summary of Weighted Intercorrelations of Controls and Parenting Variables (RQ3) [a]

	Parenting Stress	Maternal Involvement	Spanking
Female	-.07***	.02	-.02
Emotionality	.17***	-.10***	.11***
Mother's age			
Teen	-.02	.16***	.05*
Young adult	-.02	-.08***	.08***
Middle age	.04*	-.08***	-.16***
Race/ethnicity			
Black	.07**	-.02	-.16***
White	-.05*	.19***	-.05*
Hispanic	-.01	-.16***	-.10***
Other race	-.04*	.03	-.04
Education			
More than HS	-.13***	.04	.04
High school	-.02	.01	-.01
Less than HS	.12***	-.04	-.02
Income	-.08***	.04*	-.02
Church Attendance			
Frequently	.04	.07***	-.03
Rarely	-.00	-.06**	.01
Never	-.05*	-.02	.02

[a] Note: Intercorrelations for the sample of Unmarried Mothers with complete mediator variables and DV, weighted (N = 2050).
* p > .05, ** p > .01, *** p > .001

Table 29. Correlations of Child Behavior and Parenting Variables (RQ3)

Summary of Weighted Intercorrelations of Child Behavior and Parenting Variables (RQ3) [a]

	1	2	3	4	5
1. Internalizing	--	.53***	.19***	-.10***	.05*
2. Aggressive		--	.20***	-.10***	.15***
3. Parental Stress			--	-.23***	.11***
4. Maternal Involvement				--	-.08***
5. Spanking (ever)					--

[a] Note: Intercorrelations for the sample of unmarried mothers with complete MVs and DV, weighted (N = 2050).
* p > .05, ** p > .01, *** p > .001

Multivariate Analyses

RQ3a: Parenting Variables as Mediators of RQ2c Variables and Aggressive Behaviors

Step 1: RQ2c variable and aggressive behavior

The first step in testing this hypothesis was to confirm the relationship between independent and dependent variables. The mother's partner's relationship to the child predicted aggressive behaviors ($F(16, 2033) = 6.08$, $p < .001$), with the adjusted model explaining 7.5% of the variance. Compared to not having any father figure in the home, having married-biological parents was the only significant RQ2c category, predicting lower aggressive behaviors ($b = -.07$, $p = .04$). Also, child temperament and mother's age were also significant predictors of aggressive behaviors ($b = .05$, $p < .001$; $b = -.05$, $p = .04$) (Tables 23-24, Chapter 5).

Step 2: RQ2c variables and parenting variables

Maternal Involvement. The next step was to test whether the relationship of the mother's partner with the child (RQ2c variables) predicted each of the parenting variables. The overall adjusted model of RQ2c variables predicting maternal involvement was significant ($F(16, 2033) = 8.82$, $p < .001$), explaining 9.82% of the variance of mother involvement. None of the RQ2c categories predicted maternal involvement, but child temperament, mother's age at baseline, and race/ethnicity were significant. Specifically, higher emotionality scores predicted

lower maternal involvement (b = -.11, p = .03); in contrast, White race/ethnicity and being a teen mother predicted higher maternal involvement (b = .50, p < .001; b = .49, p < .001) (Table 30).

Parenting stress. A model with RQ2 variables predicting parental stress, adjusted for demographic controls, was significant (F(16, 2033) = 4.95, p < .001), and explained 8.13% of the variance. Marriage to the child's biological father was the only RQ2c category that was significant (b = -.18, p = .02). Specifically, being married to the child's biological father at year 5, compared with being without a partner, was associated with an 18% decrease in parental stress. It should also be noted that cohabiting with the child's biological father approached significance, also predicting lower parental stress (b = -.12, p = .07). Having a male child, and a child with a highly emotional temperament predicted greater parental stress (b = -.08, p = .04; b = .08 p < .01). Mothers with more than a high school education tended to report lower parental stress (b = -.25, p < .01) (Table 30).

Ever spanked. Survey logistic regression analyses of the relationship of RQ2c variables and spanking showed that mothers who were cohabiting with, but not married to, the child's biological father were less likely to have ever spanked (OR = .60, CI .38, .96, p = .03); specifically, the odds of ever spanking was 40% less for these mothers than mothers without a partner. In this model, child's temperament, race/ethnicity and mother's age also predicted spanking. The odds of having ever spanked increased by 24% if the mother had a child with a highly emotional temperament (OR 1.24, CI 1.00, 1.53, p = .05). The odds of having ever spanked for mothers who were age 30 or older at the time of the child's birth were 52.5% lower than for younger mothers (OR .48, CI .27, .83, p < .01). The odds of having ever spanked were 49.5% and 43.1% lower for White and Hispanic mothers, respectively, than Black mothers (OR = .51, CI = .31, .82, p < .01; OR = .56, CI = .38, .85, p < .01) (Table 30).

Table 30. Predictors (RQ2c variables) of Parental Stress and Parenting Behaviors (RQ3a)

Predictors of Parenting Variables (see RQ3a, Step 2)

	Maternal Involvement	Parental Stress		Spanking	
Variables	*β*	*β*	*β*	*OR*	*95% CI*
Intercept	4.90***	2.17***	1.06		
Married biological father	.07	-.18*	-.10	-.90	[.54, 1.49]
Married step-father	.48	-.06	.27	1.31	[.51, 3.38]
Cohabiting biological father	-.13	-.12	-.51*	.60	[.38, .96]
Cohabiting social father	.14	.03	.26	1.29	[.74, 2.25]
No partner (reference)	.omitted	omitted	omitted	omitted	omitted
Female	.07	-.08*	-.09	.91	[.61, 1.35]
Emotionality	-.11*	.09***	.21*	1.24	[1.00,1.53]
Mother's age					
Teen	.49***	-.11	.03	1.03	[.69, 1.52]
Young adult (reference)	omitted	omitted	omitted	omitted	omitted
Middle aged	-.10	.09	-.74**	.48	[.27, .83]
Mother's race/ethnicity					
Black (reference)	omitted	omitted	omitted	omitted	omitted
White	.51**	-.05	-.68**	.51	[.31, .82]
Hispanic	-.13	-.07	-.56**	.57	[.38, .85]
Other	.35	-.07	-.84	.43	[.10, 1.90]
Mother's Education					
More than High School	.21	-.25**	.45	1.57	[.91, 2.69]
High School	.07	-.10	.09	1.10	[.66, 1.82]
Less than High School (reference)	omitted	omitted	omitted	omitted	omitted
Income	-.04	.02	-.09	.92	[.74, 1.13]
Church Attendance					
Frequent	.26	.04	-.14	.87	[.56, 1.35]
Rare (reference)	omitted	omitted	omitted	omitted	omitted
Never	.06	-.07	.02	1.02	[.58, 1.80]
R^2	.98	.08	.07	.01	
F	8.82***	4.95****	6.13***	1.71	

Note. N = 2050. * p < .05 ** p < .01 ***p < .001

Step 3: Parenting Behaviors and Aggressive behaviors

Maternal involvement. The next step was to test whether the mediator variables predicted the dependent variable, aggressive behavior. A model testing the relationship between maternal involvement and aggressive behaviors, adjusted for demographic controls, was significant ($F(13, 2036) = 4.31$, $p > .001$) and explained 8.16% of the variance. However, maternal involvement was not a significant predictor of aggressive behavior ($b = -.01$, $p = .12$). In this model only child temperament was significant ($b = .04$, $p < .001$).

Parenting stress. The model with parenting stress as a predictor of aggressive behaviors, adjusted for demographic controls, was significant ($F(13, 2036) = 6.79$, $p < .001$), and explained 8.90% of the variance of aggressive behavior. Parental stress predicted aggressive behavior; higher parental stress was associated with a 7% increase in aggressive behavior ($b = .07$, $p < .001$). In this model, the only other significant predictor of aggressive behavior was child temperament ($b = .04$, $p < .001$).

Ever spanked. The overall adjusted model of spanking as a predictor of aggressive behaviors was significant ($F (13, 2036) = 4.45$, $p < .001$) and explained 7.41% of the variance. Furthermore, having ever spanked during the five years of the child's life predicted higher aggressive behavior at age 5 ($b = .06$, $p = .03$). Thus, having a mother spank was associated with a 6% increase in aggressive behavior. Child temperament ($b = .04$, $p < .001$) and mother's age at baseline ($b = -.05$, $p = .03$) also predicted aggressive behavior in this model.

Step 4: Parental stress and parenting behaviors

Parental stress predicted both maternal involvement and spanking. In a model adjusted for demographic controls, parenting stress significantly predicted lower maternal involvement ($F(13, 2036) = 11.48$, $p < .001$; $b = -.48$, $p < .001$). Parenting stress also predicted higher

likelihood of having ever spanked (OR = 1.51, CI = 1.09, 2.09, p = .01). Specifically, with each increment increase of parental stress the odds of having ever spanked increased by 51%.

Step 5: Tests for mediation

Full model. To test the mediation hypothesis, linear regression analyses was conducted which compared the regression of RQ2c variables and aggressive behavior with the mediation model with, which included all three parenting variables as a group (see "no mediators" and "full model" in Table 31). Both models were adjusted for the demographic characteristics of the sample. The full model was significant ($F(19, 2030) = 7.18$, $p < .001$) and explained 11.23% of the variance of aggressive behaviors. The parenting variables that significantly predicted aggressive behavior were parenting stress ($b = .06$, $p < .001$), and having ever spanked ($b = .05$, $p = .05$). Child temperament was the only significant control variable ($b = .04$, $p < .001$). With the addition of the parenting variables as a group, the relationship of the marriage of the biological parents to aggressive behaviors was significant only at the trend level ($b = -.06$, $p = .08$), and the coefficient value of this variable was reduced by 15.8%. Because this model included several mediator variables a Sobel test could not be conducted. However, it can be concluded that parenting variables as a group impacted aggressive behavior. Further testing was conducted below to determine how each significant parenting variable functioned in the model.

Parenting stress. According to the guidelines for mediation set forth by Baron and Kenny (1986), the results from steps 1 to 4 described above show that parental stress alone met the requirements for a mediation test. Marriage to the child's father did not predict maternal involvement or spanking, and maternal involvement was not a predictor of aggressive behavior; thus, neither met the criteria to be tested as a mediator. Mediation was tested by adding parental stress to the first model to determine the degree to which the parenting variable explains the

association between RQ2c variables and aggressive behaviors. A Sobel test confirmed the significance of the effect.

When the parental stress variable was added to the adjusted model of RQ2c variables and aggressive behavior, marriage to the child's biological father was reduced to significance at the trend level (b = -.06, p = .08) (see "Parental stress" in Table 31). However, parental stress remained a significant predictor of aggressive behaviors (b = .06, p < .001) and its addition to the model reduced the coefficient of marriage to the child's biological father variable by 15.3%. Child temperament was the only other significant predictor in this model (b = .04, p < .001). The Sobel test confirmed that parental stress was a significant mediator (Sobel = -2.02, p = .04).

Additional analyses: Mediation among parenting variables

It was first hypothesized that the marriage variables impacted aggressive behaviors by first impacting the level of parental stress, which in turn impacted parenting behaviors, which then impacted aggressive behaviors. In order to completely test this hypothesis, the spanking variable needed to mediate the relationship between parental stress and aggressive behaviors. Thus, an additional analysis was conducted (with the sample for RQ3a, N = 2050) to test spanking as a mediator of parenting stress and aggressive behaviors. First it was determined that parental stress significantly predicted aggressive behaviors (see RQ3a, step 3). Next an adjusted logistic regression model showed that parental stress significantly predicted having ever spanked (see RQ3a, step 4). Next, a linear regression analysis determined that having ever spanked predicted higher aggressive behaviors (see RQ3a, step 3). Thus, spanking met the requirements for a test of mediation between parenting stress and aggressive behaviors. The mediation model, adjusted for demographic characteristics, with spanking added, was significant (F (14, 2035) = 7.04, p = < .001), explaining 9.93% of the variance of aggressive behaviors. Both parenting

stress and spanking were significant (b = .06, p < .001; b = .05, p = .05) and the addition of spanking reduced the value of the parenting stress coefficient by 6.40%. The Sobel test showed spanking was significant as a mediator of parenting stress and aggressive behaviors only at the trend level (Sobel = 1.75, p = .08).

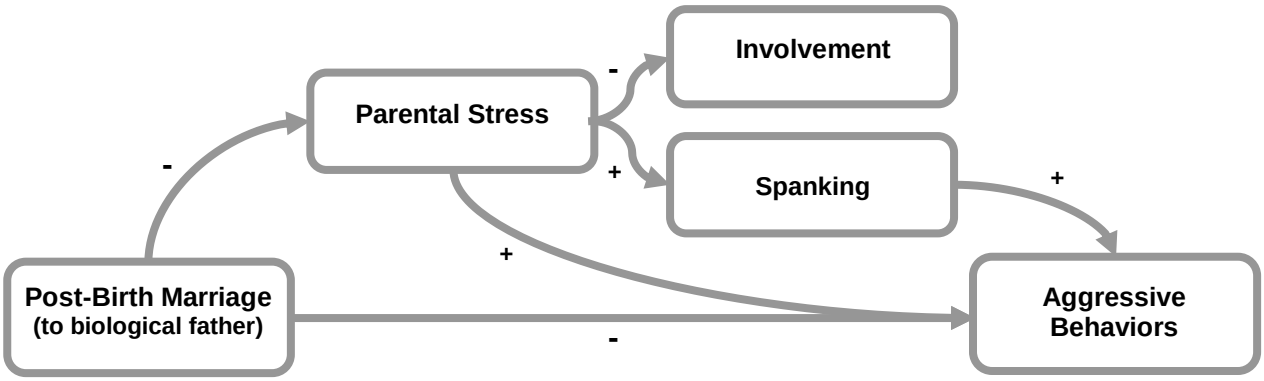

Figure 7. Relationship Among Variables (RQ3a)

Table 31. Regressions Testing Mediation Results (RQ3a)

Predictors of Aggressive Behavior (Parenting variables as mediators of relationship of partner with child)(RQ3a full model)

Variables	No Mediators *B*	Parental Stress *B*	Full Model *B*
Intercept	.35***	.21***	.21**
Married biological father	-.07*	-.06	-.06
Married step-father	.01	.01	.01
Cohabiting biological father	-.03	-.02	-.02
Cohabiting social father	-.04	-.04	-.04
No partner (reference)	omitted	omitted	omitted
Female	< -.01	<.01	<.01
Emotionality	.05***	.04***	.04***
Mother's age			
Teen	-.05*	-.04	-.04
Young adult (reference)	omitted	omitted	omitted
Middle aged	-.03	-.03	-.02
Mother's race/ethnicity			
Black (reference)	omitted	omitted	omitted
White	.02	.02	.03
Hispanic	< -.01	<.01	.01
Other	-.01	-.01	<.01
Mother's Education			
More than High School	-.01	<.01	< -.01
High School	.01	.02	.02
Less than High School (reference)	omitted	omitted	omitted
Income	-.01	-.01	-.01
Church Attendance			
Frequent	<.01	< -.01	<.01
Rare (reference)	omitted	omitted	omitted
Never	.02	.03	.03
Parental Stress	--	.06***	.06**
Maternal Involvement	--	--	-.01
Ever Spanked	--	--	.05
R^2	.07	.10	.11
F	6.08***	7.61***	7.18***
Sobel		-2.02*	

Note. N = 1797. * p < .05 ** p < .01 ***p < .001

RQ3b: Parenting Variables as Mediators of RQ2d Variable and Aggressive Behaviors

Step 1: Relationship trajectories and aggressive behavior

Relationship trajectories (RQ2d) predicted aggressive behaviors in a model adjusted for demographic controls ($F(21, 1777) = 7.98$, $p < .001$), and explained 10.22% of the variance. Specifically, trajectories 4 (i.e., breakup with father and later is with a new partner) and 8 (i.e., multiple changes, ending with the father) predicted greater aggressive behaviors, compared to trajectory 1 (stably cohabiting) ($b = .09$, $p < .01$; $b = .11$, $p < .01$). Child temperament was also a significant predictor of aggressive behavior problems ($b = .04$, $p < .001$) (Table 25, Chapter 5).

Step 2: Relationship trajectories and parenting behaviors

Maternal involvement. The model predicting maternal involvement, with demographic controls and the relationship trajectory variables, was significant ($F(21, 1777) = 26.46$, $p < .001$), and explained 11.64% of the variance. However, no relationship trajectory significantly predicted maternal involvement. Of the demographic variables, the child's temperament, mother's age, race/ethnicity, and education predicted maternal involvement. Having a child with a highly emotional temperament predicted lower maternal involvement ($b = -.13$, $p = .02$). Being under the age of 20 when the child was born, being White, compared with being Black, and having more than a high school education predicted higher maternal involvement ($b = .60$, $p < .001$; $b = .50$, $p < .00$; $b = .35$, $p = .03$) (Table 32).

Parental stress. The linear regression model with the relationship trajectory variable predicting parental stress, adjusted for demographic characteristics, was significant ($F (21, 1777) = 9.98$, $p < .001$), and explained 10.7% of the variance. Specifically, trajectory 3 and trajectory 10 were significant predictors of greater parental stress. Thus, mothers who experienced a breakup with the child's father and then remained without a partner (trajectory 3), compared to

those who stably cohabited with the child's biological father, experienced a 22% increase in parental stress (b = .22, p = .02). Likewise, mothers who went through several relationship changes, with both the child's father and new partners, but then ended up without a partner (trajectory 10), experienced a 26% increase in parental stress (b = .25, p = .01). It is also noteworthy that trajectory 5 (i.e., single at child's birth, but later with a new partner) and trajectory 7 (i.e., in a steady relationship with a new partner beginning shortly after child's birth) approached significance in predicting higher parental stress (b = .45, p = .06; b = .29, p = .07). Child temperament and mother's education also predicted parental stress, in that having a highly emotional child at age 1 was associated with 10% increase of parental stress and having more than a high school education at baseline was associated with a 25% decrease of parental stress (b = .10, p = .001; b = .25, p = .01) (Table 32).

Ever spanked. A survey logistic regression model with relationship trajectories as predictors having ever spanked, adjusted for demographic controls was significant. Specifically, trajectory 4 predicted having ever spanked (OR = 2.04, CI = 1.06, 3.93, p = .03). Thus, mothers whose relationship with the child's biological father ended and who later formed a relationship with a new partner had 104% higher odds of spanking her child, compared to remaining in a stable but unmarried cohabiting relationship with the child's biological father. The mother's age and race/ethnicity also predicted spanking. The odds of having ever spanked for mothers who were age 30 or older at the time of the child's birth were 59.5% lower than for younger mothers (OR = .41, CI = .22, .74, p < .01). The odds of having ever spanked were 43.7% and 52.8% lower for White and Hispanic mothers, respectively, than Black mothers (OR = .56, CI = .34, .93, p = .02; OR = .47, CI = .32, .71, p < .001) (Table 32).

Table 32. Predictors (Relationship Trajectories) of Parenting Variables (RQ3b)

Predictors of Parenting Variables (see RQ3b, Step 2)

	Maternal Involvement	Parental Stress	Spanking		
Variables	*β*	*β*	*β*	*OR*	*95% CI*
Intercept	4.91***	1.99***	.30		
1. Steady romantic / cohabiting with child's father	omitted	omitted	omitted	omitted	omitted
2. Increase Commitment with father	.20	.08	.32	1.37	[.75, 2.52]
3. Breakup with father and remains single	.07	.22*	.18	1.19	[.61, 2.33]
4. Breakup with father and later is with a new partner	.23	.16	.71*	2.04	[1.06, 3.93]
5. Single to new partner	.02	.45	.77	2.16	[.70, 6.67]
6. Steadily Single	-.24	.24	.50	1.64	[.30, 9.15]
7. Steady relationship with new partner	.25	.29	.09	1.09	[.34, 3.54]
8. Multiple changes, ending with the father	.28	-.03	.49	1.63	[.64, 4.13]
9. Multiple changes, ending with a new partner	.15	.04	.48	1.62	[.61, 4.25]
10. Multiple changes, ending with no partner (single)	-.23	.26*	.65	1.09	[.78, 4.67]
Female	.13	-.08	-.12	.88	[.61, 1.35]
Emotionality	-.13*	.10***	.21	1.23	[1.00,1.53]
Mother's age					
Teen	.60***	-.10	-.01	.99	[.63, 1.56]
Young adult (reference)	omitted	omitted	omitted	omitted	omitted
Middle aged	-.21	.08	-.90**	.41	[.22, .74]
Mother's race/ethnicity					
Black (reference)	omitted	omitted	omitted	omitted	omitted
White	.49**	-.05	-.57*	.56	[.34, .93]
Hispanic	-.12	-.10	-.75***	.47	[.32, .71]
Other	.27	-.14	-.89	.41	[.08, 2.16]
Mother's Education					
More than High School	.35*	-.25**	.53	1.70	[.93, 3.09]
High School	.13	-.11	.17	1.18	[.72, 1.95]
Less than High School (reference)	omitted	omitted	omitted	omitted	omitted
Income	-.07	.01	-.03	.97	[.78, 1.22]
Church Attendance					
Frequent	.11	< -.01	-.12	.90	[.54, 1.46]
Rare (reference)	omitted	omitted	omitted	omitted	omitted
Never	-.01	-.08	.01	1.02	[.58, 1.78]
R^2	.12	.11			
F	26.46***	9.98***			

Note. N = 2050. * p < .05 ** p < .01 ***p < .001

Step 3: Parenting behaviors and aggressive behaviors

Maternal involvement was not associated with aggressive behavior. Greater parental stress and having ever spanked were associated with more aggressive behaviors ($b = .06$, $p < .01$; $b = .07$, $p = .02$). Please refer to 3a, Step 2 for details of these analyses.

Step 4: Parental stress and parenting behaviors

Parental stress predicted both maternal involvement and spanking. In a model adjusted for demographic controls, parenting stress significantly predicted lower maternal involvement ($F(13, 1783) = 10.20$, $p < . 001$; $b = -.49$, $p < .001$) and the model explained 14.82% of the variance of maternal involvement. Parenting stress also predicted higher likelihood of having ever spanked (OR = 1.50, CI 1.06, 2.11, $p = .02$). Specifically, with each increment increase in parental stress the odds of having ever spanked increased by 50%.

Step 5: Test of mediation

Full model

The full model, which included all three parenting variables as mediators and adjusted for demographic controls, was significant ($F(24, 1772) = 13.20$, $p < .001$) and explained 14.32% of the variance of aggressive behavior (see Full model, Table 33). Despite the addition of parenting variables, both trajectory 4 and 8 remained significant ($b = .07$ $p = .01$; $b = .11$ $p < .01$). Parenting stress and spanking were also significant ($b = .06$, $p < .01$, $b = .05$, $p = .05$). Child temperament was the only significant demographic control ($b = .04$, $p < .001$). Parenting variables reduced the value of the coefficient for trajectory 4 by 17.22% and by 1.76 % for trajectory 8. As with the previous mediation test, the Sobel tests could not be conducted.

Simple model

The next step was to conduct individual mediation tests. In this case, the spanking variable met the requirements for a mediation test only for trajectory 4 and aggressive behaviors. Neither of the significant trajectories (4 and 8) predicted parental stress nor maternal involvement; thus, these were not included in this analytical step.

Ever spanked. The full adjusted model with relationship trajectories predicting aggressive behavior, with the addition of spanking, was significant ($F(22, 1776) = 8.43$, $p < .001$), and explained 11.85% of the variance (Spanking, Table 33). Both trajectories 4 and 8 remained significant ($b = .08$ $p < .01$; $b = .10$, $p < .01$) with the addition of spanking, which also remained significant ($b = .06$, $p = .02$). Child temperament was also significant ($b = .04$, $p < .001$). The addition of spanking to the model produced a 10.68% decrease in the value of the coefficient of trajectory 4. However, a Sobel test concluded that spanking was not a mediator for trajectories 4 (Sobel = 1.42, p = .15).

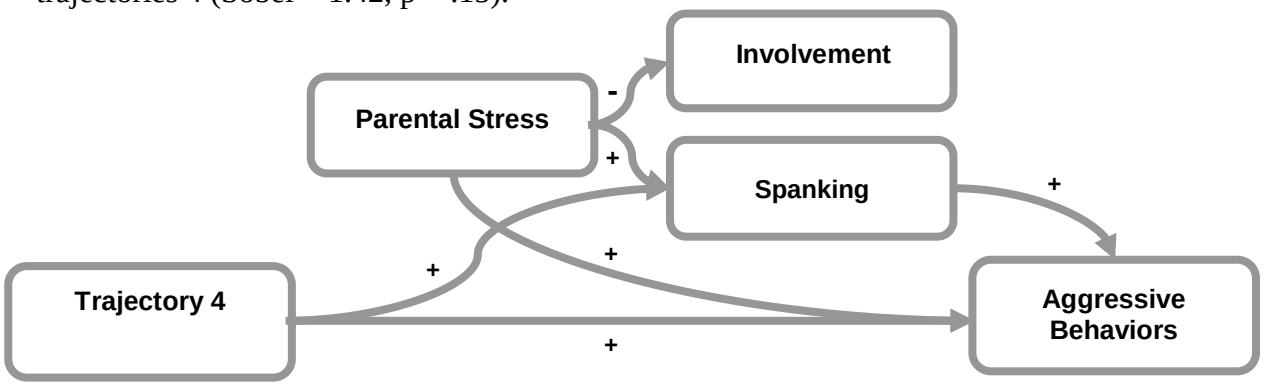

Figure 8. Relationship Among Variables (RQ3b)

Table 33. Mediation Test Results (RQ3b)

Predictors of Aggressive Behavior (RQ3b parenting variables as mediators of relationship trajectories)

Variables	No Mediators *B*	Spanking *B*	Full Model *B*
Intercept	.32***	.28***	.21**
1. Steady romantic / cohabiting with child's father	omitted	omitted	omitted
2. Increase Commitment with father	.02	.01	.01
3. Breakup with father and remains single	.05	.04	.03
4. Breakup with father and later is with a new partner	.09**	.08**	.07**
5. Single to new partner	-.04	-.05	-.07
6. Steadily Single	.01	< -.01	-.02
7. Steady relationship with new partner	<.01	<.01	-.01
8. Multiple changes, ending with the father	.11**	.10**	.11**
9. Multiple changes, ending with a new partner	.04	.03	.03
10. Multiple changes, ending with no partner (single)	.07	.05	.04
Female	< -.01	<.01	.01
Emotionality	.04***	.04***	.04***
Mother's age			
Teen	-.03	-.03	-.02
Young adult (reference)	omitted	omitted	omitted
Middle aged	-.03	-.02	-.02
Mother's race/ethnicity			
Black (reference)	omitted	omitted	omitted
White	-.01	< -.01	<.01
Hispanic	-.01	<.01	<.01
Other	-.04	-.03	-.02
Mother's Education		omitted	omitted
More than High School	-.01	-.02	<.01
High School	.02	-.02	.03
Less than High School (reference)	omitted	omitted	omitted
Income	-.02	-.02	-.02
Church Attendance			
Frequent	<.01	<.01	<.01
Rare (reference)	omitted	omitted	omitted
Never	.05	.05	.05
Parental Stress			.06**
Maternal Involvement			-.01
Ever Spanked		.06*	.05*
R^2	.10	.12	.14
F	7.98***	8.43	13.20***
Sobel		1.42	

Note. N = 1797. * p < .05 ** p < .01 ***p < .001

RQ3c: Parenting Variables as Mediator of RQ2e variable and Aggressive Behaviors

Step 1: Number of transitions and aggressive behavior

The number of relationship transitions significantly predicted aggressive behaviors in a model adjusted for demographic controls ($F(15, 2033) = 5.98$, $p < .001$), and explained 8.17% of the variance. Specifically, having experienced 3-6 transitions in the first five years of life predicted greater aggressive behaviors at age 5 ($b = .08$, $p < .01$). In this model, child temperament and mother's age were also significant predictors of aggressive behavior problems ($b = .05$, $p < .001$; $b = -.05$, $p = .01$) (Table 26, Chapter 5).

Step 2: Number of transitions and parenting behaviors

Maternal involvement. The adjusted model of family instability predicting maternal involvement was significant ($F(15, 2033) = 5.98$, $p < .001$), and explained 10.48% of the variance. All three categories of transitions significantly predicted greater maternal involvement, compared to zero transitions. Experiencing one transition was associated with a 46% increase ($b = .46$, $p = .01$), two transitions with a 52% increase ($b = .52$, $p < .01$), and 3-6 transitions was associated with a 38% increase in maternal involvement ($b = .38$, $p = .05$). Child temperament, mother's age, and race/ethnicity were also predictors. Having a child with a highly emotional temperament at age 1 was significantly related to lower maternal involvement ($b = -.11$, $p = .03$). In contrast, being under the age of 20 when the child was born and being White, compared with being Black, predicted higher maternal involvement ($b = .50$, $p < .001$; $b = .55$, $p < .001$).

The relationship of family instability and maternal involvement was unexpected; thus, further analyses were conducted to understand in what ways the mother was more involved. The results indicated that reading and telling stories were related to the higher numbers of transitions whereas singing songs and playing with toys were not related. Specifically one transition was

related to a 74% increase in time spent reading stories (b = .74, p < .01), an 83% increase for two transitions (b = .83, p < .001), and a 54% increase for three to six transitions (b = .54, p = .02). For telling stories, the effect sizes were similar (one transition, b = .68, p < .001; two transitions b = .85, p < .01) except three to six transitions was not significant.

Parental stress. The model with transitions predicting parental stress, adjusted for demographic characteristics, was significant (F(15, 2033) = 4.80, p < .001), and explained 6.97% of the variance. Family instability did not predict parental stress. Child temperament and mother's education were the only significant predictors of parental stress in this model; a highly emotional child at age 1 was associated with higher parental stress and having more than a high school education at baseline was associated with less parental stress (b = .09, p < .001; b = -.26, p < .01).

Ever spanked. A survey logistic regression model with family instability as a predictor of spanking, adjusted for demographic controls, was significant. The odds of ever spanking were 88% higher for mothers who experienced only two relationship transitions compared to mothers who experienced no transitions (OR = 1.88, CI = 1.01, 3.49, p = .05). The other categories (1 or 3-6 transitions) were not significant. Child temperament, mother's age, and race/ethnicity also predicted spanking. The odds of having ever spanked were 24% greater for mothers with children with higher emotionality scores (OR 1.24, CI = 1.01, 1.53, p = .03). The odds of having ever spanked for middle aged mothers were 53.4% lower than for younger mothers (OR = .47, CI = .27, 81, p = .01). The odds of having ever spanked were 46.5% and 44% lower for White and Hispanic mothers, respectively, than Black mothers (OR = .54, CI .33, .87, p = .01; OR = .56, CI = .37, .84, p < .01)

Table 34. Predictors (Family Instability) of Parenting Variables (RQ3c)

Predictors of Parenting Variables (see RQ3c, Step 2)

	Maternal Involvement	Parental Stress		Spanking	
Variables	*β*	*β*	*β*	*OR*	*95% CI*
Intercept	4.55***	2.13***	.62		
0 Transitions	omitted	omitted	omitted	omitted	omitted
1 Transition	.46**	-.02	.30	1.35	[.69, 2.65]
2 Transitions	.52**	< -.01	.63*	1.88	[1.01, 3.49]
3-6 Transitions	.38*	.08	.52	1.69	[.97, 2.95]
Female	.07	-.08	-.08	.93	[.63, 1.36]
Emotionality	-.11*	.09***	.22*	1.24	[1.01,1.53]
Mother's age					
Teen	.50***	-.10	.06	1.06	[.72, 1.57]
Young adult (reference)	omitted	omitted	omitted	omitted	omitted
Middle aged	-.10	.09	-.76**	.47	[.27, .81]
Mother's race/ethnicity					
Black (reference)	omitted	omitted	omitted	omitted	omitted
White	.55***	-.07	-.62*	.54	[.33, .87]
Hispanic	-.12	-.09	-.58**	.56	[.37, .84]
Other	.38	-.10	-.86	.42	[.10, 1.78]
Mother's Education					
More than High School	.18	-.26**	.42	1.52	[.88, 2.62]
High School	.07	-.12	.06	1.07	[.65, 1.74]
Less than High School (reference)	omitted	omitted	omitted	omitted	omitted
Income	-.03	<.01	-.09	.92	[.74, 1.14]
Church Attendance					
Frequent	.20	.04	-.17	.85	[.55, 1.30]
Rare (reference)	omitted	omitted	omitted	omitted	omitted
Never	-.01	-.07	-.02	.98	[.56, 1.71]
R^2	.10	.07			
F	10.92***	4.80***			

Note. N = 2049. * p < .05 ** p < .01 ***p < .001

Step 3: Parenting behaviors and aggressive behaviors

In this analytic sample (N = 2049), maternal involvement was not associated with aggressive behavior (b = -.01, p = .11). Greater parental stress was associated with more aggressive behaviors (b = .07, p < .001). Having ever spanked was associated with more aggressive behaviors (b = .06, p = .03). Please refer to 3a, Step 2 for details regarding the significance of the control variables for these models.

Step 4: Parental stress and parenting behaviors

As was the case in the previous analysis, parental stress predicted both maternal involvement and spanking. In a model adjusted for demographic controls, parenting stress significantly predicted lower maternal involvement (F(13, 2035) = 11.48, p < . 001); b = -.47, p < .001) and the model explained 13% of the variance of maternal involvement. Parenting stress also predicted higher likelihood of having ever spanked (OR = 1.51, CI 1.09, 2.09, p = .01). Specifically, with each increment increase of parental stress the odds of having ever spanked increased by 51%.

Step 5: Tests of mediation

Full model

As in the previous analyses, the next step was to run the full model, which included demographic controls and all three parenting variables and the transition variable. This model was significant (F(18, 2030) = 6.49, p < .001) and explained 11.84% of the variance of aggressive behavior (Full model, Table 35). With the addition of the parenting variables, 3-6 transitions remained significant (b = .07, p < .01). Of the parenting variables, parenting stress was significant (b = .06, p < .01), but having ever spanked and maternal involvement were not significant. Child temperament and mother's age were the only other significant predictors in the

full model (b = .04, p < .001; b = .06, p = .03). Adding the mediator variables to the model reduced the value of the coefficient for 3-6 transitions by 9.11%. Sobel tests could not be conducted because more than one mediator variable was included in the model.

Simple model

The next step was to test simple mediation models with each parenting variable that met the requirements for mediation. However, none of the parenting behavior variables or parental stress met the requirements for individual tests for mediation. Although transitions predicted maternal involvement, maternal involvement was not related to aggressive behaviors and therefore did not meet the criteria for a mediation test. As for spanking, the "2 transitions" category predicted spanking, rather than the "3-6 transitions" that predicted aggressive behavior. Furthermore, parenting stress was not related to the number of relationship transitions.

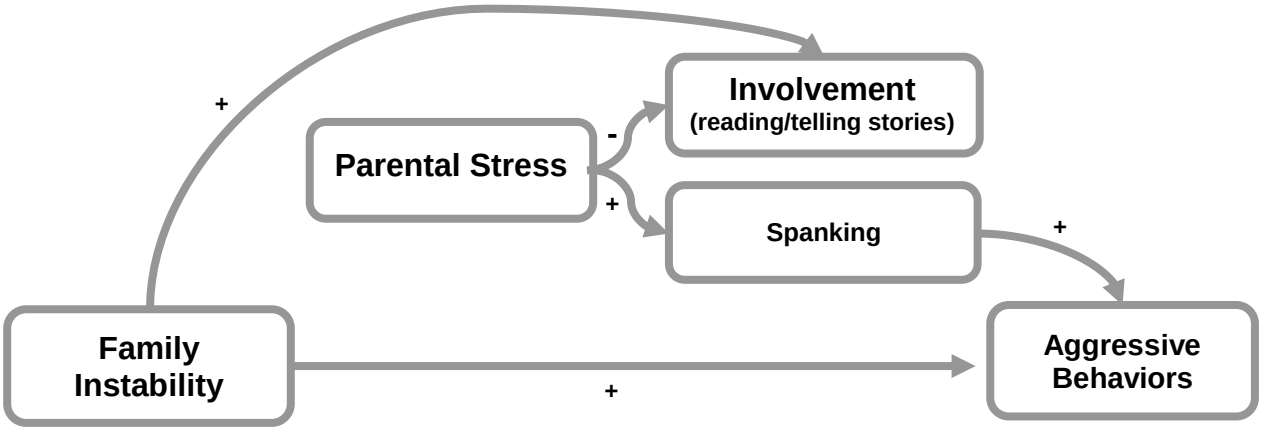

Figure 9. Relationship Among Variables (RQ3c)

Table 35. Mediation Test Results (RQ3c)

Predictors of Aggressive Behavior (Parenting variables as mediators of family instability, RQ3c)

Variables	No Mediators *B*	Spanking *B*	Full Model *B*
	.30***	.26***	.18**
0 Transitions	omitted	omitted	omitted
1 Transition	-.01	-.01	-.01
2 Transitions	.03	.03	.03
3-6 Transitions	.08**	.08**	.07**
Female	< -.01	< -.01	<.01
Emotionality	.05***	.04***	.04***
Mother's age			
Teen	-.05**	-.05**	-.04*
Young adult (reference)	omitted	omitted	omitted
Middle aged	-.02	-.01	-.02
Mother's race/ethnicity			
Black (reference)	omitted	omitted	omitted
White	.02	.02	.03
Hispanic	< -.01	.01	.01
Other	-.02	-.01	< -.01
Mother's Education		omitted	
More than High School	-.02	-.02	-.01
High School	.01	.01	.02
Less than High School (reference)	omitted	omitted	omitted
Income	-.01	< -.01	< -.01
Church Attendance			
Frequent	<.01	.01	<.01
Rare (reference)	omitted	omitted	omitted
Never	.03	.03	.03
Parental Stress			.06**
Maternal Involvement			-.01
Ever Spanked		.06*	.05
R^2	.08	.09	.12
F	5.98***	5.90	6.49**
Sobel		1.43	

Note. N = 1797. * p < .05 ** p < .01 ***p < .001

CHAPTER 7: DISCUSSION OF RESULTS

Summary of Findings

There is already a large body of family science research that examines the differences in child outcomes for children born to or living with married versus unmarried parents. However, there is very little research that goes beyond the basic question of whether a pre-birth marriage produces more favorable child outcomes than no marriage at all. What has been missing in the corpus of research to this point is an examination of whether the complexities of a post-birth marriage, such as the timing of such a marriage, the identity of the mother's marriage partner, the relationship trajectory, or family instability influence child behavior outcomes.

This study contributes to the current body of literature by systematically examining how child behavior is impacted by several elements of post-birth marriage. The first component of this study explored which factors predicted a post-birth marriage for fragile family mothers (RQ1). The results showed that the mother's hope to marry, education, income, and race/ethnicity predicted the occurrence of any post-birth marriage. Mothers who married the child's father were also likely to enjoy a higher-quality relationship, be cohabiting with the child's father at the time of birth, and frequently attend church. These results add to the understanding of characteristics and qualities that enable and encourage post-birth marriages.

The second component of the study examined how elements of post-birth marriage and the mother's romantic relationship(s) following the birth of a child out-of-wedlock were related to the child's aggressive and internalizing behaviors. Neither the occurrence nor the timing of a post-birth marriage was related to either type of child behaviors (RQ2a, RQ2b). However, marriage to the child's biological father significantly predicted lower aggressive behavior ($p = .02$), as well as internalizing behaviors (at the trend level, $p = .06$) (RQ2c). The mother's

relationship trajectory in the first five years also has an impact. Children who experienced the dissolution of their biological parent's relationship and then transitioned into a family structure with a new father figure exhibited greater aggressive behavior problems. In addition, children whose mothers were with the child's father at year 5, but had transitioned through multiple relationships prior to that point also experienced higher aggressive behavior. However, relationship trajectories were not related to internalizing behaviors (RQ2d). Family instability (i.e., number of relationship changes), was also significant in explaining aggressive (but not internalizing) behaviors. Results indicated that children whose mothers went through three or more relationship transitions exhibited greater aggressive behavior problems. Taken together, the findings imply that although marriage alone may not have a significant impact on children's behaviors, factors such as non-marriage to the biological father, greater family instability, and relationship trajectories that include the dissolution of the parental dyad or re-partnerships are important parts of understanding aggressive behaviors of fragile family children.

The third component of this study tested mother's parental stress and parenting behaviors as mediators of the significant relationships listed above. The findings provided support for the hypothesis that marriage to the biological father lowers aggressive behaviors by reducing parental stress. Results also showed modest evidence that the reduction in parenting stress impacted the child's aggressive behaviors by first reducing the likelihood that the mother ever spanked. Parental stress and spanking were not mediators of relationship trajectories and aggressive behaviors. Nor did they mediate family instability and aggressive behaviors. These findings suggest that stress and parenting might be particularly important to explaining the connection between marriage to the biological father and child behaviors, but not necessarily how relationship trajectories or family instability are linked to aggressive behavior.

Table 36. Summary of Research Questions, Hypotheses, and Findings

Summary of Research Questions, Hypotheses, and Findings

Research Question	Hypothesis	Findings
RQ1: Who among fragile family mothers will marry?		
What maternal characteristics predict post-birth marriage among fragile family mothers during the first five years?	Family resources, relationship quality, valuing marriage, and the family structure (i.e., relationship status, other children) will increase the likelihood of a post-birth marriage among fragile family mothers.	**Hypothesis partially supported:** Mothers who held high hopes to marry and those with greater resources, namely education and income, were more likely to marry. Black mothers were less likely to marry. All other characteristics were not significant.
RQ2: What is the association of post-birth marriage to child behavior among fragile families?		
a: Will the occurrence of any marriage between the birth and age 5 of the child (e.g. dichotomous yes/no variable) predict child behavior outcomes at age 5?	A post-birth marriage between birth and year 5 will predict child behavior problems at age 5, direction not predicted.	**Hypothesis not supported;** post-birth marriage did not predict either aggressive or internalizing behaviors.
b: Is the timing (early/late/never) of the marriage significant in predicting child behavior outcomes at age 5?	The timing of post-birth marriage will significantly predict child behavior.	**Hypothesis not supported;** the timing of post-birth marriage did not predict aggressive or internalizing behaviors.
c: Does the biological relationship of the mother's spouse to the child make a difference in the child's behavior outcomes at age 5?	Children whose biological parents marry will exhibit the fewest behavior problems. Children who live with social fathers will exhibit the greater behavior problems.	**Hypothesis partially supported;** children whose parents marry exhibited lower aggressive behavior and internalizing behavior problems (at the trend level) than children without any father figure.
d: Do different trajectories of the mother's romantic relationships predict different child behaviors at age 5?	Relationship trajectories that lead to increased commitment/stability will predict better child behavior outcomes, while those that lead to decreased relationship commitment/stability will predict poorer child behavior outcomes**.**	**Hypothesis partially supported;** compared to the stably cohabiting (unmarried) trajectory, two trajectories of decreased commitment/stability predicted higher aggressive behaviors. Not significant for internalizing behaviors.
e: Does the number of transitions predict child behavior outcomes?	A lower frequency of transitions will predict fewer behavior problems.	**Hypothesis partially supported;** 3-6 transitions predicted higher aggressive behavior. Number of transitions was not related to internalizing behavior.

| Research Question | Hypothesis | Findings |

RQ3: Does parenting quality/behavior mediate the relationship between post-birth marriage and child behavior among fragile families?

1. Does post-birth marriage between birth and year 5 predict the mother's parenting quality/behavior?
2. Does parenting quality/behavior predict child behavior at year 5?
3. Will the addition of the parenting variables significantly reduce the relationship between post-birth marriage and child wellbeing?

Parental stress and parenting behavior will reduce the relationship between post-birth marriage and child behavior problems. Therefore, we can conclude that parenting mediates the association between marriage and behavior.

Hypotheses partially supported;
a: Parenting variables, as a group, reduced the coefficient of marriage to the biological father to non-significance (by 15.8%). Parental stress mediated the relationship of marriage to biological father and aggressive behaviors. Spanking mediated (at the trend level) the relationship of parental stress and aggressive behaviors.

b: Parenting variables, as a group, reduced the coefficient for trajectory 4 (i.e., break-up with child's father, re-partnering) by 17.22% and by 1.76% for trajectory 8 (multiple transitions, ending with child's father), although these remained significant predictors of aggressive behavior. Neither parental stress, spanking, nor maternal involvement were individual mediators.

c: Parenting variables, as a group, reduced the coefficient of 3-6 transitions by 9.11%, although this remained a significant predictor of aggressive behavior. Neither parental stress, spanking, nor maternal involvement were individual mediators.

Interpretation of the Findings

RQ1: Who Will Marry? *What maternal and family characteristics predict a post-birth marriage among fragile families?*

Any post-birth marriage. The first component of this study was to determine the characteristics of the mothers who married post-birth among fragile families. According to the principles of family stress theory, it was hypothesized that mothers with greater social, emotional, and economic resources would be most likely to marry. This hypothesis was partially supported. Mothers who married within the first five years following an out-of-wedlock birth were likely to hold high hopes to marry, have more than a high school education, have a higher income, and be White (compared to Black). These finding align with some results from other studies of fragile families (see Bogle, 2012; Carlson et al., 2004; Liu and Heiland, 2012; Osborne, 2005).

Contrary to hypothesis and previous studies, the quality of the relationship, the level of conflict, and the relationship status at the time of the birth had no bearing on future matrimony (see, Bogle, 2012; Osborne 2005; Liu and Heiland 2012). Similar to a finding reported by Osborne (2005) the specific attitudes or beliefs about marriage (i.e., whether is it best for children, etc.) also did not predict post-birth marriage. The mother's religious activity, obligations to other children, and having had twins also were not related to a post-birth marriage.

According to family stress theory, limited resources (i.e., social, emotional, physical) impede families from effectively managing family stress, which can impact family interactions and relationships. From this perspective, one reason the mothers in this sample who married were able to do was because they held adequate resources to buffer against some family stressors and therefore were able sustain a healthy relationship to the point of marriage. The findings point

to household income, education, race/ethnicity, and one's hope to marry as possibly important resources. It is likely that holding these resources may have also made these women more attractive as potential partners to men who had the intention and means to marry. Therefore, although many mothers held high expectation of future matrimony, the small numbers who actually married were able to because of important family resources.

The finding that Black mothers were less likely to marry than White mothers corresponds with similar findings of the general population (see Bembry, 2011; Brown, 2010; Hummer & Hamilton, 2010). External factors common to this group may make marriage less attainable or desirable. For instance, researchers report that there are fewer economic and social benefits to marriage for Black women than women in other racial/ethnic groups (Burton & Tucker, 2009; Hill, 2006). Lower rates of marriage may also be due to high rates of unemployment, economic marginalization, and financial constraints among Black men (Chambers & Kravitz, 2011; McLoyd, 1990). Black women may experience greater stress than White women due to racial discrimination. Likewise, Black women in poverty may not have other intangible resources (e.g., time, health, etc.) to invest in romantic relationships (Burton & Tucker, 2009).

Marriage to the child's father. Additional analyses showed that mothers who married the child's biological father may be distinct from the general group or post-birth married mothers. For instance, the mothers who married the child's father were likely to be in a romantic/cohabiting relationship with him and have higher relationship quality when the child was born. These mothers were also more likely to have given birth to only one baby (as opposed to twins) and be active participants in their religious organization. Similar to predictors of any marriage, higher income, hopes to marry, and race/ethnicity were also predictors of marriage to the child's father. By comparison, mothers who married a new partner also held high hopes to

marry, but they engaged in less religious activity and were likely not cohabiting with the child's father at the time of the birth.

Taken together, these findings suggest that the intangible resources (i.e., high hopes to marry, relationship quality/status, religious beliefs/practices, etc.) are similarly vital to enabling mothers to marry the child's father as physical resources (i.e., income). For instance, higher-quality relationships and the values regarding marriage and family taught in many religions may have motivated mothers to marry the child's father. It is likely that mothers who married the child's father also experienced fewer stressors and barriers to marriage. For example, having only one child at the time of the birth and already cohabiting with the child's father might make the transition into marriage easier and less stressful. In contrast, non-religious and non-cohabiting mothers who desired marriage were more likely to marry a new partner. Thus, through the lens of family stress theory, both types of resources might be facilitating post-marriage.

RQ2: Post-birth Marriage, a Resource or a Stressor? *Does post-birth marriage and qualities of the mother's romantic relationship predict child behavior outcomes?*

According to family stress theory, child behavior problems are an indicator of the child's distress, which is likely the result of stress in the family system (Carlson & Corcoran 2001). Family resources can buffer the impact of stressors on the family and therefore result in resiliency in children, marked by positive behavior outcomes. This section focuses on whether post-birth marriage functioned as a resource or a stressor for fragile families, as indicated by child behavior outcomes. Several of the complexities of post-birth marriage were examined and a discussion of the results is below.

RQ2a: If She Marries? *What is the relationship of the occurrence of any post-birth marriage and child behaviors?*

It was hypothesized that a post-birth marriage between birth and year 5 would predict child behavior problems at age 5, but direction was not specifically predicted. This hypothesis was not supported. The findings indicated that the occurrence of any post-birth marriage was not related to the child's aggressive or internalizing behaviors at age 5. Thus, from the lens of family stress theory, merely the occurrence of post-birth marriage (at any time and to any partner) did not significantly impact the levels of distress experienced by the child in a fragile family.

Fragile families are overrepresented in economically- and socially-disadvantaged populations (Bembry, 2011; Carlson, McLanahan, & England, 2004). These families tend to have poorer physical and mental health, have lower education, and less social support (Park, 2004). Moreover, Gibson-Davis (2011) has shown in her research that both social and economic gains of marriage have declined in recent years, along with the necessity and meaning of marriage. Social and institutional support for marriage may be especially important for this population. Marriage following a birth may not bring the same increase of benefits for a fragile family as it would to a couple that married prior to the birth of the first child. Furthermore, while it is possible that a post-birth marriage brings some resources, these may not be significant enough to thwart the stress of continued social and economic disadvantage, making the child behavior outcomes no different from families who remain unmarried.

Whereas few studies have examined the impact of post-birth marriage on child outcomes, the limited few studied only the first three years of the child's life; this study contributes to the literature by expanding the breadth of study to include the first five years of life. The findings from the current study are in line with several others that showed that the short-term impact of

post-birth marriage on child behaviors was not significant (Liu & Heiland, 2012; Osborne, McLanahan, & Brooks-Gunn, 2003). However, the current findings are also in conflict with other studies that report a significant relationship between post-birth marriage and child behaviors (Heiland & Liu, 2006; Bzostek, 2008). These mixed results in the literature suggest that further investigation is needed.

A rejection of this hypothesis calls into question the assumption that marriage is universally beneficial for all families. If the current population level trends continue and fewer individuals marry before having children, the number of fragile families will increase. Children raised in fragile families are likely to continue to experience significant disadvantage, compared to those living with married parents. This finding indicates that any post-birth marriage may not be significant enough to remedy the situation. In short, regardless of post-birth marriages, as the number of fragile families increase, the gap between the advantages and outcomes of children of the "I do's" and the "I do not's" may only widen. Such disparities are likely to have societal level impacts.

RQ2b: When She Marries? *What is the relationship of the timing of the post-birth marriage and child behaviors?*

It was hypothesized that the timing of the post-birth marriage would impact child behavior outcomes; that if marriage functioned as a resource, early marriage would predict better child behaviors because the family would experience less accumulation of stress over time. If the marriage functioned as a stressor, the child would experience greater behavior problems after a later marriage because of the recent occurrence of the event. This hypothesis was not supported in either direction for any child behavior outcome. As was noted above, the occurrence of post-

birth marriage, regardless of the timing, does not appear to function as a resource or stressor that is significant enough to impact the child's level of distress. The rejection of this hypothesis further confirms that post-birth marriage may have little impact on fragile family children.

RQ2c: Whom She Marries? *Does the biological relationship of the mother's partner to the child, in addition to the marital status, predict the child's behaviors? Are these mediated by parenting factors?*

According to research and theory, a father figure brings resources or stressors to the family based on marital status and/or having a biological relationship with the child. Moreover, the combination of biology and marriage would bring greater father investment. Thus, theory supports that fathers who bring greater resources would have children with fewer behavior problems and those who created family stress would have children with higher behavior problems. This study hypothesized that marriage to the child's biological father would predict the best child behavior outcomes because this relationship would provide the benefits of greatest paternal investment in the child. Likewise, children living without a father would exhibit worse outcomes because these families were without the resources any father figure might bring. These hypotheses were supported, in that children living with married biological parents at year 5 exhibited lower aggressive problems ($p < .05$) and lower internalizing problems (at the trend level, $p = .06$), compared to those having no father-figure in the home. No other family structure groups showed significant differences in either type of child behavior, meaning that the behavior of the children living with a married step-father, cohabiting biological-father, or cohabiting social-father did not differ from those without any father figure. According to theory, the combination of the resources brought to the family by a post-birth marriage to the biological

father was substantial enough to buffer some of the stressors that these fragile families faced, resulting in less distress for the children and thus fewer behavior problems.

These findings mirror the results of a study conducted by Berger and McLanahan (2012) comparing children in married biological, married step-families, and cohabiting-biological families. Although this study was not focused exclusively on fragile families, they found that children of married-biological parents exhibited the most positive behavior outcomes, indicating that biology and marriage were resources for children. The findings also support a study by Hofferth (2006), which reports that children living with married-biological parents exhibited the best outcomes. The current study adds to this body of literature by showing the positive impact of a *post-birth* marriage of biological parents in a sample exclusively of fragile families.

An important implication of these findings is that, while marriage alone was not related to child behavior outcomes, marriage to the child's father may significantly decrease aggressive behaviors. Furthermore, who the mother marries makes an important difference to the child's behavior, but with whom she cohabits (while remaining unmarried) does not. The results confirmed that the levels of aggression in children whose mothers were cohabiting with the biological father were no different from children whose mothers were parenting without a partner. Thus, these findings provide further evidence of the positive impact the mother's post-birth marriage to the child's biological father can have on the family and child.

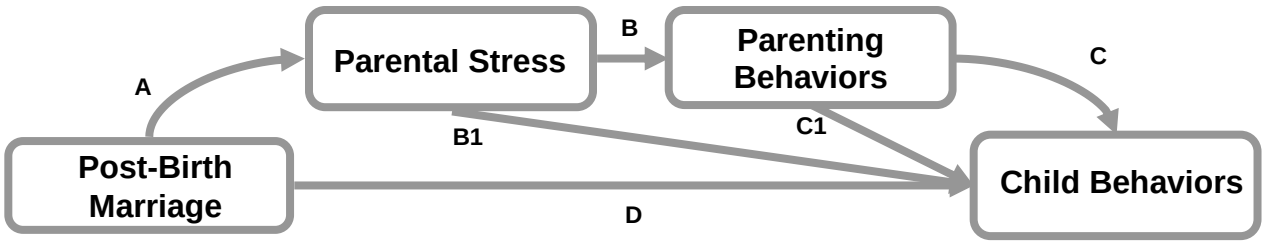

Figure 10. Hypothesized Mediation Model

Mediation tests (RQ3a). In order to understand the processes by which marriage to the biological father influences the child's behavior, parental stress and spanking were tested as mediators. It was proposed that a post-birth marriage would reduce the mother's stress, which would then enable her to function better as a parent (i.e., be more involved and spank less), and these parenting behaviors would directly influence the child behaviors (Figure 10). Each of these relationships was tested and the results showed that marriage to the child's biological father did reduce the mother's parental stress, by 18%. In turn, lower parental stress predicted higher maternal involvement and a lower likelihood of spanking. Less spanking in the first five years was linked to lower aggressive behaviors at age 5. Other studies have also found that high parental stress led to harsher, more negative parenting practices (Beck, et al., 2010; Heiland & Liu, 2006). Contrary to hypothesis and some literature, mothers' positive parenting behaviors (i.e., involvement) were not related to the child's aggressive behaviors (see Heiland & Liu, 2006). Thus far, these results imply that mothers who married the child's father were less stressed and therefore might be more involved and less likely to spank. However, spanking was the only parenting behavior that impacted the child's behavior.

The mediation hypothesis was tested in two ways. First, parenting stress and the parenting behaviors were added as a group, which reduced the coefficient of 'marriage to the child's biological father' to non-significance (a reduction of 15.8%). These findings indicate that parenting may be an important mediating process through which marriage impacts the child's behavior. Second, each parenting variable was tested individually to see if it functioned as a mediator. Parental stress was impacted by marriage, as mentioned above, and predicted a 7% increase in aggressive behaviors. Other studies have also found parental stress to be associated with aggressive behavior problems (Hilton & Desrochers, 2002; Williford et al., 2007). The

addition of parental stress reduced the marriage coefficient by 15.3%, and was a significant mediator, according to the Sobel test. Thus, of the three variables, parental stress was responsible for a large percentage of the mediating effect.

Further tests showed that parenting stress likely impacted the child's aggressive behaviors by influencing whether or not the mother used spanking as a means of discipline. Lower parental stress was related to a decreased likelihood that the mother had ever spanked, which in turn was related to lower aggressive behaviors. Spanking, according to the Sobel test, was a significant mediator of the relationship of parental stress and aggressive behaviors (at the trend level, $p = .08$). These findings give modest support for the hypothesis that marriage reduces stress and therefore reduces the likelihood of negative parenting behaviors (i.e., spanking), which in turn lowers aggressive behavior problems.

The results also showed that post-birth marriage (to the child's biological father) was not directly related to spanking or maternal involvement, nor did either variable mediate the relationship of marriage and aggressive behaviors directly. These were in line with the results from several other studies of fragile families that found marital status to have no relationship with parenting behaviors (Berger & McLanahan, 2012; Bogle, 2012; Liu & Heiland, 2012). However, these results are contrary to some previous evidence that married parents provided higher quality care and use fewer negative parenting practices than cohabiting or single parents (see Abada & Gillespie, 2007; Gibson-Davis & Gassman-Pines, 2010; Hilton et al., 2001; Waldfogel et al., 2010) and that a post-birth marriage improved parenting (see Heiland and Liu, 2006; Mclanahan, Haskins, Garfinkel, Mincy, & Donahue, 2010). One reason for this inconsistency might be that the measure of maternal involvement used in this study is not inclusive of all facets of parenting quality, nor does the dichotomous variable of spanking serve

as an exclusive indicator of negative parenting. Therefore, these findings are not robust enough to call into question more thorough investigations of parenting, as cited above. Further testing of a model that includes other measures of parenting (i.e., nurturance, discipline, control, etc.) included in the FFCWS data is warranted.

In sum, the findings of RQ2c have several important implications. First, post-birth marriage to the child's father was linked to significantly lower parental stress for the mother, suggesting that this type of marriage may be a key resource for fragile families. This may be an important contribution to the literature because previous studies linking marital status to parental stress did not consider whether the marriage occurred post-birth (see Williford et al., 2007, Beck, et al., 2010; Hilton, et al., 2001). Second, that parental stress mediates the relationship of post-birth marriage with the child's father and the child's aggressive behaviors, likely through parenting practices such as spanking, supports the assumptions outlined in this paper of family stress theory. These findings also support previous models, such as those proposed by Conger and Conger (2004) and Campbell and colleagues (1996), suggesting that external stressors impact parenting behaviors and consequently child outcomes.

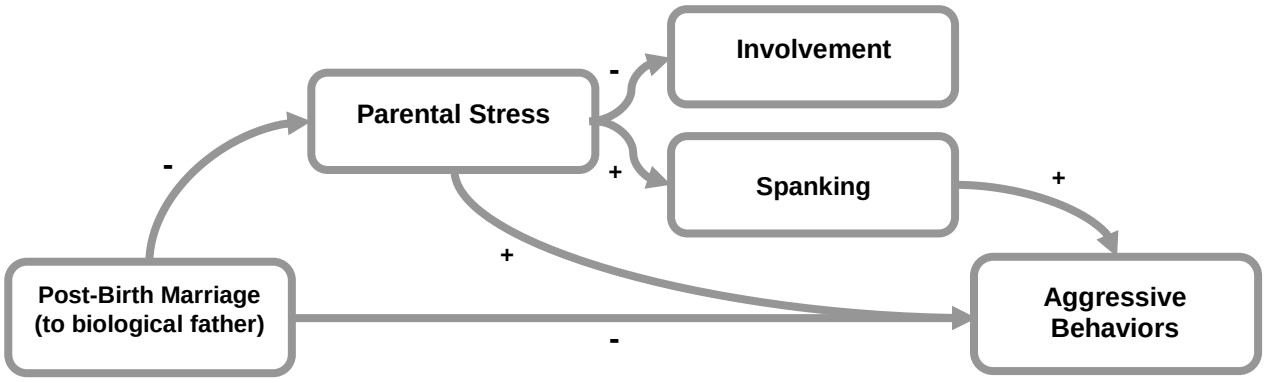

Figure 11. Relationship Among Variables (RQ3a)

RQ2d: Relationship Trajectories *Does the mother's romantic relationship history in the first five years prior to the child's birth impact the child's behaviors? Are these mediated by parenting factors?*

Fragile families are considered 'fragile,' in part, because of the high chance the family structure that existed at the time of the child's birth will change. This was certainly the case for the majority of the families in this sample. Very few children lived with a mother who enjoyed a stable unchanging romantic relationship in their first years of life; 18% remained in a steady cohabiting relationship with the child's father and 3% were without a partner throughout all five years. In comparison, most children experienced a variety of family structures and living arrangements as these mothers transitioned in and out of romantic relationships. This research question focused on how these trajectories impacted the child's behavior.

It was hypothesized that the type or quality of the relationship trajectory would significantly impact child behavior problems. Specifically, trajectories that were most unstable and stressful would be related to the poorest child behaviors and the trajectories that led to an increase in stability, resources, and therefore, a reduction in stress would produce fewer child behavior problems. These hypotheses were partially supported, in that two relationship trajectories predicted higher aggressive behaviors, and two predicted lower aggressive behaviors. However, no trajectory predicted internalizing behaviors. These findings indicate that more than just the occurrence of a transition, the type or quality of the change is significant in predicting aggressive behaviors.

Trajectory 4. There were two relationship trajectories that predicted higher behavior problems when compared to stably cohabiting families[2]. First, higher aggressive behaviors were exhibited by children who experienced both the dissolution of their biological parental relationship as well as their mothers re-partnering (trajectory 4). Aggressive behavior problems were an indication of distress, according to theory, likely from experiencing both of these stressful family changes (Hill, 1958; McLanahan, 1985). Hill (1958) points to changes in the parents' marital and romantic relationships as a major source of stress because, according to theory, the entrance into or exit of a romantic partner from the family creates adjustments in status and requires role changes. In a relatively short period of time, these children experienced two stressful changes, which likely caused significant adjustments in the family structure and perhaps other changes (i.e., relocation, new extended family networks, etc.). The timing of these events may have varied within this group, but perhaps the accumulation of stress from both the exit of the father and entrance of a new partner caused the child to act out with more aggression (Appendix B).

Trajectory 8. The second trajectory that predicted higher aggressive behavior was more complex (see Appendix B). This group of families experienced many changes and instability during the first five years, as many of these mothers transitioned in and out of relationships with the father and new partner(s). The unifying factor for this trajectory was that, after all of this turmoil, the mothers were back in some sort of relationship with the child's father by year 5 (trajectory 8). Theory would explain that this trajectory created significant distress to the child, as indicated by higher aggressive behaviors.

[2] Note: The stably cohabiting trajectory included only mothers who were living with, but remained unmarried from the child's biological father. Mothers who married the child's father were most likely in the second trajectory; however, marriage was not specifically measured in this question.

One element of trajectory 8 that may explain these results is that, compared to the others, it might be the least normative trajectory; this is the only group that includes re-partnering with the child's father. Prince (2010) explains that children are likely to feel the transitions are unjust or overwhelming when they are non-normative. Thus, it could be that families that had stepped farther away from far social norms than other groups experienced significant stress. In addition to the re-partnering with the father, another important element may be that frequent re-partnering increased the fluidity of the family structure, requiring a realignment of family roles, which weakened family functioning and caused distress to the child (Brown, 2010; Price, 2010).

This finding has important implications, especially when considering the previous findings (see RQ2c) regarding the positive impact of a post-birth marriage to the child's biological father. Considering the finding that the families who end up with the biological fathers after much turmoil and transitions have children who are distressed and more aggressive, it would be important to avoid a blanket recommendation that partnering with the biological father is best. It appears that the *path* the mother took to arrive at partnering with the child's father, more than just marriage to the biological father, is also significant for the child. These findings indicate that multiple transitions that result in re-partnering with the child's father are significantly distressing for the child. Therefore, although marriage to the biological father predicted lower aggressive behavior at age 5, these findings suggest that simply ending up with the biological father may not be helpful to the child if the pathway leading to that end included much instability and multiple transitions.

Trajectory 1. Children in families who remained in a stably cohabiting relationship with the biological father for all five years (trajectory 1) exhibited *fewer* aggressive behaviors (compared to trajectory 4 – breakup with father, re-partner). Any family transition, according to

family stress theory, is a source of stress. Therefore, it is reasonable to assume that this stable relationship trajectory would create less stress (due to fewer relationship transitions) and thus the children would fare better than those in other groups. However, this trajectory may offer something more than just stability, because the other "stable" group (stably single) was not significantly related to aggressive behaviors. It is likely that having a stable biological father in the home provides more resources and less stress for children than having both a biological father, who is no longer living in the home, and a new father figure (social or step) in the home.

Trajectory 5. Children living in families whose mother was without a partner at the time of the child's birth and then later entered into a stable relationship with a new partner (trajectory 5), also exhibited lower behavior problems (when compared to either trajectory 4 or 8). The reason for these findings might lie in the type, rather than the number, of transitions. These children were born into and lived in a single (un-partnered) mother home for at least the first year of their lives. It appears that the re-partnership of the mother was positive for the child, if the child did not experience the "breakup" of his/her parents.

According to family stress theory, single mothers typically have few resources and higher stress and therefore, introducing a new partner into the family was experienced as a resource to the family rather than a stressor, as indicated by lower child aggression. This finding suggests that a new partner might bring both tangible and emotional resources to the family, which may contribute to overall reduction of family stress. One study found that when fragile family mothers re-partnered, the majority (60%) chose a man with higher economic capabilities than the child's biological father (Bzostek, McLanahan, & Carlson, 2012). This means that for fragile family mothers, entering into a stable relationship with a new partner might benefit the family by at least increasing financial resources.

From the child's perspective, another important element may be that he/she likely never formed a significant bond with the biological father, and never experienced the breakup of his/her biological parents, as this separation occurred prior to the child's birth. The child therefore transitioned from not having any father figure to gaining a social father or stepfather. From these findings, it can be assumed that remaining in a stable cohabiting relationship with the child's father or, for those whose relationship with the father ended prior to the birth, entering into a relationship with a new partner is positive for children.

Very few studies have examined relationship trajectories among fragile families, and these were limited to only an examination of the first transition (see Heiland & Liu, 2006). The current study contributes to the literature by systematically examining the numerous trajectories that occurred across four waves of data. These findings expand current knowledge about how the "fragility" (i.e., ever changing structure) of fragile families impacts children across time and support the hypothesis that the trajectories that lead to more stability and greater family resources contribute to better child outcomes. Specifically, there is some support that a stable, cohabiting (with biological father) trajectory is positive for children, as well as a re-partnering when it follows exclusive single motherhood. In contrast, trajectories of re-partnering following the breakup of the biological parents or multiple transitions leading to a re-partnering with the father are significantly distressing for children. While more study is warranted, these findings provide new information that the types of transitions and their various combinations lead to differences in aggressive behavior among fragile family children.

Mediation tests (RQ3b). Further analyses were conducted to learn whether parenting variables mediated the relationship of trajectories and aggressive behavior. It was expected that relationship trajectories would increase or decrease parental stress, which would impact the

parenting behavior, and as a consequence influence the child behavior outcomes (see Figure 10). This hypothesis was not fully supported and there were a few unexpected findings.

First, the significant relationship trajectories described above were not related to parental stress. One reason for this finding could be that the measure of parental stress did not completely measure the important aspects of family stress, as conceptualized in the model. Perhaps if another measure of stress were available to quantify the level of distress in the family, the trajectories that predicted aggressive behaviors would also predict stress, as theorized. It is also possible, that contrary to theory, these trajectories impact child behavior through another, unmeasured, means. Further study is needed to determine these processes.

Another unexpected finding was that the only two trajectories that were related to parental stress were not related to aggressive behaviors. Mothers who experienced a breakup with the child's father and then remained without a partner (trajectory 3) showed a 22% increase in parental stress. Similarly, mothers who went through several relationship changes, with both the child's father and new partners, but then ended up without a partner (trajectory 10) experienced a 26% increase in parental stress. These trajectories were similar in that both groups of mothers ended up without a partner, suggesting that the pathways that lead to single parenthood may also lead to higher parental stress.

Parenting stress predicted both higher spanking and lower maternal involvement. Likewise, both spanking and parental stress predicted higher aggressive behaviors, but maternal involvement was not related to aggressive behavior (see Figure 12). In terms of parenting behaviors, trajectory 4 (i.e., breakup with biological father and re-partnering) was related to an increased likelihood of having ever spanked, but no trajectory was related to maternal

involvement. Trajectory 8 (i.e., multiple transitions, ending with the father) was not related to any of the proposed mediating variables.

The mediation test showed that even with the addition of the parenting variables, the significance of trajectories 4 and 8 remained (with trajectory 1 as a reference group), but these reduced the coefficients by 17.22% for trajectory 4 and 1.72% for trajectory 8. Individual mediation tests showed that none of the parenting variables was a mediator for the trajectories with a significant relationship with aggressive behaviors. A rejection of these mediation hypotheses suggests that stress and parenting (as measured here) may not be a highly significant factor in explaining why each of these trajectories impacted the child's behaviors. Further study is needed to understand the factors and processes that underlie these results.

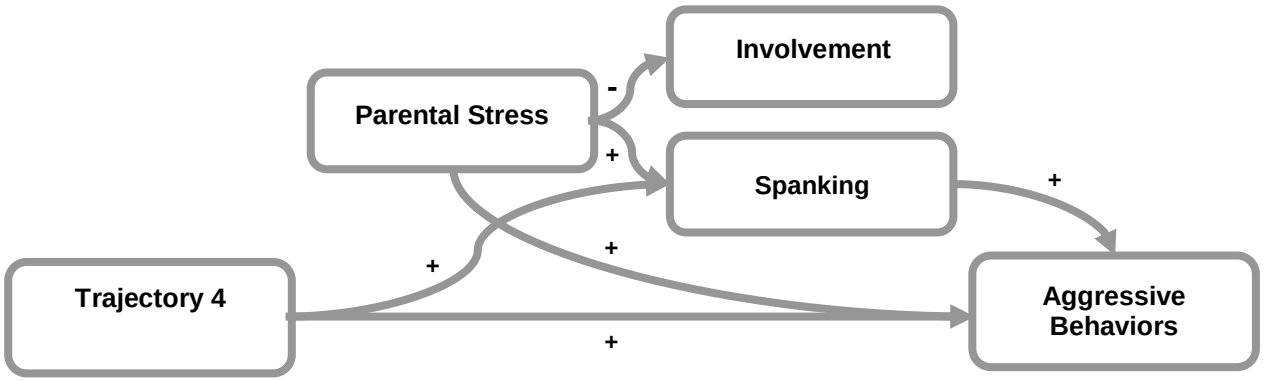

Figure 12. Relationship Among Variables (RQ3b)

RQ2e: Family Instability: Number of Transitions *What is the relationship between the number of relationship transitions and child behavior problems? Are these mediated by parenting?*

The final element of this study was a test of whether family instability, measured by the number of transitions, would predict behavior problems. Fragile families experience more parental partnership changes than children born to parents who are married (Osborne &

McLanahan, 2007; Brown, 2010). In the analytic sample, only 16% had experienced stability (i.e., no relationship changes) in the first five years. In contrast, 35% experienced one transition, 29% experienced two transitions, and 21% experienced three to six transitions by the time the child was five years old. It was proposed that perhaps the stability a post-birth marriage might bring, rather than the marriage itself would be the critical factor in determining child wellbeing, and thus the impact of stability was tested.

According to theory, family transitions, both normative and "off-time," tend to create a temporary disturbance in the family processes and organization, which causes stress (Cavanagh, 2008; White & Klein, 2002). Family stress theory also posits that stress can accumulate across time, which may intensify the level of strain felt by family members (Volling, 2012). Therefore, it was hypothesized that greater numbers of transitions would predict higher aggressive behaviors. This hypothesis was supported; specifically children in families that experienced three or more transitions (up to six) exhibited higher aggressive behaviors (not for internalizing behaviors). This finding supports previous research that showed family transitions (e.g., relationship formations, dissolutions, and changes in habitation) to be associated with increased behavior problems (Heiland & Liu, 2006; Osborne & McLanahan, 2007; Cavanagh, 2008). These findings also mirror a study of fragile families that found that greater number of transitions predicted externalizing behavior and not internalizing behavior (Cooper, et al., 2011).

Mediation tests (RQ3c). Parenting behavior and stress were tested as potential mediators of the relationship of family instability and aggressive behaviors. It was hypothesized that greater numbers of transitions would increase parental stress, which would reduce the quality of parenting (i.e., lower involvement, more spanking), and result in higher aggressive behaviors. This hypothesis was not supported.

First, unexpectedly, family instability was associated only with maternal involvement and spanking, but not parental stress. Specifically, having experienced only two transitions was related to an increased likelihood of spanking. Mothers who experienced more than one transition reported higher maternal involvement, specifically time spent reading and telling stories. As was reported above, parental stress predicted lower maternal involvement and higher likelihood of spanking. Likewise, parental stress and spanking were linked to higher aggressive behavior, but maternal involvement was not significant (see Figure 13).

When all three parenting variables were added to the model, the 3-6 transitions category remained significant, but parental stress was the only significant parenting variable in the model. The addition of the parenting variables reduced the 3-6 transitions coefficient by 9.11%. None of the individual parenting variables met the criteria for mediation tests; therefore, there is insufficient evidence to conclude that parenting is the process by which family instability impacts child behaviors.

A rejection of this mediation hypothesis is contrary to the findings reported by Osborne and McLanahan (2007), who found both maternal stress and parenting quality to be partial mediators of the relationship between transitions and child behaviors. This also conflicts with the findings reported by Beck and colleagues (2010) who found that the instability that accompanied relationship transitions in a sample of fragile families in the first five years was associated with higher stress and harsher parenting behaviors for mothers in cohabiting and dating relationships. One reason for the findings in the present analysis is that marriage to the biological father was counted as a family transition. Therefore, families who experienced one or two transitions may have been moving towards marriage to the biological father, which has been shown to have a positive impact. There may be other processes that were not measured in this study that might

explain these relationships. However, these findings suggest that, unless the family experiences more than three transitions, family instability alone does not influence child behaviors, likely because it had little impact on parental stress.

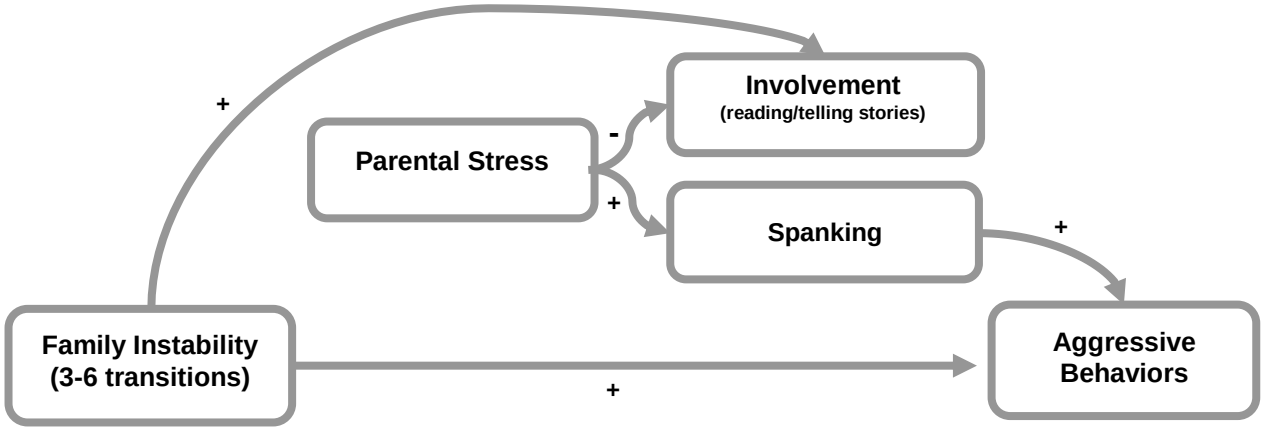

Figure 13. Relationship Among Variables (RQ3c)

Limitations

The findings from this study offer greater understanding regarding elements of post-birth marriage/romantic relationships and their relationship with child behavior outcomes. However, there are several limitations that should be considered when interpreting these findings. First, the clinical significance of these findings is moderate because these models only explained a small fraction of the variance of child behaviors. Therefore, when interpreting these findings, one should be careful not to give too much weight to the impact of a select few of the many potential factors that explain child behaviors. Furthermore, limitations such as will be described below should be taken into account when interpreting these findings.

Population Inference

One limitation was that the sample is not nationally representative of all parents and children and therefore can only be generalized to fragile families living in urban settings. The sample included only children ages five and younger; the behavior patterns of early childhood

may differ from later patterns of older children. Furthermore, as was noted in Chapter 3, in the selection of the RQ2d sample, 16% of the participants were dropped because of incomplete data. These participants were more likely to be Hispanic, and had lower education, income, and religious activity. Some of these characteristics may have inhibited the participants from completing the survey items. Therefore the RQ2d sample may be biased towards slightly more advantaged participants. However, demographic controls were included in each model to lessen any systematic biases in the data.

Response Bias

Common limitations of self-reported data may have been present in this study. For instance, some participants may have misunderstood the questions, offered only socially desirable answers, and/or had difficulty recalling correct information. Additionally, the study's main dependent variable, child behavior, was constructed from reports made by the mother rather than an objective observer. The mother may have overstated or understated her parenting behaviors so they were in line with current parenting recommendations or with desired behaviors, even if she was not engaging in these behaviors. She may have also underestimated or exaggerated reports of her child's behavior. Such errors may have impacted the findings.

Research Design

There were some limitations in terms of research design and methods. First, only relatively short-term consequences of marital status and parenting behaviors (five years) were examined. Second, because these data were non-experimental, it cannot be concluded with certainty that the observed associations were causal in nature. Third, a possible omitted variable bias must be considered. Although a rich set of control variables was included in each analytic

model, it is possible that unmeasured variables led to each of the reported outcomes. For instance, all factors that contribute to a post-birth marriage may not have been measured and tested (RQ1). Likewise, some of these unmeasured and uncontrolled factors may explain some of the differences in child behaviors, parental stress and parenting behaviors (RQ2-3). Unobserved differences may bias the results and therefore causal conclusions should not be made.

Measurement Error

Finally, limitations in terms of measurement also may have impacted these results. First, when interpreting these outcomes, it is important to remember that the child behavior scales were adjusted (logged) in order that the distributions meet the assumptions of regression analyses. Second, there were limitations on how the trajectory and transition variables were created. For instance, the FFCWS data does not include specific items asking this information and therefore these had to be created and calculated following a complex process of coding. One restraint when creating the final trajectory variable was that many possible trajectories had to be condensed into fewer, more general, categories. In so doing, potentially important factors, such as the timing of specific transitions or the marital status of participants were lost. It is possible that these might have been conceptualized in other ways that may prove more informative. As for the transition variable, it is likely that the total number of transitions was underestimated because data were limited to year 1, 3, and 5. Thus many more changes could have occurred between waves of data that were not included in these calculations. It is possible that more complete data might have produced different results.

Third, it was impossible to completely clarify important relationships from the available data. For instance, it was unclear whether the new partner was the same person across waves or if the mother had entered into a relationship with several new partners. In addition, information

regarding the mother's relationship history prior to the formation of the fragile family was not available. This history may have impacted her likelihood of entering into a post-birth marriage and her cumulative stress. The mother's mental health status at baseline was also not available to serve as a control for mental health.

Fourth, the analysis of the predictors of post-birth marriage (RQ1) gave some indication regarding the possibility of omitted variables bias. It is reasonable to assume that child outcomes could be influenced by the same characteristics that led some mothers to marry and others to remain single (and not the marriage itself). In order to test a possible omitted variables bias, child behavior outcomes were regressed on all of the significant predictors of post-birth marriage.. The findings showed that mother's education, race/ethnicity, and hope to marry were related to internalizing behaviors and income was related to aggressive behaviors. However, when hope to marry was added to the full models predicting child behavior, this factor was not significant. In order to control for any possible systematic bias based on selectivity of the sample, a rich set of demographic variables was included in each model.

It is possible that the insignificant findings may have been the result of poorly constructed measures and omitted constructs rather than flaws in the theory. In terms of parenting variables, this study did not include other possibly relevant parenting constructs, such as control, authoritativeness, nurturance, and monitoring. It is also important to note that maternal warmth was purposefully removed from these analyses because of lack of variance in the variable and its high correlation with involvement. Other measures of warmth might have provided more variability in the responses. Furthermore, including the observational parenting data provided by FFCWS also may have proven valuable in this study. As noted previously, the measure of parental stress did not capture all aspects of stress experienced by the mother and

may not be the best indicator of the stress in the family system. The measure included four questions focused on the mother's stress surrounding parenting, but does not include factors such as overall stress (i.e., work related stress, relationship stress, etc.), which may have been important indicators of family stress.

It should also be noted that no variable was included in these models to directly measure the impact of resources. The study had set out to determine whether post-birth marriage functioned as a stressor or a resource for fragile families, which was inferred, based on theory, by the presence of positive or negative child behaviors. Further research investigating the specific resources a post-birth marriage brings to the fragile families may be warranted, but was beyond the scope of this study. It is likely that a post-birth marriage contributes more than monetarily to the family system, by perhaps increasing productivity due to social learning, pooling resources and specialization. Such a marriage may also increase stability in the family, and provide greater emotional, social, and parental support to the mother. However, none of these intangible factors was measured in this study, thus none could not be included in the analytic models. Based on these findings, however, a post-birth marriage may not have an impact on the family's resources that is significant enough to impact the level of stress experienced by the child. That a post-birth marriage to the biological father reduced parental stress suggests this marriage might be functioning as a resource for the family (i.e., reducing stress). However, further research is needed to learn the specific resources a post-birth marriage brings to the family that have a stress-reducing effect on the system and child.

Another variable that was not included in the models predicting child behavior was relationship quality. Previous research has indicted that relationship quality is important in explaining child behavior problems, and may be more significant than family stability in a

sample comparing married and unmarried cohabiting families (see Fomby & Osborne, 2010). However, in this sample of exclusively fragile families, it was found that relationship quality did not predict the occurrence of any post-birth marriage and also was not related to child behavior outcomes (see RQ1 results). For this reason, this variable was not included as a control in the models for research questions 2 and 3. However, it should be note that a further analysis did show that the quality of the parents' relationship at baseline did predict whether the mother married the child's father in the first five years. Therefore, further study is warranted to determine how relationship quality (at baseline and perhaps in the subsequent years) is related to parental stress, parenting behaviors, and child behavior outcomes.

More information regarding the father and/or new partner is available in the FFCWS database, but it was not included in these analyses. Further analyses that include information regarding the father's contribution to the family system, the father's parenting behaviors, and the father's level of parenting stress might provide a clearer picture of the relationship between family structure variables and child behavior outcomes in fragile families.

Strengths

One of the study's strengths was the rich set of controls included in each model of analysis. One of these important controls was the child's temperament, which was a significant predictor in each of these analyses. Child temperament, as measured by emotionality levels in the first year, is an indicator of an underlying disposition towards aggressive behaviors. Although this variable was not the focus of the study, the results consistently showed that child temperament was highly associated with child behavior problems (i.e., internalizing and aggressive behaviors). A measure of early child behaviors was not included as a control in the models because such a measure was not available until wave III, a wave that, unfortunately, had

a significantly smaller sample size. Therefore, including this variable would have reduced the total sample size and the representation of the sample. It was also important that the analysis capture the churning that might occur within these fragile families in the first few years; the decision was made to begin the study at birth, to include child temperament at year one but not to compare child behaviors at age 5 with child behaviors at age 3. Although temperament should adjust for the child's relatively permanent and long-term disposition towards aggression, it is not measured using exactly the same scale. Therefore, when interpreting these findings, one should remember that the outcome variable was the level of aggressive behavior at age 5 rather than the change in child behavior from birth to age 5.

Despite these limitations, this study offers a meaningful contribution to the current body of literature regarding aggressive behavior in early childhood and fragile family relationships. For instance, in response to some of the limitations common with non-experimental research design, this study included a large set of demographic controls to adjust for any possible systematic biases in the sample. Furthermore, this study provides an in-depth and systematic examination of many of the complexities of post-birth marriage and romantic relationships among fragile families, rather than just a study comparing married with unmarried families. Furthermore, this study examined many possible mediating processes that offer additional insight into how these relationships function.

Implications

Future Research

The findings provide useful implications for future research, program development, and public policy. The next steps for research should be to, first, investigate further these significant findings by examining their relationship with other measures of child behaviors available in the

FFCWS data, such as the positive behavior scale, social problems scale, and attention behavior problems (e.g., ADHD) scale. A second step should be to test the proposed mediation model using other measures of parenting available in the FFCWS data, which include some observational data. Third, the trajectories variables might be further clarified and re-coded to retain possibly important information regarding the timing of these transitions. Another step might be to measure child behavior at wave 3 as well as 5 to see if there is any change in child behavior that corresponds to the changes in the mother's romantic relationships. Finally, it might prove insightful to examine the timing of a post-birth marriage to the child's father.

Future studies might include an examination of the role of child temperament in the relationship of child behavior and romantic relationship patterns among fragile families. Other studies may examine racial/ethnic differences in marriage and relationship patterns and if these moderate the impact on the children. Understanding how the father's characteristics and parenting behavior are impacted by post-birth marriage, changes in romantic relationships, and parental stress, would also expand the relevance to and understanding of child behavior problems. Finally, examining the long-term impact of post-birth marriage and other relationship changes on child well-being would be important as other waves of data become available.

Clinical and Program Implications

These findings have implications for clinical interventions and program development for those working with fragile families. In terms of clinical interventions, therapists working with children in fragile families might consider interventions that could reduce the level of stress in the family system, particularly the mother's parental stress. This study shows that marriage to the biological father has the potential to reduce the mother's stress and may contribute in part to improved child behavior outcomes. Thus, rather than focusing only on the child's individual

behavior problems, the therapists should consider the larger family system. Interventions might include efforts to strengthen the relationship of the child's parents (if they are married), and/or encourage marriage between cohabiting biological parents. Also providing parenting support (i.e., parenting classes, books, support groups, etc.) might be a helpful intervention, so that the mother can be empowered to use strategies other than spanking for discipline.

In terms of program development, these findings could inform programs that encourage marriage among low-income populations. The Healthy Marriage Initiative and similar programs were founded on the belief that marriage universally "promotes interests of children" (US Congress, as cited by Brown, 2010, p. 1601). Such initiatives that promoted marriage were developed under the assumption that marriage might enhance the well-being of children living in low-income families (Brown, 2010). However, the current study has shown that simply the occurrence of a post-birth marriage among fragile families has little measurable impact on the child's internalizing and aggressive behaviors. Therefore, programs that assume that marriage alone will be an effective solution may not yield the anticipated results.

These findings highlight important elements of the parent's romantic relationship that predict higher aggressive behaviors, namely (1) the mother's non-marriage to the child's biological father, (2) the child experiencing the dissolution of the biological parent's relationship and the mother's re-partnering or experiencing multiple relationship transitions and re-partnering with the biological father during a relatively short period of time, and (3) the child experiencing three or more family transitions. In addition, in terms of parenting factors, (1) the child having a mother with higher parental stress, and (2) the child that had ever been spanked likely exhibited higher aggressive behavior. Thus, according to family stress theory and these findings, in order for a program to effectively impact child wellbeing it would need to provide resources (i.e.,

social, emotional, skills, etc.) to alleviate some of the mother's stress in order to enable and encourage productive behaviors. Recommendations supported by this study are marriage to the biological father, stability in the family structure, and positive parenting practices. For programs aimed at helping fragile families, targeting the above mentioned elements of family structure and parenting might prove more effective interventions for child wellbeing than simply encouraging any marriage.

There are also implications for programs aimed at helping unmarried new parents. These findings show that *marriage* to the biological father, rather than just cohabiting with him is significantly linked to lower child distress and aggressive behaviors. These findings also show that higher quality relationships and cohabitation at the time of the child's birth are a few factors that predict post-birth marriage. Furthermore, a stable, cohabiting relationship led to better outcomes than a trajectory full of relationship changes that ended up with the child's father. Considering these findings, programs targeting new unmarried parents (i.e., early in their relationship trajectory) might ultimately benefit the child if effective interventions are provided to increase relationship quality and encourage marriage and stability among biological parents. In order to encourage a more stable relationship trajectory among fragile families, program developers should consider ways to disseminate the information gained by this study regarding the positive effect of a post-birth marriage to the child's father and the risks other factors of relationship insecurity and change can have on the child.

Policy Implications

This study shows that those who are unmarried at the time of the child's birth are at a high risk of experiencing multiple changes in the family structure in a relatively short time, and that marriage alone does not predict child behaviors. Considering these findings, policies that

support any marriage among fragile families may not be as productive at reducing family stressors and increasing family resources as was assumed. These findings suggest that policies that support family stability and marriage to the biological father might have a more significant impact on the family and child. Furthermore, fragile families experience significant disadvantage and may need external support to maintain more stable family structures. As was discussed in greater detail in the first chapter, social, economic, and cultural factors impede disadvantaged populations from marrying. Therefore, policies that help to reduce some of the barriers of marriage to the child's father, common to many fragile family parents, should also be sustained.

Conclusion

This study set forth to understand the impact of a post-birth marriage on child behaviors among fragile families. Marriage, as an institution, has been highly valued among many groups in the United States. However, in the last half a century a trend away from marriage prior to childbirth has grown. As the numbers of fragile families have increased, so has the concern regarding the welfare of these families and the children growing up in these "non-traditional" environments. Perhaps based on the frequency with which the structures of families that began with a non-marital birth dissolve, some researchers have labeled these families as "fragile." If the lack of marriage was the reason these families were classified as "fragile," then a post-birth marriage should transform fragile families into sturdy families. Many initiatives were founded on these assumptions, but without the knowledge of whether marriage following the child's birth really has any impact on the child's wellbeing for children of fragile families. This study examined these assumptions in an effort to learn of their validity, but also to better inform individuals interested in helping fragile family children.

In order to accomplish these aims, the study systematically examined factors that contribute to the occurrence of such a marriage, various dimensions of post-birth marriage that were related to child behaviors, and parenting processes that acted as potential mediating factors. An extensive body of literature, comparing married to unmarried families, has produced much evidence that marriage is beneficial to children. However, these studies are limited in that they generally do not distinguish a pre-birth marriage from post-birth marriage among fragile families. Because fragile families are distinct in many important ways from families that marry prior to having children, it was important to examine the question about the impact of marriage exclusively in a sample of fragile families.

The study, based on family stress theory, set out to determine whether a post-birth marriage would function as a stressor or a resource for fragile families, as determined by child behavior outcomes. The findings indicate that for fragile families, the occurrence of a post-birth marriage makes no difference to child behaviors, nor does the timing of this event. Theory would suggest that marriage as an institution provides fewer benefits to families of a lower socioeconomic status and therefore these potential resources did not buffer the heavy stressors with which most fragile families are burdened. However, these analyses revealed that if the mother had married the biological father, the child exhibited fewer aggressive behaviors and the mother reported lower parental stress. This finding implies that for fragile families, the resources that accompany marriage and having a biological father in the home were significant enough to buffer against the stressors other fragile families face.

Other factors that were important in understanding child behavior outcomes were the relationship trajectories as well as the total number of relationship transitions that occurred in the first five years. These findings indicated that not only with whom the mother partnered but also

the relationship journey she and her children experienced along the way were significant to the child. Children who lived through the social divorce of their biological parents followed by the entrance of a new father figure into the home were significantly distressed, as indicated by higher aggressive behaviors. In addition, even when re-partnered with the father, children whose mothers experienced a series of relationships in the interim also exhibited high aggressive behaviors. These findings show that not only are the number of transitions important, but the type or quality of the trajectory has an impact on the child's well-being. Thus, elements such as family stability and remaining with the biological father were resources for fragile families.

Finally, this study examined important family processes that may have influenced these findings. Parenting stress mediated the relationship of marriage to the child's father and child aggressive behaviors, suggesting that this type of post-birth marriage may impacts the child by reducing family stress. Although further study is needed to understand completely these relationships and processes, these findings contribute to the growing body of knowledge regarding fragile families and child behavior problems and have important implications for future research, program development, and public policy.

In conclusion, this study produced evidence inconsistent with the assumption that marriage alone is an effective intervention in aiding fragile family children, at least in terms of impacting child behaviors. These findings suggest that more than just having a marriage certificate between two willing parties, keeping biological parents together over the long term is what may be beneficial to children in fragile families. Such a stable relationship may provide sufficient family resources to combat the stressors typically faced by many fragile families, reducing the mother's parental stress, and decreasing the child's aggressive behaviors. Further

research is needed to tease out the further complexities of the romantic relationships of fragile family parents versus parenting relationships and how these impact the child.

APPENDIX A

Table 4. Child Behavior Subscales

Aggressive (Full scale: 20 items)	N	Item
Child agues a lot	2978	L1
Child brags or boasts	2960	L2
Child is cruel, bullying, or mean to others	2975	L7
Child demands a lot of attention	2832	M4B4B16 /M4B29A16
Child destroys his/her own things	2976	L9
Child destroys things belong to his/her family or others	2976	L10
He/She is disobedient at home	2968	L12
He/She is disobedient in school	2945	L13
Child is easily jealous	2976	L16
He/She gets in many fights	2977	L21
Child physically attacks people	2975	L33
Child screams a lot	2976	L40
Child is showing off or clowning	2971	L45
Child is stubborn, sullen, or irritable	2826	M4B4B11 /M4B29A11
Child has sudden changes in mood of feelings	2831	M4B4B12 /M4B29A12
Child talks too much	2973	L56
Child teases a lot	2976	L57
Child has temper tantrums or hot temper	2831	M4B4B13 /M4B29A13
Child threatens people	2975	L59
Child is unusually loud	2970	L62
Alpha based on full sample: .85		

Table 4. Child Behavior Subscales (cont)

Withdrawn (Full scale:9 Items)	N	Item
Child would rather be alone than with others	2974	L25
Child refuses to talk	2976	L38
Child is secretive, keeps things to self	2971	L42
Child is shy or timid	2978	L46
Child stares blankly	2972	L47
Child sulks a lot	2956	L52
Child is underactive, slow moving, lacks energy	2969	L61
Child is unhappy, sad, or depressed	2831	M4B4B15/ M4B29A15
Child is withdrawn, doesn't get involve w others	2826	M4B4B17 /M4B29A17
Alpha based on full sample: .60 (n=3,001)		

Anxious/Depressed (Full scale: 14 Items)	*N*	*Item*
Child complains of loneliness	2977	L5
Child cries a lot	2832	M4B4B4/M4B29A4
Child fears s/he might think/do something wrong	2971	L17
Child feels s/he has to be perfect	2972	L18
Child feels or complains no one loves him/her	2975	L19
Child feels others out to get him/her	2974	L20
Child feels worthless/inferior	2822	M4B4B18/M4B29A 18
Child is nervous, high strung, or tense	2827	M4B4B9/M4B29A9
Child is too fearful or anxious	2830	M4B4B14/M4B29A 14
Child feels too guilty	2971	L29
Child is self conscious or easily embarrassed	2977	L43
Child is suspicious	2972	L53
Child is unhappy, sad, or depressed	2831	M4B4B15/M4B29A 15
Child worries	2973	L65
Alpha based on full sample: .68 (n=3,001)		

APPENDIX B

Trajectory 1: Stably Cohabiting with Biological Father (*n = 279)*			
Transition 1		Transition 3	N
No change (cohabiting with father)		No change (cohabiting with father)	271
Decreased commitment (still with father)		No change (cohabiting with father)	8

Trajectory 5: Without a partner at the child's birth, re-partnered later (*n = 85)*			
Transition 1		Transition 3	N
Single (relationship with father ended prior to birth)	With a new partner	Remained with new partner	28
Single (relationship with father ended prior to birth)		With new partner	52
Single (relationship with father ended prior to birth)	With a new partner	Decreased but remained with new partner	5

Trajectory 4: Break-up with Biological Father, re-partner (*n* = 302)			
Transition 1		Transition 3	N
increased with father		end with father, increase with new partner	31
no change with father		end with father, increase new partner	48
no change with father	end with father and new partner	decreased with new partner (but still together)	6
ended with father, new partner		No change/still with new partner	46
Ended with father, new partner		Increase/ still with new partner	27
Ended with father, new partner		Decrease with new partner	7
Ended with father	With a new partner	No change	32
Ended with father	With a new partner	Increase	94
Ended with father	With a new partner	Decrease	3
Decrease with father		End with father, with a new partner	3
Decrease with father	End with father, new partner	Still with new partner	1
Decrease with father	End with father, new partner	Increase with new partner	6
Decrease with father	End with father, new partner	Decrease with new partner	0

Trajectory 8: Multiple changes, back with father (*n = 104)*			
Transition 1		Transition 3	N
Increase with father	Ended with father, new partner	End with new partner, increase with father	2
No change, with father	Ended with father, new partner	End with new partner, increase with father	2
Single (breakup was before birth)		Back with father at the end	5
Single (breakup was before birth)	Back with father	Decrease with father	1
Not with father at birth, increase with new partner	Ended relationship with new partner	Increased with father	2
Not with father at birth, increase with new partner	Ended relationship with new partner	No change, with father	3
Not with father at birth, increase with new partner		Ends relationship with new partner, increases relationship with father	2
Breakup with father before year 1, with new partner	Ends relationship with new partner	Back with father	5
Breakup with father before year 1, with new partner	Ends relationship with new partner, gets back with father	No change with father	1
Breakup with father before year 1, with new partner		Ends relationship with new partner, gets back with father	1
Breakup with father		Back with father again	20
Breakup with father	Back with father again	Still with father	19
Breakup with father	Back with father again	Still with father, but decreased	1
Breakup with father	With new partner	Ends with new partner, gets back with father	3
Increase with father		Decrease with father	19
No change with father		Decrease with father	20

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