

**Father Involvement: Conceptualizing, Synthesizing, and Testing the Effects on Children's
Behavioral, Socioemotional, and Educational Outcomes at Middle Childhood**

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SYNTHESIZING & TESTING THE EFFECTS OF FATHER INVOLVEMENT

Abstract

A systematic search was conducted across eight databases using the keywords: “measure*, scale*, father* or paternal*, and involve*. A final sample of 17 studies were identified for a systematic review. A total of eleven (five child-reported and six father-reported) father involvement scales were used in the studies. Guided by a heuristic contextual model of father involvement, secondary data from Waves 5 and 9 of the Fragile Families and Child Wellbeing Study were analyzed to assess the effects of father involvement (mother and father report of father involvement) at five years of age on children’s internalizing, externalizing, and delinquency behaviors and nine years of age and the effects of father involvement on academic performance measured at middle childhood. The findings of the systematic review offer foundational support to expand evidence-based practices of parenting techniques to responsible fatherhood programs. Path analyses found that mother-reported father involvement was significantly negatively predictive of child externalizing behaviors in girls and delinquency in boys, and significantly positively predictive of academic performance in boys, even after controlling for the effects of father age, socioeconomic status/income, education, relationship with child’s mother, and health, and including the effects of mother involvement in the models. Mother involvement was significantly positively predictive of child externalizing in girls and delinquency in boys.

Keywords: academic performance, child outcomes, externalizing behaviors, father involvement, internalizing behaviors, synthesization

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Dedication

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Chapter 1: Introduction - Statement of the Problem

The extant literature has identified linkages between educational and behavioral outcomes in children and various family and parenting factors (Goodman, et al., 2011; Kawabata, et al., 2011). Researchers have found father involvement to be negatively correlated with socioemotional and delinquent behaviors (Amato & Rivera, 1999; Carlson, 2006) and positively correlated with academic performance (Flouri & Buchanan, 2004; Yogman, Kindlon, & Earls, 1995). Socioemotional and delinquent behaviors are generally characterized as externalizing behaviors (e.g., delinquency, conduct problems, aggression) and internalizing behaviors (e.g., depression and anxiety) (Otto, et al., 2015). This relationship is of interest because academic performance and achievement in children is consistently found to be strongly correlated with juvenile delinquency and academic performance, externalizing, and internalizing behaviors are predictors of adult offending (Copeland, et al., 2009; Maguin & Loeber, 1996).

Before delving deeper into father involvement and the effects of father involvement on child outcomes, it is prudent to first understand fatherhood and secondly parenting before illustrating the conceptualizations of father involvement, the operationalization of involvement activities, and the effects of father involvement behaviors on child outcomes.

Review of Relevant Literature

Conceptualizing Fatherhood

According to Pleck (1984), the conceptualization of fatherhood has evolved over four phases, spanning the past two centuries of American history (Lamb, 2000). Within each one of these phases, we must keep in mind the historical events which may have influenced the conceptualization of the role of father. The first role of the father began its conceptualization in Phase 1 which started during the Colonial Period and lasted through the Revolutionary Period (Lamb, 2000). This role saw the father as the moral teacher or guide for his children; assisted by

the Bible, fathers provided the moral oversight and teaching, in addition to the education of their children (Lamb, 2000). Based on a study by Demos (1982) and supported by Pleck (1984), a good father was defined as one that served as a “model of good Christian living and whose children were well versed in the Scriptures” (Lamb, 2000, p. 26).

As the United States evolved from a rural nation into a leading industrial power between the Civil War and World War I, so did the concept of fatherhood ("About the USA, history, growth and transformation," 2008). Phase 2 saw the conceptualization of fatherhood move from moral teacher and guide, to the role of breadwinner. With the opening of factories and steel mills and growth in the petroleum and textile industries from the mid-nineteenth century through the Great Depression (Pleck, 1984), fathers came to be largely defined and thus measured or qualified as being a “good father,” by their ability to provide financially (Lamb, 2000, p. 27).

Phase 3 of the conceptualization of the fatherhood role saw a shift in the late 1930s and early 1940s. By the 1940s the country had experienced a great deal of change, two World Wars, a Great Depression, and recovery in the form of the New Deal (Lamb, 2000). This new era called upon fathers to be strong sex-role models. Bandura and Walters (1963) found that children learn sex roles by modeling their parents or another close adult of the same sex. The definition of a good father was now dependent on the father’s ability to function as a strong sex-role model, especially for their sons (Pleck, 1984). Despite this desire for fathers to be strong sex-role models, many fathers were unable to achieve this role (Levy, 1943; Strecker, 1946; Wylie, 1942). These deficiencies were underscored in the popular culture of the time (e.g., comedies, comic strips, movies) (Lamb, 2000).

Over the next few decades a Fourth Phase saw the emergence of a new conceptualization of fatherhood, the nurturant father. During the mid-1970s this concept saw the new role of father,

as actively involved in the day-to-day care of their children (Lamb, 2000). Fathers level of involvement was now the ruler by which a “good father” was measured. Griswold (1993) found that this change was not sudden and unprovoked; fathers were encouraged for decades prior to this increased involvement. But it was not until the 1970s that a significant change occurred in the defining importance of father involvement (Lamb, 2000).

Parenting

Disentangling two main aspects of “parenting” will afford a better opportunity to understand “how” parenting, and more specifically father involvement, influences child outcomes. Generally, parenting is categorized as parenting styles (emotional climate) (Baumrind, 1967) or parenting practices (activities/behaviors) (Darling & Steinberg, 1993). Parenting styles will be briefly contrasted with parenting practices, followed by a review of literature on parental involvement, conceptualizations of fatherhood, father involvement, father involvement and socioeconomic status (SES), and the effect of involvement on educational, socioemotional, and behavioral outcomes in children. In this dissertation, the influence of paternal parenting practices (father involvement) will be measured by child’s academic performance (educational), externalizing behaviors (behavioral), and internalizing behaviors (socioemotional).

Parenting Styles vs Parenting Practices

Parenting styles. Within the extant literature, parenting styles and parenting practices are terms with similar meanings that have been, and are often, used interchangeably. However, these terms conceptualize “parenting” in distinct ways. Several researchers have identified *Parenting style* as the attitudes and behaviors that dictate how parents interact with their children across a myriad of domains of parenting (Baumrind, 1971; Power, 2013; Ventura & Birch, 2008) categorized into four distinct parenting styles or typologies. Baumrind (1967) identified three

parenting styles: 1) authoritarian (high demandingness /low responsiveness); 2) authoritative (high demandingness /high responsiveness); and 3) permissive. Maccoby and Martin (1983) added a fourth construct by bifurcating Baumrinds' permissive construct into two concepts: indulgent (low demandingness /high responsiveness) and neglectful/uninvolved (low demandingness/low responsiveness).

Parenting practices. Parenting practices refers to measurable activities that describe, or identify, how parents "parent." Darling and Steinberg (1993) defined parenting practices as specific behaviors that parents use to socialize their children. Parenting literature has largely focused on three concepts of parenting practices: 1) parental involvement (attending parent-teacher conferences, helping children with homework); 2) parental monitoring (after-school activities, completion of homework, checking on school progress); and 3) parental goals, values, and aspirations (internal representations of desired states or outcomes that parents hold for their children) (Spera, 2005).

Conceptualizing Father Involvement

Lamb, et al., (1987) conceptualized one of the earliest models of father involvement with three components: interaction, availability, and responsibility. Lamb, et al. (1985), further explained *interaction* as direct interaction with the child, in the form of caretaking, or play or leisure; *availability* is related to interaction in the sense of the father being accessible to interact with the child; and *responsibility*, referred to the level in which the father ensured the child was taken care of, or provided resources for the child. Lambs' three-dimensional model set the foundation for researchers to further re-conceptualize father involvement.

McBride and Mills (1993) added to the Lamb, et al. (1985) model by creating four subcategories of engagement: play, functional, parallel, and transitional. The engagement

component of McBride and Mills model paralleled Lamb et al. interaction dimension but expanded to include the nature of the interaction activities. For example, play interaction consisted of child-centered activities both father and child engage together. Whereas functional interaction contains activities more associated with father caregiving. Parallel interaction is the converse of the playful interaction, where father and child are participating in an adult-centered activity. Lastly, transitional interaction entails the father assisting the child with a task the child is fully capable of doing themselves (e.g., bedtime routine).

Palkovitz's (1997) model conceptualized father involvement by operationalizing activities in three overlapping father involvement domains: 1). cognitive (thought processes, child-related maintenance); 2). affective (communication, teaching, caregiving, affection, supporting emotionality); and 3). behavioral (monitoring, errands, shared interests, availability, planning, shared activities, providing, protection) encompassing fifteen categories. This model exemplifies the need for viewing father involvement as a "multidimensional" construct (Schoppe-Sullivan, McBride, & Ringo Ho, 2004).

Pleck (2010) re-conceptualized father involvement using three primary domains: 1) positive engagement activities, interaction with the child of the more intensive kind likely to promote development; 2) warmth and responsiveness; 3) monitoring and decision making; and two secondary components: 4) indirect care, do not entail interaction with the child; and 5) process responsibility, referring to a father's monitoring that his child's needs for the first four components of involvement are being met.

Operationalizing Father Involvement

One of the earliest instruments used to measure father involvement was a self-report questionnaire (Easterbrooks & Goldberg, 1984) designed to gauge father involvement in child

rearing activities (e.g., diapering, feeding). The instrument identified fifteen child-care activities grouped into three overarching father involvement variables: 1) amount of father-child time alone; 2) amount of father-child time in play; and 3) father participation in caregiving (Easterbrooks & Goldberg, 1984).

Guided by Pleck et al.'s (1985) model, Brown, Mangelsdorf, and Neff (2012) developed a fourteen-item childcare scale, adapted from the Parental Responsibility Scale (PRS) (McBride & Mills, 1993). The first two domains of the Brown, Mangelsdorf, and Neff model, "Interaction and Accessibility," was assessed using the Interaction/Accessibility Time Diary interview protocol (McBride & Mills, 1993). The PRS measured the Responsibility dimension of the Lamb, et al., (1985) father involvement domain, and contained activities parents and fathers, would normally participate (e.g., making childcare arrangements, dressing, bathing) in or for their children.

The Caregiver-Child Affect, Responsiveness, and Engagement Scale (C-CARES) (Tamis-LeMonda, et al., 2002), and the Meadow-Orlans Mother-Child Interaction Scales (Meadow & Schlesinger, 1972) measured 18 father behaviors. Shannon, Tamis-LeMonda, and Margolin (2005) separated the eighteen measures in two categories: twelve responsive-didactic items and six negative-overbearing items.

The Inventory of Father Involvement (IFI) developed by Hawkins et al., (1999) was used to measure behavioral, cognitive, affective, and moral/ethical dimensions of indirect and direct father involvement. Hawkins and Palkovitz (2002) developed a shorter version of the IFI with just 26 items that identified nine distinct dimensions of father involvement.

Wood and Repetti's (2004) ten-item scale was developed to assess father's perceptions of their child caregiving activities. The Wood and Repetti (2004) scale assessed four areas of father involvement: 1) Indirect father involvement; 2) Social-emotional functions; 3) Custodial

caregiving functions; and, 4) Instructive functions, that are specific parent–child interactions that have been identified in the developmental literature as beneficial to children (Pleck & Pleck, 1997).

Father Involvement & Child Outcomes

Externalizing behaviors. Research has long identified a relationship between the physical or psychological absence of a father and developmental delays (Cabrera et al., 2000) and behavior problems (Lamb, Sternberg, & Thompson, 2005) in children. Researchers have also found father involvement is negatively associated with children’s behavior problems, conduct disorders, hyperactivity and is negatively associated with bullying behavior (Amato & Rivera, 1999; Flouri, 2005; Howard et al., 2006).

Interestingly, father involvement has been associated with lower levels of child behavior problems (Amato & Rivera, 1999; Carlson, 2006) and may also prevent the development of future behavior problems in difficult children (Aldous & Mulligan, 2002). This was further supported by Amato and Rivera (1999), who reported an inverse relationship between level of positive paternal involvement and children’s behavior problems. These findings support Furstenberg and Harris (1993), who found that the long-term impact of father involvement on adolescents that strongly identified with their fathers were 80% less likely to be incarcerated.

Internalizing behaviors. Flouri (2010) and Lamb and Lewis (2010) proposed the standard family environment model predicts that positive father involvement should aid in the development of emotional regulation, social skills, and other aspects of child behavior. For example, toddlers who experienced relatively high rates of positive interaction with their parents tend to manifest the lowest rates of externalizing problem behavior in preschool (Pettit & Bates, 1989) and in middle childhood (Bates, et al., 1991).

Internalizing behaviors are manifested from feelings and emotions children direct inward; these behaviors, which include withdrawn, somatic and anxious/depressed behaviors (Achenbach & Edelbrock, 1983), are typically contrasted to externalizing behaviors. Further internalizing behaviors include depression, withdrawal, and anxiety, as well as feelings of inferiority, self-consciousness, shyness, hypersensitivity, and somatic complaints (Boyle & Jones, 1985; Buss & Plomin, 1984; Campbell, 1995; Campbell et al., 1991; Coddington, 1972; Miller, et al., 1993; Olson, Bates, & Bayles, 1984).

Davis, et al., (2011) found internalizing behaviors were also linked to negative internal feelings, such as anxiety, sadness, reticence, fearfulness, and oversensitivity. This is especially troubling because internalizing behaviors have been linked to students' academic performance, physical health, future psychological adjustment, and future employment opportunities (Merrell & Walker, 2004).

The influence of father involvement was found to increase children's positive social, relational, and behavioral (Carlson, 2006; Chang, Halpern, & Kaufman, 2007) outcomes, while decreasing emotional and behavioral problems. In addition to social and relational behaviors, withdrawal, anxiety, loneliness, guilt, sadness, and depression (Burt, et al., 2008; Hay, Payne, & Chadwick, 2004; Williams, 2013) are all examples of internalizing behaviors influenced by father involvement. Furthermore, children with high quality relationships with their fathers, displayed lower levels of internalizing behavior problems (Bronte-Tinkew et al., 2006; White & Gilbreth, 2001). This is of importance because, externalizing and internalizing behaviors in children are predictors of future functioning (Copeland et al., 2009).

Academic achievement. Researchers have found father involvement to predict positive child outcomes, such as cognitive development (Yogman, Kindlon, & Earls, 1995) and

educational attainment (Flouri & Buchanan, 2004). Findings by Fagan and Iglesias (1999) support these studies, their study found children with involved fathers showed higher mathematics-readiness scores. A study conducted by Flouri and Buchanan (2004) found fathers that were involved with their child's education at age 7, positively affected their educational achievement from adolescence throughout young adulthood (age 20).

Academic achievement is of special importance because it has been found to be another predictor of juvenile and adult delinquency. The findings of a meta-analysis by Maguin and Loeber (1996), found Academic performance and achievement in children, was one of the strongest and most consistent correlates of delinquency and that these children offended more frequently and committed more serious and violent offenses.

Researchers have long posited (Cloward & Ohlin, 1960; Cohen, 1955; Merton, 1957) that low achieving students turn to the rewards of crime (e.g., money, status, self-esteem) because these rewards are unattainable in school. Agnew (1985, 1992) posited low grades are the negative experiences that lead children to criminal behavior. "Whether for rational or irrational reasons, poor academic performance motivates them to commit crime" (Felson & Staff, 2006, p. 300).

For decades the extant literature has identified linkages between academic achievement and child outcomes. Longitudinal studies have even shown academic grades effect later delinquency (Maguin & Loeber, 1996). In contrast, several cross-sectional studies (Agnew, 1985; Paternoster et al., 1983; Wiatrowski, Griswold, & Roberts, 1981) found that a child's commitment and attachment to their school were related to delinquency. The ability of academic achievement to predict child delinquency is of extreme importance due to the linkages between child delinquency and adult offending.

Theoretical Framework

Historical Foundation

Belsky's model, the determinants of parenting, presumes parenting behavior can be directly or indirectly affected by contextual stress and support (Belsky, 1984). Belsky (1984) believed parenting was influenced by the individual's psychological well-being and their personality influenced contextual support/stress, which then shaped their parenting. Overall, the quality of parenting is determined by multiple factors within three overall domains: 1) personal psychological resources of the parent (personality); 2) child characteristics of individuality; and 3) contextual sources of stress and support (marital relationship, social networks, and employment) (Belsky, 1984).

Current Theoretical Perspective

Prior researchers have applied the Belsky model to father involvement during infancy and father infant and son attachment (Belsky, et al., 2005). Employing Bronfenbrenner's (1989) ecological systems theory and Belsky's (1984) process model of determinants of parenting, Cabrera, et al. (2007), developed a heuristic model of fathering that illuminates the influence of fathers on children's development. Their fathering model identified sets of variables that: 1) predicted father involvement; 2) interacted to predict involvement; and 3) influenced father characteristics, thereby influencing involvement; while suggesting moderators and mediators of pathways from predictors to father involvement and from father involvement to child outcomes (Cabrera, et al., 2007). Dimensions of father involvement was identified by merging two models of involvement (Hawkins, et al., 2002; Lamb, et al., 1987) which provided a comprehensive framework of behaviors men take as fathers.

Cabrera, et al. (2007) identified seven predictors of father involvement: 1) father's rearing history (e.g., relationships with parents); 2) cultural history (e.g., race/ethnicity); 3) biological history (e.g., alcoholism, depression, health); 4) father characteristics (e.g., employment, age, education, personality); 5) mother characteristics (e.g., age, education, mental health); 6) contextual factors (e.g., mother-father relationship, economics, time, work, and religious activity); and 7) child characteristics (e.g., age, gender, disabilities).

The Cabrera, et al. (2007) model suggested the "connections to various people and organizations, are likely to interact with these predictors and affect how fathers are involved with their children" (p. 187). Due to the fluidity of father roles, Cabrera, et al. (2007) posited society, the mother, and the child(ren) as influences on father involvement.

Expanded model. Building on their 2007 model, Cabrera, et al. (2014) released an expanded model of fathering, that focused on fathers and their influence on children's development. The expanded model proposed the reciprocal nature of the relationship between fathers and children (Cabrera, et al., 2014). The expanded heuristic model of fathering integrated concepts and transactional processes (Ben-Ari, 2011; Joussemet et al., 2008; Parkin & Kuczynski, 2012; Sameroff, 2010). The expanded model, broadly contextualized "fathering" as embedded in fluid systems and involving reciprocating processes that evolve over. This new model also conceptualized external factors that affect the quality (and quantity) of father involvement and its effects on child functioning and outcomes (Cabrera, et al., 2014).

Gaps in the Literature

Prior research has addressed father involvement and child outcomes, but there is a paucity of research on the short-term and long-term impact of 'early father involvement' (Phares et al., 2005). One major limitation of the current literature is that many studies include data from

mothers only (Phares et al., 2005), thereby limiting the known information about the correlation between early fathers' involvement and later child outcomes and how these relationships differ from those of mothers' involvement. Furthermore, untangling the influence of fathering from mothering has also proved difficult. These differences may be important, since some studies have found that lack of paternal involvement is more strongly associated with adolescent delinquency and aggression than is lack of maternal involvement (Harris, Furstenberg, & Marmer, 1998; Loeber & Stouthamer-Loeber, 1986). Another limitation to the extant literature, is most studies focus on behavioral and educational outcomes during adolescence. Much less is known about how children's academic performance, internalizing, and externalizing behaviors are influenced during middle childhood through "parenting behaviors," specifically fathers (Otto et al., 2015).

Innovation Statement

To date, a considerable body of research has sought to understand the relationship between father involvement and outcomes in their children (Amato & Rivera, 1999; Carlson, 2006; Flouri & Buchanan, 2004; Yogman, Kindlon, & Earls, 1995). While this research provides several important insights, especially regarding predictors of father involvement, current research has largely focused on father involvement with toddlers, adolescence, and teens. Much less is known about the influence of father involvement on children between toddler and adolescent years. Research on the effects of father involvement on child outcomes at middle childhood is notably lacking. This relationship is conceptually intriguing because it bridges two important periods in the child's life, dependence to independence and autonomy. Additionally, middle childhood is a transformative period where a child's life trajectory can be heavily influenced, whether positively or negatively. This research seeks to fill this gap by examining the effects of father involvement on children's behavioral and educational outcomes at middle childhood.

Aims of the Study

Guided by the Cabrera et al., (2014) heuristic model of the dynamics of paternal behavior and influence on children over time as the conceptual framework, the limitations and gaps in literature will be addressed in this study. The aims of this study are to review the extant literature on conceptualizations of father involvement, synthesize operational behaviors associated with father involvement, and examine the effects of father involvement on children's externalizing and internalizing behaviors and academic performance at middle childhood.

The aims of this study will be accomplished by answering the following research questions: 1. What effects do father characteristics, including father age, education, SES, and relationship with child's mother, have on father involvement and child externalizing, internalizing, delinquency behaviors and child academic performance at middle childhood; 2. What effects does father involvement have on child externalizing, internalizing, delinquency behaviors and academic performance at middle childhood; 3. Are the effects of father characteristics on child internalizing, externalizing, delinquency behaviors and academic performance mediated by father involvement; 4. Are the above effects found even in the context of mother involvement effects on child academic performance; and 5. Are the above effects moderated by child gender?

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**Chapter 2: A Systematic Review of the Conceptualizations of Father Involvement and the
Synthesization of Father Involvement Operational Behaviors**

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Abstract

A systematic search was conducted across eight databases using the keywords: “measure*, scale*, father* or paternal*, and involve*”. A final sample of 17 studies were identified for the review. A total of eleven (five child-reported and six father-reported) father involvement scales were used in the studies: The Father Involvement Scale (FIS), Father Presence Questionnaire (FPQ), Nurturant Fathering Scale (NFS), a Self-Administered Supplement (SAS), Time Diary (TD), Father Involved in Childcaring (FIC), Fatherhood Scale (FS), Inventory of Father Involvement (IFI), Involved Father Index (IFI), and the Parental Responsibility Scale (PRS). This systematic review synthesized the conceptualization of father involvement and instruments developed to measure the operationalization of father involvement activities in the extant literature. Significant racial and ethnic gaps were observed in the study populations. The findings of the systematic review offer foundational evidence to expand specific and more pertinent tools and techniques to fathers and responsible fatherhood programs with evidenced based parenting practices and behaviors.

Keywords: conceptualization, father involvement, measurement, operationalization, review, synthesize

A Systematic Review of the Conceptualizations of Father Involvement and the Synthesization of Father Involvement Operational Behaviors

Researchers have long sought ways to capture and measure the distinct ways fathers' parent. Original research into fatherhood, or parenting practices of fathers, dichotomized father involvement as present or absent. At first, this dichotomy was rather easy, as fathers were identified as resident or non-resident. An absent, or non-resident, father was assumed to be "non-involved," and a present, or resident, father was assumed to be "involved." This basic definition proved to be problematic as researchers determined present, or resident, father does not equate to an involved father; and an absent, or non-resident, father does not automatically equal non-involved. Therefore, researchers found it prudent to explore, capture, and measure fatherhood or, rather, levels of "father involvement" for resident and non-resident fathers.

Identifying or operationalizing activities representative of fatherhood, or levels of father involvement, proved equally as difficult as conceptualizing the role of fathers. The first problem that arose in the literature, was identifying a single definition of fatherhood. According to Lamb (2000), the role of the father has evolved over four phases, spanning two centuries of American history. Within each phase, a new or evolved conceptualization of fatherhood emerged. Lamb (2000) posited, in Phases I & II the earliest conceptualization of fatherhood first began with the "moral teacher or guide" covering the Colonial Period, followed by the "breadwinner" role during the Industrial Revolution. Two new roles of fatherhood emerged in Phases III & IV, the sex role model and the new nurturant father, respectively, covering four decades between 1940 and 1970.

The 1980's began the contemporary discussion of conceptualizing and operationalizing father involvement; more importantly, instruments were developed to measure the multifaceted and broad approach to father involvement. The evolved concept of father involvement has served

as the foundation for researchers to operationalize father involvement quantitatively, and thus develop instruments and tools of measurement. The purpose of this study is to synthesize instruments used to measure father involvement practices and behaviors. This will be accomplished by illustrating the conceptualizations of father involvement in the extant literature between 1986 – 2016, and identifying activities used to operationalize father involvement practices.

Conceptualizing Father Involvement and Operationalizing Father Involvement Activities

Over the past 30 years, three studies (Lamb et al., 1987; Palkovitz, 1997; Pleck, 2010) have led the evolution of the conceptualization of father involvement and the operationalization of father involvement activities. Table 1 provides a description of the similarities and differences of these conceptual models. One of the earliest models of father involvement was conceptualized by Lamb, Pleck, Charnov and Levine in 1987 and had three components: engagement, availability, and responsibility. Lamb, et al. (1987) further explained engagement as direct interaction with the child, in the form of caretaking, or play or leisure; availability is related to interaction in the sense of the father being accessible to interact with the child; and responsibility, referred to the level in which the father ensured the child was taken care of, or provided resources for the child. Lamb and colleagues' three-dimensional model set the foundation for researchers to further or re-conceptualize father involvement and operationalize activities associated with fathering concepts.

In the early 1990s McBride and Mills (1993) added to the Lamb, et al. (1987) model by creating four subcategories of engagement, or interaction: play, functional, parallel, and transitional. The interaction component of McBride and Mills (1993) model paralleled Lamb et al. (1987) engagement dimension but expounded to operationalize four sub domains of interaction. For example, play interaction consists of playful child-centered activities, whereas functional

interaction consisted of assisting the child in a care task activity. Parallel interaction operationalized involvement as the father and child engaging together or in different activities. Lastly, transitional interaction entails the father assisting with tasks the child is fully capable of doing by themselves (e.g. bedtime routine). As father involvement evolves, the conceptualization becomes broader, yet father involvement operational activities become more specific.

Toward the end of the century, Palkovitz (1997) conceptualized father involvement by operationalizing activities in three overlapping domains: cognitive, affective, and behavioral. These three domains operationalized fifteen categories of father involvement (e.g., communication, teaching, thought processes, caregiving, providing, etc.). The Palkovitz model is a prime example of the importance of viewing father involvement as a “multidimensional” construct (Schoppe-Sullivan, McBride, & Ringo Ho, 2004).

A decade into the new millennium, Plecks’ (2010) re-conceptualization of father involvement was influenced by the three-dimensional models of Lamb, Pleck, Charnov and Levine (1987) and Palkovitz (1997). Plecks’ (2010) model contained three main dimensions of father involvement: 1. Positive engagement activities likely to promote development; 2. warmth and responsiveness; and 3. monitoring and decision making. The model also contains two secondary dimensions: 4. indirect care (material indirect care and social indirect care); and 5. process responsibility (father ensuring first four dimensions of the model).

Table 1

Description of studies conceptualizing father involvement and operationalizing father involvement activities

Reference	Father Involvement Conceptual Domain	Domain Subcategories	Father Involvement Operationalized
Lamb, Pleck, Charnov, & Levine (1987)	Engagement		Father's direct contact with his child, through caretaking and shared activities
	Availability		Father's potential availability for interaction, by virtue of being present or accessible to the child whether or not direct interaction occurs
	Responsibility		Role father takes in making sure that the child is taken care of and arranging for resources to be available for the child
McBride & Mills (1993)	Interaction	1. Play interaction	One-on-one father child interaction 1. Playful child-centered activities both father and child engage 2. Assisting child in a care task, child could not complete alone 3. Father and child engaged together or in different activities with little attention given to child and periodical interaction 4. Father assists child moving from activity to activity
		2. Functional interaction	
		3. Parallel interaction	
		4. Transitional interaction	
	Accessibility		Father is physically and psychologically available whether directly or indirectly engaged with children
	Responsibility		Father responsible for care and welfare, not necessarily through direct contact, and not including financial responsibility
Palkovitz (1997)	Cognitive	1. Thought processes 2. Child-related maintenance	1. Worrying, planning, praying 2. Doctor appointments

Affective

- 3. Communication
- 4. Teaching
- 5. Caregiving
- 6. Affection
- 7. Supporting emotionality

- 3. Listening, talking, showing love
- 4. Role modeling, encouraging activities
- 5. Feeding, bathing
- 6.
- 7. Encouraging the child

Behavioral

- 8. Errands
- 9. Shared Interest
- 10. Availability
- 11. Planning
- 12. Shared Activities
- 13. Providing
- 14. Protection
- 15. Monitoring

- 8.
- 9. Reading together
- 10. Being available
- 11. Activities, birthdays
- 12. Shopping, playing together
- 13. Food, clothing
- 14.
- 15. Friends, homework

Pleck (2010)

Positive engagement activities

Intensive interaction w/child likely to promote development

Warmth and responsiveness

Hugging and showing affection

Control

Monitoring and decision making

1. Indirect care

Activities done for the child that do not entail interaction with the child (excluding breadwinning), material indirect care (purchasing goods and services), social indirect care (fostering community connections with institutions)

2. Process responsibility

Fathers' monitoring of child needs being met for the first four dimensions of the model, without the father necessarily meeting those needs himself

Methods

Identification of Studies

This systematic review was conducted across eight databases (PROQUEST, EBSCO, Dissertations & Theses @ UTA, JSTOR, MEDLINE, PQDT Global, SAGE, and Google Scholar. Additional studies were also identified by conducting a search utilizing Google, a web-based search engine. The keywords for the search were “measure*, instrument*, scale*, father* or paternal*, and involve*. The search included studies published between 1986 through 2016 which utilized a form of measurement to assess father involvement.

Inclusion and Exclusion Criteria

The inclusion criteria were: 1. studies that used an instrument to measure father involvement; 2. studies that specifically measured father involvement (several studies measured emotional attachment to father, relationship with father, views of fatherhood, etc.), 3. studies that reported father involvement activities measured (several studies stated they measured father involvement with a set of measures, but the measures were not reported), 4. papers that provided a conceptualization and or operationalization of father involvement; 5. studies published between 1986-2016; 6. full English text; 7. studies conducted in the United States; and 8. publication in a peer-reviewed journal.

Exclusion criteria consists of: 1. peer reviewed works only; 2. publications that were vague or unclear of their method to assess father involvement; 3. studies that failed to conceptualize and/or operationalize father involvement; 4. studies that measured proxy measures of father involvement (e.g., absence/presence, child support, etc.); 5. studies published outside of the United States; and 6. studies where father involvement was videotaped and measured.

Data Extraction

The systematic review resulted in studies of varying sizes, samples, study design, and methods of analysis. Once a study was identified and selected for inclusion, data was extracted and entered in a database. The extracted data was categorized into three groups: study-level variables (e.g., authors, year of publication), methods-level variables (e.g., sample size, instrument(s), and Cronbach's alpha), and participant-level variables (e.g., gender, age, and race/ethnicity). Figure 1 captures the process of identifying studies selected for the systematic review.

The systematic search identified 1,461 studies, while manual reference checking identified an additional 16 references. After full-text review, 17 studies were included in this review. The results of the search strategy, including the study reference, methods, participant level variables, instrumentation(s), and Cronbach's alpha measure of scale reliability are shown in Table 2.

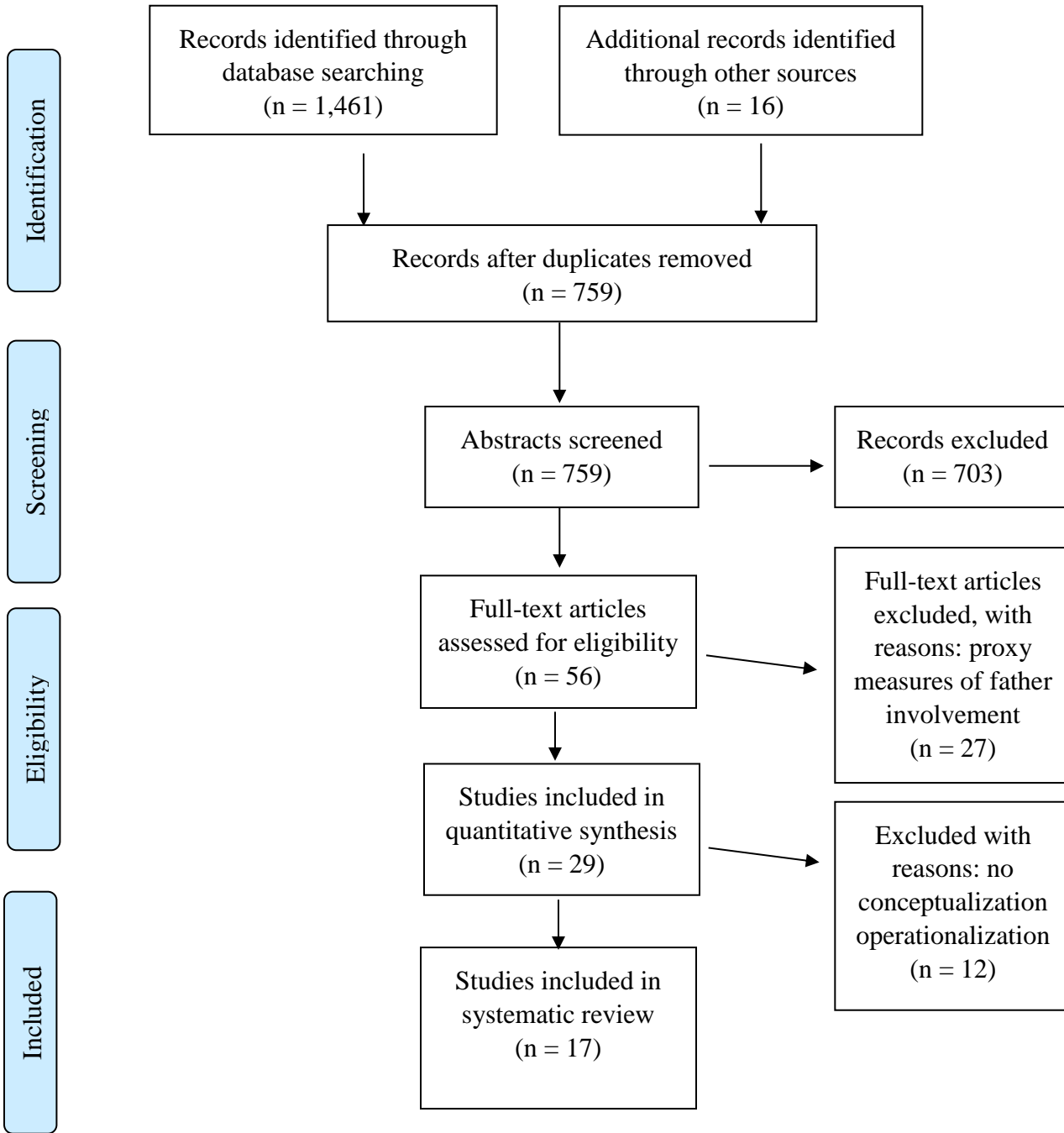


Figure 1. PRISMA flow diagram of studies selected for the systematic review, adapted from Moher, Liberati, Tetzlaff, and Altman (2009).

Table 2

Data extraction table

Reference	Sample Size	Father/ Child Report	Race/ Ethnicity	Mean Age	Instrument(s)	Cronbach α
Riley (1985)	70	Father Report	Not Reported	36	Father Involvement in Childrearing	.69
McBride & Mills (1993)	100	Father Report	Predominately Caucasian	33	Parental Responsibility Scale (PRS)	.79
Williams & Finley (1997)	1,072	Child Report	Not Reported	15	Nurturant Fathering Scale (NFS)	.97
Hawkins et al., (2002)	723	Father Report	91% Caucasian 4% Hispanic 2% AA 2% Asian	41	Inventory of Father Involvement (IFI)	.79 Avg
Hofferth (2003)	1,172 52% Female 48% Male	Child Report	76% Caucasian, 11% Hispanic, 8% AA, 5% Other	9	Time Diary	.73
Dick, (2004)	311	Father Report	76% Caucasian	34	Fatherhood Scale	.98
Finley & Schwartz, (2004)	2,353 69% Female 31% Male	Child Report	55% Hispanic, 23% Caucasian, 11% AA, 7% Asian, 4% as Other	20	Father Involvement Scale (FIS) Nurturant Fathering Scale (NFS)	.94, .97
Wood & Repetti, (2004)	98	Father Report	85% Caucasian, 7% Asian/PI, 1% AA, 1% Native American, 6% as Other	Not Rprtd	Father Involvement Scale (FIS)	.88
Carlson (2006)	2,733 50% Female 50% Male	Child Report	Not Reported	12	Self-Administered Supplement	.85
Doherty et al., (2006)	65	Father Report	Not Reported	31	Parental Responsibility Scale (PRS)	.70

Krampe & Newton, (2006)	608 53% Female 47% Male	Child Report	68% Caucasian, 22% AA, 2% Hispanic, 2% Asian, 1% Native American 1% Pacific Islander 1% Other	35	Father Presence Questionnaire (FPQ)	.89
Brown, McBride, Shin, & Bost, (2007)	46	Father Report	71% Caucasian, 15% Asian, 7% Hispanic, 5% AA	34	Parental Responsibility Scale (PRS)	.74
Finley, Mira, & Schwartz, (2008)	1,714 75% Female 25% Male	Child Report	56% Hispanic, 24% Caucasian, 15% AA, 5% Asian, and 1% as Other	20	Father Involvement Scale (FIS) Nurturant Fathering Scale (NFS)	.94, .92
Allgood, Beckert, & Peterson, (2012)	99 Female	Child Report	97% Caucasian	20	Father Involvement Scale (FIS) Nurturant Fathering Scale (NFS)	.94, .92
Brown, Mangelsdorf, & Neff, (2012)	71	Father Report	80% Caucasian, 9% AA, 7% Latino, 2% Asian, and 2% as Other	36	Parental Responsibility Scale (PRS)	.77
Williams, (2013)	180	Father Report	95% AA, 4% Hispanic, .5% as Other	32	Father Involvement Scale (FIS)	.97
Trahan & Cheung, (2016)	77	Father Report	88% Caucasian, 6% AA and 5% Hispanic, and 1% Asian	41	Involved Father Index (IFI)	.96

Results

Measuring Father Involvement

The literature identified seventeen studies that employed eleven unique instruments containing measurable activities that operationalized father involvement. Once defined, activities associated with domains of father involvement (engagement, availability, responsibility) could be measured. The seventeen studies measured current or retrospective levels of father involvement, employing five child-reported scales and six father-reported scales. These studies

included a total sample of 7,364 (47% Caucasian (3,487), 33% Latino (2,442), 13% African American (943), 3% Asian (295), 3% Other (284), less than 1% Native American and Pacific Islander) diverse participants. Seven studies used child-reported measures of father involvement and the remaining ten studies used father-reported measures of involvement.

Among the extant literature, father involvement activities were operationalized using a myriad of behaviors and practices associated with the conceptual domains of “father involvement.” Studies generally conceptualized father involvement as three constructs: 1. Engagement/Interaction; 2. Availability; and 3. Responsibility. Guided by the father involvement conceptual domains (engagement, availability, responsibility), involvement activities and practices were operationalized as: 1. Engagement/Interaction (father-child interaction, play, functional, cognitive, affective, behavioral, etc.) 2. Availability (available to engage, participate, etc.); and 3. Responsibility (provider, responsibility, control and monitoring, decision making, safety, indirect care, etc.).

Child-reported Studies

Provided in Table 3 are the seven child-reported studies that were published between 1997-2012. These studies surveyed a total of 5,944 children, 61% female and 39% male with a mean age of 19. The reported racial/ethnic background was 40% Caucasian (2,352), 40% Hispanic/Latino (2,395), 12.5% African American (744), 4% Asian (265), 3% Other (176), and Native Americans (6) and Pacific Islanders (6) were each less than 1%. The seven child-reported studies utilized five instruments to measure father involvement: The Father Involvement Scale (FIS), Father Presence Questionnaire (FPQ), Nurturant Fathering Scale (NFS), a Self-Administered Supplement, and a Time Diary, with an averaged Cronbach α score of .87.

Table 3

Description of child-reported studies and scales used to operationalize father involvement activities

Reference	Sample Size	Instruments	Father Involvement Domain	Domain Sub Categories	Father Involvement Activities
Williams & Finley (1997)	1,072	Nurturant Fathering Scale (NFS)	1. Affective Quality of Fathering		1. How much do you think your father enjoyed being a father? 2. When you needed your father's support, was he there for you? 3. Did your father have enough energy to meet your needs? 4. Did you feel that you could confide in (talk about important personal things with) your father? 5. Was your father available to spend time with you in activities? 6. How emotionally close were you to your father? 7. When you were an adolescent (teenager), how well did you get along with your father? 8. Overall, how would you rate your father? 9. As you go through your day, how much of a psychological presence does your father have in your daily thoughts?
Hofferth (2003)	1,172 52% Female 48% Male	Child Development Survey Time Diary	1. Time children spend engaged with fathers 2. Parental warmth 3. Parental monitoring & control 4. Responsibility		1. Reading with the father, eating meals together 2. How often the parent hugged the child, told the child they love him or her, spent time with child, joked or played with child, talked with child, told child they appreciated what he or she did 3. Setting limits on their activities, schedules, food, whereabouts, homework 4. Bathing children and changing diapers, disciplining children, choosing children's activities, buying children's clothes, driving children to activities, selecting a pediatrician and making appointments, selecting a child care program, preschool, or school, playing with children
Finley & Schwartz, (2004)	2,353 69% Female 31% Male	Father Involvement Scale (FIS)			1. Intellectual development; 2. Emotional development; 3. Social development; 4. Ethical/moral development; 5. Spiritual development; 6. Physical development; 7. Career development; 8. Developing responsibility; 9. Developing independence; 10. Developing competence; 11. Leisure, fun, play; 12. Providing income; 13. Sharing activities/interests; 14. Mentoring/teaching; 15. Caregiving; 16. Being protective; 17. Advising; 18. Discipline; 19. School/homework; 20. Companionship
Carlson (2006)	2,733 50% Female 50% Male	Self-Administered Father Involvement Supplement			1. How often the father talks over important decisions with the adolescent; 2. How often the father listens to the adolescent's side of an argument; 3. How often the father knows who the adolescent is with when not at home; 4. Whether the adolescent thinks that the father spends enough time with him or her; 5. How often the father missed events or activities that are important to the adolescent; 6. How close the adolescent feels to the father; and 7. How well the father and adolescent share ideas or talk about things that really matter

Krampe & Newton, (2006)	608 53% Female 47% Male	Father Presence Questionnaire (FPQ)	1. Relationship with the Father	<p>1A. Feelings about Father Scale;</p> <p>1B. Physical Relationship with Father Scale;</p> <p>1C. Perceptions of Father's Involvement Scale;</p> <p>1D. Mother's Support for Relationship with Father Scale,</p> <p>1E. Father-Mother Relationship Scale</p>	<p>1A. I could/can talk with my father about anything; As a child, I felt warm and safe when I was with my father; I felt/feel close to my father; My father is very important to me; I felt my father was behind me and supported my choices or activities; I looked up to my father; I felt/feel inspired by my father; My father has a special place in my life and no one can replace him; I need my father; My father and I enjoyed/enjoy being together; I want to be like my father; R—When I remember past experiences with my father, I feel angry; R—I feel disappointed with my father</p> <p>1B. I sat on my father's lap; My father hugged and/or kissed me; My father let me sit on his shoulders; My father held me when I was a baby; My father would hold my hand or put his arm around me; My father tucked me into bed; My father changed my diapers or bathed me when I was a baby; I liked being held by my father; My father would talk with me when I was a baby</p> <p>1C. My father helped me with schoolwork when I asked him; My father helped me learn new things; My father attended my school functions; My father and I participated in activities or hobbies together; My father attended my sporting events or other activities in which I participated; I could go to my father for advice or help with a problem; My father helped me to think about my future; My father was concerned about my safety; My father taught me right from wrong; My father listened to me when I would talk with him; My father told me that he loved me; My father understood me; My father encouraged me; R—When I was a child, my father ignored me</p> <p>1D. My mother encouraged me to talk with my father; My mother was affectionate with my father; My mother respected my father's judgment; My mother liked it when my father and I engaged in activities together; My mother liked it when my father touched her; My mother loved my father very much; My mother appreciated things my father did for us; I liked the way my mother talked about my father; My mother really knew my father; My mother wanted me to be close to my father; My mother had high regard for and respected my father; R—My mother did not think very highly of my father; R—My mother was critical of my father; R—My mother thought my father was foolish</p> <p>1E. My mother and father really enjoyed each other's company; My father's and mother's relationship made me feel good; My father and mother supported and helped each other; I hope that my marriage is just like my parents' marriage; My father and mother understood each other; My father and mother were emotionally close to one another; My father and mother were open and honest with one another; My father listened to my mother; My father appreciated the things my mother did for us; R—When I was around my father and mother at the same time, my body would feel tight or in other ways uncomfortable; R—I wondered why my father and mother married each other; R—My father and/or mother disliked each other; R—My mother could not stand my father</p>
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2. Beliefs about the Father	2A. Conceptions of Father's Influence Scale	2A. Girls need their fathers; Boys need their fathers; Fathers affect their sons' and daughters' relationships with their friends; Fathers affect their sons' and daughters' moral values or behavior; Fathers affect how well or how poorly their sons and daughters do in school; Fathers affect their sons' and daughters' relationships with the opposite sex; Fathers affect their sons' and daughters' religious or spiritual beliefs or behavior; A child's mother and father are equally important in the child's life
	2B. Conceptions of God as a Father Scale	2B. I believe there is a Father presence or God who watches over all life; I pray to or otherwise commune with God; My religious or spiritual life is important to me; R—I doubt there is a Father presence who created all life; R—I doubt there is a Father presence or God who loves and cares about me; R—Life is an accident and has no meaning or purpose; R—I have a hard time believing God can or wants to help me with my life
3. Intergenerational Family Influences	3A. Mother's feelings toward her father	3A. My mother loved her father very much; My mother felt warm and safe when she was with her father; My mother and her father enjoyed being together; My mother felt close to her father; My mother looked up to her father; My mother missed her father when he was away;
	3B. Mother's relationship with her father	3B. My mother felt as though she did not know her father; My mother's father had a negative influence on her life; My mother was disappointed with her father; My mother felt tense and "on guard" when her father was around; My mother hated her father; My mother was afraid of her father
	3C. Father's relationship with his father	3C. My father loved his father very much; My father felt warm and safe when he was with his father; My father and his father enjoyed being together; My father felt close to his father; My father could talk with his father about anything; My father looked up to his father; My father wanted to be like his father; My father's father had a special place in his life and no one could replace him; R—My father felt as though he did not know his father; R—When my father remembered past experiences with his father, he felt angry; R—My father's father had a negative influence on his life; R—My father hated his father; My father's relationship with his father had a big effect on my life

Note: Child-reported studies that used duplicate scales of father involvement were not included in this table (FIS, NFS: Allgood, Beckert, & Peterson, 2012; FIS, NFS: Finley, Mira, & Schwartz, 2008; NFS: Finley & Schwartz, 2004).

Father-reported Studies

Table 4 captures ten father-reported studies published between 1985-2016. These studies surveyed a total of 1,420 fathers with a mean age of 35. The reported racial/ethnic background was 80% Caucasian (1,135), 14% African American (199), 3% Hispanic/Latino (47), 2% Asian (30), Native Americans (1) and Other (8) were each less than 1%. The ten father-reported studies used six unique instruments to measure father involvement: The Father Involvement Scale (FIS), Father Involved in Childcaring (FIC), Fatherhood Scale (FS), Inventory of Father Involvement (IFI), Involved Father Index (IFI), and the Parental Responsibility Scale (PRS), with an averaged Cronbach α score of .83.

Table 4

Description of father-reported studies conceptualized domains and operationalized father involvement activities

Reference	Sample Size	Instrument	Father Involvement Domains	Domain Sub Categories	Father Involvement Activities
Riley (1985)	70	Father Involvement in Childrearing	1. Routine child care 2. Play with the child 3. School-related interactions		1. Dressing and undressing children; Taking care of sick children; Putting children to bed; Washing and bathing children 2. We play summer sports together; We play with toys together; We play outdoors in warm weather together (swings, jungle gym, games, etc.); We play outdoors during winter together (skating, skiing, games, building snowmen); We make up stories together; We play indoor games together. 3. We practice arithmetic together; We talk about school together; We look at picture books together; We practice writing words and letters together; We go to school-related activities together; We practice spelling together
McBride & Mills (1993)	100	Parental Responsibility Scale (PRS)	1. Interaction 2. Accessibility 3. Responsibility	1A. Play interaction 2A. Functional interaction 3A. Parallel interaction 4A. Transitional interaction	One-on-one father child interaction 1A. Playful child-centered activities both father and child engage 2A. Assisting the child in a care task, child could not complete alone 3A. Father and child engaged together or in different activities with little attention given to child and periodical interaction 4A. Father assists child moving from activity to activity 2. Father is physically and psychologically available whether directly or indirectly engaged with children 3. Father responsible for care and welfare, not necessarily through direct contact, and not including financial responsibility

Hawkins, Bradford, Palkovitz, Christiansen, Day, & Call (2002)	723	Inventory of Father Involvement (IFI)	1. Discipline and Teaching Responsibility	1. Disciplining your children; Encouraging your children to do their chores; Setting rules and limits for your children's behavior; Teaching your children to be responsible for what they do; Paying attention to what your children read, the music they listen to, or TV shows they watch; Enforcing family rules
			2. School Encouragement	2. Encouraging your children to succeed in school; Encouraging your children to do their homework; Teaching your children to follow rules at school
			3. Mother Support	3. Giving your children's mother encouragement and emotional support; Letting your children know that their mother is an important and special person; Cooperating with your children's mother in the rearing of your children
			4. Providing	4. Providing your children's basic needs (food, clothing, shelter, and health care); Accepting responsibility for the financial support of the children you have fathered
			5. Time and Talking Together	5. Being a pal or a friend to your children; Spending time just talking with your children when they want to talk about something; Spending time with your children doing things they like to do; Working with your children on chores around the house; Helping your children find purpose and direction in their lives; Taking your children to interesting places (your work, parks, museums, ocean, etc.); Talking to your children about what's going on in their lives; Listening to your children's views or concerns
			6. Praise and Affection	6. Praising your children for being good or doing the right thing; Praising your children for something they have done well; Telling your children that you love them; Showing physical affection to your children (touching, hugging, kissing)
			7. Developing Talents and Future Concerns	7. Encouraging your children to develop their talents; Encouraging your children to continue their schooling beyond high school; Planning for your children's future (education, training)
			8. Reading and Homework Support	8. Encouraging your children to read; Reading to your younger children; Helping your older children with their homework
			9. Attentiveness	9. Attending events your children participate in (sports, school, church events); Being involved in the daily or regular routine of taking care of your children's basic needs or activities (feeding, driving them places, etc.); Knowing where your children go and what they do with their friends

Dick, (2004)	311	Fatherhood Scale (FS)	1. Positive Engagement	1. My father took me on activities; During my teen years my father and I did things together; My father liked to spend time with me; My father and I enjoyed time together; My father and I had good times together
			2. Positive Paternal Emotional Responsiveness	2. My father told me that I was a good boy/girl; My father is a caring person; During my childhood I felt close to my father; I felt close to my father as a teenager; I know my father cared about me; My father comforted me when I was feeling bad; My father made me feel special; My father was loving toward me; I have warm feelings for my father; My father understood me; I told my father I loved him; My father praised me; My father showed concern when I got hurt.
			3. Negative Paternal Engagement	3. My father spanked me; My father hit my mother; My father was ashamed of me as a child; My father used to say things to hurt my feelings; When I got in trouble my father would punish me physically; I saw my father beat my mother; I was abused by my father; When I was a child, my father shouted at me if I did something wrong; My father is mean; My father used to get angry and say he didn't like me; I saw my father hit one of my siblings
			4. The Moral Father Role	4. My father taught me right from wrong; My father went to church with me; My father instilled important values in me; My dad talked to me about God; My father used to say grace at mealtime
			5. The Gender Role Model	5. My dad taught me to fight back; My father encouraged me to say what I felt; I could talk to my father about anything; My dad would talk to me about things going on in the world; My father talked to me about sex; My dad taught me what it was like to be a man
			6. The Good Provider Role	6. My father made sure I had the things I needed like clothing and toys; My father provided well for us financially; My father was a good breadwinner for the family; My dad was always employed while I was growing up
			7. The Androgynous Role	7. My father told me that he loved me; My father hugged me; My father is a good man; I saw my father cry; My father helped my mom clean the house; My father is a kind man; My dad would cook meals
			8. Responsible Paternal Engagement	8. My father helped me with my homework; My father attended school conferences; My father read to me as a child; My dad showed interest in my schoolwork; I remember playing

			9. The Accessible Father	sports with my father; My dad attended sporting events in which I played; My father took me to the doctor; My dad attended school activities in which I participated 9. My father talked to be about my personal problems; My father helped me solve my problems; When I got angry, I used to talk things over with my dad; My father was around when I needed him
Finley & Schwartz, (2004)	2,353	Father Involvement Scale (FIS)		1. Intellectual development; 2. Emotional development; 3. Social development; 4. Ethical/moral development; 5. Spiritual development; 6. Physical development; 7. Career development; 8. Developing responsibility; 9. Developing independence; 10. Developing competence; 11. Leisure, fun, play; 12. Providing income; 13. Sharing activities or interests; 14. Mentoring or teaching; 15. Caregiving; 16. Being protective; 17. Advising; 18. Discipline; 19. School/homework; 20. Companionship
Wood & Repetti, (2004)	98	Child Caregiving Involvement Scale	1. Social-emotional Functioning 2. Custodial Caregiving	1. Playing or talking or reading with child(ren) 2. Getting child(ren) ready for bed, school or other activities; Getting up during the night with a child; Staying home with a sick child; Making child-care arrangements; Out-of-home child-related activities or functions (with or without children; e.g., doctor visits, PTA, drop-offs, scheduling, making reservations); Chauffeuring children; Coordinating and planning child or family activities (e.g., planning pick-ups, drop-offs, scheduling, making reservations) 3. Reviewing/helping with child(ren)'s school work; Teaching a child skills and things about the world (outside of school)
			3. Instructive Functions	

Note: Father-reported studies that used duplicate scales of father involvement were not included in this table (FIS: Williams, 2013; IFI: Trahan & Cheung, 2016; PRS: Brown, Mangelsdorf, & Neff, 2012; Brown, McBride, Shin, & Bost, 2007; Doherty, Erickson, & LaRossa, 2006).

Synthesized Father Involvement Domains and Practices

Within the father involvement and operational practices of involvement literature, the engagement/interaction and availability domains often over-lapped. Additionally, the conceptual domain of responsibility in nature seemed to be expectational (safety, provider) between father and mother and transactional (decision making) between father and child.

Therefore, as seen in Table 5, this study removed redundancies by merging two conceptual domains of father involvement, engagement and availability, into one overarching theme of “Nurturing,” inclusive of 28 father involvement behaviors. The remaining domain, responsibility, was expanded to include the expectational and transactional relationships between father-mother and father-child. This new domain was renamed “Accountability” and comprised of 10 father involvement practices.

Table 5

Synthesized Father Involvement Domains and Activities

Father Involvement Domains

Father Involvement Activities

Nurturing: Father's direct one-on-one contact with his child, through affection, encouragement, discipline, interaction caretaking, and shared activities

1. Intellectual development; 2. Emotional development; 3. Social development; 4. Ethical/moral development; 5. Spiritual development; 6. Physical development; 7. Career development; 8. Developing responsibility; 9. Developing independence; 10. Developing competence; 11. Leisure, fun, play; 12. Providing income; 13. Sharing activities or interests; 14. Mentoring or teaching; 15. Caregiving; 16. Being protective; 17. Advising; 18. Discipline; 19. School/homework; 20. Companionship; 21. Getting child(ren) ready for bed, school or other activities; 22. Getting up during the night with a child; 23. Staying home with a sick child; 24. Making child-care arrangements; 25. Out-of-home child-related activities or functions; 26. Chauffeuring children; 27. Coordinating and planning child or family activities; 28. Supporting child's mother.

Accountability: Father responsible for ensuring child is taken care of and arranging for resources (food, clothing, shelter, healthcare, etc.) to be available for the care and welfare of child, not necessarily through direct contact.

1. Monitoring and decision making; 2. Activities done for the child that do not entail interaction with the child (excluding breadwinning); 3. Material indirect care (purchasing goods and services); 4. Social indirect care (fostering community connections with institutions); 5. Giving your children's mother encouragement and emotional support; 6. Letting your children know that their mother is an important and special person; 7. Cooperating with your children's mother in the rearing of your children; 8. Monitoring child needs being met, without the father necessarily meeting those needs himself; 9. Providing children's basic needs; and 10. Accepting responsibility for the financial support of children fathered.

Discussion

This study sought to systematically review conceptualizations of father involvement in the extant literature from 1986-2016 while synthesizing the corresponding operational practices of fathers. Consistent with other studies (Easterbrooks & Goldberg, 1984; Pleck, Lamb, & Levine, 1985; Wood & Repetti, 2004; Doherty, Erickson, & LaRossa, 2006; and Brown, McBride, Shin, & Bost, 2007), this study found the conceptualization of father involvement informed the operationalization and measurement of father involvement activities.

The systematic search identified seventeen studies that employed eleven measures of father involvement, five child-report scales and six father-report scales. In total, 7,364 diverse participants measured their current or retrospective levels of father involvement. Although a diverse sample, the racial make-up of the sample was not reflective of the larger population. The father sample was over-represented by Caucasian men and the child sample was under-represented by Caucasian children; conversely, Hispanic/Latino fathers were under-represented and Hispanic/Latino children were over-represented.

The experiences of 5,944 children were captured by five child-reported scales (The Father Involvement Scale (FIS), Father Presence Questionnaire (FPQ), Nurturant Fathering Scale (NFS), a Self-Administered Supplement, and a Time Diary). The parenting practices of over 1,420 fathers were captured in ten father-reported studies using six unique instruments to measure father involvement: The Father Involvement Scale (FIS), Father Involved in Childcaring (FIC), Fatherhood Scale (FS), Inventory of Father Involvement (IFI), Involved Father Index (IFI), and the Parental Responsibility Scale (PRS).

Child-reported Scales

As shown in Table 3, Williams and Finleys' (1997) Nurturant Father Scale (NFS) was one of the earliest scales to use child-reported perceptions of father involvement. The NFS identified eight items (parents' enjoyment of parenting, support, energy level, confideability, time availability, emotional closeness, adolescent-parent relationship, and overall evaluation) designed to measure the affective quality of fathering (Williams & Finley, 1997).

Hofferth (2003) operationalized father involvement activities under four domains of involvement: 1. Time children spend engaged with their fathers; 2. Parental warmth; 3. Parental monitoring and control; and 4. Responsibility. *Time children spend engaged* with their fathers was measured by two specific activities—reading with the father and eating meals together; a time diary was used to capture father-child related activities for 1 weekday and 1 weekend day (Hofferth, 2003). Another component of the Hofferth (2003) model, *parental warmth*, used six questions to measure the warmth of the relationship between child and parent: 1) how often the parent hugged the child; 2) told the child they love him or her; 3) spent time with child; 4) joked or played with child; 5) talked with child; and 6) told child they appreciated what he or she did.

The *parental monitoring and control component* of the Hofferth's (2003) model measured nine activities based on setting limitations on their children's activities, whereabouts, schedules, food, etc. and whether they discuss these rules with their children. Eight measurable activities associated with father *responsibility*, were also identified in the Hofferth (2003) model: 1) bathing children and changing diapers; 2) disciplining children; 3) choosing children's activities; 4) buying children's clothes; 5) driving children to activities; 6) selecting a pediatrician and making appointments; 7) selecting a child care program, preschool, or school; and 8) playing with children.

Finley and Schwartz (2004) developed one of the more widely used father involvement scales; the Father Involvement Scale (FIS) was designed to assess adolescent and adult children's retrospective perceptions of their fathers' involvement in 20 different domains of their lives. Father involvement literature provided by Hawkins and Palkovitz (1999) and retrospective father involvement activities led to the development of three measurable categories: 1. Expressive (leisure, fun, play; companionship; sharing activities/interests; emotional development; social development; caregiving; physical development; and spiritual development); 2. Instrumental (developing responsibility; discipline; ethical/moral development; providing income; being protective; career development; developing independence; and school or homework); and 3) Mentoring/advising (developing competence; mentoring/teaching; advising; and intellectual development) (Finley & Schwartz, 2004).

Carlson (2006) operationalized father involvement to include seven involvement activities (e.g., how often the father talks over important decisions, how often father listens to their side of argument, how often father knows who the adolescent is with, whether adolescent thinks father spends enough time, how often father misses activities important to adolescent, how close adolescent feels to father, and how well father and adolescent share ideas about important topics). Collectively, these father involvement practices are a convergence of seven operationalized quality and quantity activities. This afforded Carlson's (2006) father involvement model to serve as an improvement of current models, by merging quality and quantity activities into a singular measurement of father involvement.

The Father Presence Questionnaire (FPQ) was developed as a child-reported measure of father involvement that redefined father presence beyond the traditional measure of co-residence (Krampe & Newton, 2006). The FPQ was constructed with 10 scales, that operationalized 134

involvement activities, within three domains of father presence: 1. Relationship with the Father (e.g., relationship with father is comprised of affective, behavioral, and cognitive/perceptual dimensions); 2. Beliefs about the Father (e.g., views of father's influence and importance); and 3. Father Presence and Intergenerational Family Influences (e.g., influence of other family and their effects on the child's experience of father) (Krampe & Newton, 2006).

Father-reported Scales

Riley's (1985) Father Involved in Childcaring (FIC) scale measured sixteen activities in three domains: 1. Routine child care (e.g., dressing and undressing children, taking care of sick children, putting children to bed); 2. Play with the child (e.g., summer sports, toys, games, etc.); and 3. School-related interactions (e.g., practice arithmetic together, talk about school, practice writing words and letters together) of father involvement.

McBride and Mills, (1993) developed the Parental Responsibility Scale (PRS) to assess father involvement using the Interaction/Accessibility Time Diary interview protocol. The PRS (McBride & Mills, 1993) required fathers to recount activities and interactions for one day during the week and one day during the weekend (in 15-min intervals). The PRS measured parental activities fathers would normally participate with their children (e.g., making childcare arrangements, dressing).

The Inventory of Father Involvement (IFI) developed by Hawkins, Bradford, Palkovitz, Christiansen, Day, & Call (1999) was used to measure behavioral, cognitive, affective, and moral/ethical dimensions of indirect and direct father involvement. Hawkins et al., (1999) developed a shorter version of the IFI with just 26 items that identified nine distinct dimensions of father involvement: providing, support of the mother, disciplining and teaching responsibility, encouraging success in school, giving praise and affection, spending time together and talking,

being attentive to their children's daily lives, reading to their children, and encouraging children to develop their talents.

Finley and Schwartz (2004) developed one of the more widely used father involvement scales; the Father Involvement Scale (FIS) was designed to assess father involvement in 20 activities compiled in three domains: 1. Expressive (e.g., leisure, fun, play, spiritual development); 2. Instrumental (e.g., developing responsibility, discipline, ethical/moral development, providing income); and 3. Mentoring/advising (e.g., developing competence, mentoring/teaching, advising).

The Wood & Repetti (2004) Father Involvement Scale (FIS) is a ten-item assessment of four areas of father involvement: 1. Indirect father involvement (e.g., attending school meetings and planning activities); 2. Social-emotional functions (e.g., direct social interaction and play); 3. Custodial caregiving functions (e.g., preparing for bed and school); and, 4. Instructive functions (e.g., reading, helping with school work, and teaching the child about the world) that are specific parent-child interactions that have been identified in the developmental literature as beneficial to children (Pleck, 1997).

Dick (2004) introduced a Fatherhood Scale containing 64 father involvement practices within 9 domains of father involvement: 1. Positive Engagement (e.g., my father took me on activities, during my teen years my father and I did things together); 2. Positive Paternal Emotional Responsiveness (e.g., my father told me that I was a good boy/girl, my father is a caring person); 3. Negative Paternal Engagement (e.g., my father spanked me, my father hit my mother); 4. The Moral Father Role (e.g., my father taught me right from wrong, my father went to church with me); 5. The Gender Role Model (e.g., my dad taught me to fight back, my father encouraged me to say what I felt); 6. The Good Provider Role (e.g., my father made sure I had

the things I needed like clothing and toys, my father provided well for us financially); 7. The Androgynous Role (e.g., my father told me that he loved me, my father hugged me); 8. Responsible Paternal Engagement (e.g., my father helped me with my homework, my father attended school conferences); and 9. The Accessible Father (e.g., my father talked to be about my personal problems, my father helped me solve my problems).

The ten father-reported studies used six unique instruments to measure father involvement: The Father Involvement Scale (FIS), Father Involved in Childcaring (FIC), Fatherhood Scale (FS), Inventory of Father Involvement (IFI), Involved Father Index (IFI), and the Parental Responsibility Scale (PRS), with an averaged Cronbach α score of .83.

Limitations

Despite reaching our research aims, there are two major limitations of this study, social desirability bias (self-reported data) and culturally/ethnically limited. According to Brutus, Aguinis, and Wassmer (2013), self-reported data may contain biases that may pose as a limitation due to: 1. selective memory (remembering or not remembering experiences or events that occurred at some point in the past); 2. telescoping (recalling events that occurred at one time as if they occurred at another time); 3. attribution (the act of attributing positive events and outcomes to one's own agency but attributing negative events and outcomes to external forces); and 4) exaggeration (the act of representing outcomes or embellishing events as more significant than is actually suggested from other data).

Within the limitation of self-reported data by fathers and retrospective child-report data for father involvement, exists two factors that may influence the accuracy of self-reporting. Factor one, self-reported data cannot be independently verified. Thus, allowing fathers to over-report father involvement with the child. The second Factor that may influence the accuracy of

self-reporting, is retrospective reporting, e.g. time. If too much time has passed from the involvement to the reporting, this may result in less accurate reporting from the child.

This has been an extensive review of father-reported and children-reported measures of father involvement through the application of quantitative techniques. There are significant gaps remaining in the extant literature and limitations in the research reported here that should be addressed. Further research is required to improve the robustness of the findings as follows:

- The study hypothesizes social desirability bias in self-reporting as a possible reason for the discrepancy in averaged Cronbach alpha scores between father-report ($\alpha=.87$) and child-report ($\alpha=.83$) father involvement measures. Fisher (1993), referred to social desirability bias in self-reports, as people often reporting inaccurately on sensitive topics to present themselves in the best possible light.
- Despite having a diverse pool of applicants, the percentages cannot be extrapolated to the general population. Caucasian Americans (32%) in the overall sample are under-represented by roughly 30% and Latino/Hispanic Americans (41%) are over-represented by (23%) (U.S. Census Bureau, 2017).

Conclusion

The purpose of this review was to identify the conceptualizations of father involvement and synthesize behaviors that operationalized father involvement. It is evident from the extant literature reviewed, the concept of father involvement is typically classified as three domains containing a myriad of involvement activities and behaviors. This study synthesized father involvement as two main domains consisting of 28 father involvement activities. Significant racial and ethnic gaps remain in the extant literature. However, the findings of the systematic review offer foundational evidence to expand specific and more pertinent tools and techniques to

fathers and responsible fatherhood programs with evidenced based parenting practices and behaviors. Recommendations for further work include samples reflective of present demographics and multi-faceted, mother-father, father, and father-child measures of father involvement behaviors.

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**Chapter 3: Testing a Contextual Model of the Effects of Father Involvement on
Externalizing & Internalizing Behaviors at Middle Childhood**

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Abstract

Guided by a heuristic contextual model of father involvement, data from the Fragile Families and Child Wellbeing Study were analyzed to assess the effects of father involvement (mother and father report of father caregiving) at five years of age on children's internalizing, externalizing, and delinquency behaviors subsequently measured at middle childhood. Path analyses found that mother-reported father involvement was significantly negatively predictive of child externalizing in girls and delinquency in boys, even after controlling for the effects of father age, socioeconomic status, and health, and including the effects of mother involvement in the models. Mother involvement was significantly positively predictive of child externalizing in girls and delinquency in boys.

Keywords: delinquency, early and middle childhood, externalizing, father involvement, internalizing, mother involvement

Testing a Contextual Model of the Effects of Father Involvement on Externalizing & Internalizing Behaviors at Middle Childhood

Interest in father involvement and behavioral outcomes in their children has gained attention, with researchers finding that behavioral problems in childhood are linked to various family and parenting factors (Goodman et al., 2011; Kawabata, Alink, Tseng, van Ijzendoorn, & Crick, 2011). Children's behavior problems are generally characterized as falling into two categories: externalizing behaviors (e.g., conduct problems and aggression) and internalizing behaviors (e.g., depression and anxiety) (Otto et al., 2015), which are important predictors of future functioning (Copeland, Shanahan, Costello, & Angold, 2009). Externalizing problems can be identified in the toddler and preschool years, and they persist at moderate levels across the transition to middle childhood (Campbell, Pierce, March, Ewing, & Szumowski, 1994; Moffitt & Henry, 1991). Additional studies identified early symptoms and disorders of internalizing behaviors can impair development and psychosocial functioning in interpersonal interactions, learning, or leisure time and can be seen in children as early as 3–6 years of age (Bufferd, Dougherty, Carlson, & Klein, 2011).

Studies have linked father involvement and lower prevalence of internalizing and externalizing behaviors (Amato & Rivera, 1999; Carlson, 2006), however, there is little extant literature on the short-term and long-term impact of early father involvement (Phares, Fields, Kamboukos, & Lopez, 2005). This study focuses on early father involvement (4-5 years of a child's life) and later child behavioral outcomes, particularly, internalizing and externalizing behaviors at middle childhood (10-11 years old). Guided by Cabrera, Fitzgerald, Bradley, and Roggmans' (2007) heuristic, contextual model of father involvement, this study sought to assess predictors that influence father involvement which, in turn, influence behavioral outcomes in

children. This model also simultaneously considered the effects of mother involvement on child behavioral outcomes.

Literature Review

Early Father Involvement and Externalizing and Internalizing Behaviors

Campbell, Spieker, Burchinal, and Poe (2006) and Farrington (1995) found that indications of externalizing and internalizing behavior problems often emerge early in childhood, with early emergence signifying a strong likelihood of continued problems into adulthood. Additional researchers (Briggs-Gowan, Bosson-Heenan, Guyer, & Horwitz, 2006; Keenan, Shaw, Delliquadri, Giovannelli, & Walsh, 1998; Lavigne et al., 1998; Sourander et al., 2006), have identified a trajectory from infancy to childhood in children that exhibit behavioral and emotional problems. Externalizing behavior problems have been associated with poorer childhood outcomes, including: academic failure, social rejection, parental conflict, delinquency, low educational and occupational attainment, and ultimately, adult criminality (Kazdin, 1987; Loeber, 1990; Patterson, DeBaryshe, & Ramsey, 1989). Internalizing behaviors during preschool age and is a strong precursor to internalizing disorders, such as anxiety disorders or mood disorders (Bilancia & Rescorla 2010; Bittner et al., 2007; Edwards, Rapee, & Kennedy, 2010; Roza, Hofstra, van der Ende, & Verhulst, 2003; Sterba, Prinstein, & Cox, 2007).

Recent studies have found that internalizing and externalizing problems in childhood are linked to various family and parenting factors (Goodman et al., 2011; Kawabata et al., 2011). For example, Pettit and Bates (1989) found toddlers that experienced high rates of positive parental interaction, had lower rates of externalizing problem behavior in preschool and middle childhood (Bates, Bayles, Bennett, Ridge, & Brown, 1991). Several studies (Conger et al., 1992; Kaczynski, Lindahl, Malik, & Laurenceau, 2006; McCoy, Frick, Loney, & Ellis, 1999; Miller, et

al., 1993) have identified linkages between externalizing behaviors in children and demographic, contextual, and parental factors (e.g., socioeconomic status, parental psychopathology, marital adjustment, and parenting).

Most studies examining links between parents' (delinquency, antisocial) behaviors and children's behavior problems focus on externalizing outcomes during adolescence (Robins, 1991). However, as Otto et al. (2015) posited, much less is known about how children are influenced during early and middle childhood and whether internalizing and externalizing behaviors are linked to parents' behaviors. According to Egger and Angold (2006), internalizing and externalizing behaviors may be somewhat different in early and middle childhood, compared to adolescence. For example, Klein, Otto, Fuchs, Zenger, and von Klitzing (2013) and Luby et al. (2003) did not find any gender differences in children during adolescence and at preschool age in the prevalence of internalizing symptoms or disorders.

Cabrera, Tamis-LeMonda, Bradley, Hofferth, and Lamb (2000) argue that father involvement may be another factor that influences positive child outcomes but has received limited attention in recent psychological research. Similarly, Flouri (2010) and Lamb (2010) proposed the standard family environment model predicts that positive father involvement should aid in the development of emotional regulation, social skills, and other aspects of child behavior. Much of the literature supports the correlation between parenting and child externalizing behaviors (Frick & Loney, 1999; Loeber & Stouthamer-Loeber, 1986; Patterson, 1986; Patterson, Chamberlain, & Reid, 1982), however, there are several limitations of the extant literature.

One major limitation of the current literature is that many studies include data from mothers only, thereby limiting the known information about the correlation between father

involvement and later child behavior problems, as well as how these relationships differ from those of mothers. These differences may be significant, since some studies have found that lack of father involvement is more strongly associated with adolescent delinquency and aggression than is lack of mother involvement (Harris, Furstenberg, & Marmer, 1998; Loeber & Stouthamer-Loeber, 1986). Studies continually show that father absence, whether physically or psychologically, is associated with fewer economic and socioemotional resources for children, developmental delays (Cabrera et al., 2000), and behavior problems (Lamb, Sternberg, & Thompson, 1997). Conversely, early father involvement has been shown to be related to lower levels of child behavior problems (Amato & Rivera, 1999; Carlson, 2006) and may prevent the development of future behavior problems in difficult children (Aldous & Mulligan, 2002).

Studies have also shown father involvement predicts positive child outcomes, such as cognitive development (Yogman, Kindlon, & Earls, 1995) and educational attainment (Flouri & Buchanan, 2004). This was further supported by Amato and Rivera (1999), who reported an inverse relationship between level of positive paternal involvement and children's behavior problems. Van der Bruggen, Stams, Bögels, and Paulussen-Hoogeboom (2010) found when children are 3–5 years old, mothers seem to be more influential than fathers because they spend more time with the child. However, fathers' participation and associated influence, increases with child's age.

With respect to internalizing problems in childhood, Van der Sluis, Van Steensel, and Bögels (2015), suggested that paternal parenting is just as important as maternal parenting. Longitudinal studies using multiple informants have suggested that fathers' reporting of internalizing symptoms in a child at age 3 years significantly predicted similar symptoms at age 5 years (Kerr, Lunkenheimer, & Olson, 2007).

Studies by Carlson (2006) and Aldous and Mulligan (2002) found father involvement has stronger effects on externalizing behaviors for boys and stronger effects on internalizing behaviors for girls (ages 5 – 14). These studies are supported by prior research that indicated trajectories to externalizing and internalizing behavior problems differ for boys and girls, possibly due to socialization practices and cognitive development (Keenan & Shaw, 1997; McFayden-Ketchum, Bates, Dodge, & Pettit, 1996).

Paternal Involvement

The operationalization of paternal involvement has evolved over the past three decades. Lamb, Pleck, Charnov and Levine (1985) and Lamb, Pleck, and Levine (1987) first operationalized paternal involvement as three components: paternal engagement, accessibility, and responsibility. Hofferth (2003) operationalized paternal involvement as four components: time spent with the child, warmth, monitoring and control, and responsibility. Carlson (2006) created a composite of paternal involvement containing seven components: talking over important decisions with my father, father listening to my side of an argument, father knowing whom I am with when I am not at home, father missing events or activities that are important to me, father and I sharing ideas or talking about what really matters to me, father spends enough time with me, and I feel close to him. Pleck (2010) proposed a revised and re-conceptualized model of paternal involvement which reflects how paternal involvement is operationalized in current paternal literature. This new framework contains three main components (positive engagement activities, warmth and responsiveness, and control) and two secondary components (indirect care and process responsibility).

Prior research has found externalizing behaviors in children are related to demographic, contextual, and parental factors (e.g., socioeconomic status, parental psychopathology, marital

adjustment, and parenting), but there is a paucity of research on short-term effects of father involvement on children's behavioral outcomes at middle childhood. Furthermore, many studies only include mother-reported data. Utilizing mother and father reported data and guided by the Cabrera, Fitzgerald, Bradley, and Roggman (2007) heuristic model of father involvement, this study sought to assess the effects of father involvement on child behavioral outcomes in the context of predictors that may influence both father involvement and those child outcomes. Cabrera et al. (2007) also argue that father involvement effects must be tested in the context of mother involvement effects which may facilitate (or hinder) fathers' interactions with their children. We thus address the following research questions:

- 1) What effects does father involvement have on child externalizing, internalizing, and delinquency behaviors at middle childhood?
- 2) What effects do father characteristics, including father age, SES, and health, have on father involvement and child externalizing, internalizing, and delinquency behaviors?
- 3) Are the effects of father age, SES, and health on child internalizing, externalizing, and delinquency behaviors mediated by father involvement, i.e., are father involvement effects on child outcomes partially the result of father characteristics predictive of father involvement?
- 4) Are the above effects found even in the context of mother involvement effects on child externalizing, internalizing, and delinquency behaviors?
- 5) Are the above effects moderated by child gender?

Methods

Data

The data for this study were drawn from a sample of the Fragile Families and Child Wellbeing Study (FFCWS), a national study that followed a cohort of low-income married and

unmarried parents and their young children living in 20 U.S. cities with populations over 200,000. The Fragile Families Study was designed primarily to investigate the conditions of low-income and unmarried families, how children born into these families' fare, and how local policies and environmental circumstances affect families (CRCW, 2007). Sampling occurred in three stages: cities, hospitals within cities, and births within hospitals. A national sample of 16 cities was selected randomly from a stratified sample of 77 cities. Four additional cities were added to the sample because they were of primary interest to the funding bodies. Baseline data were collected between 1998 and 2000; 4,898 mothers were interviewed in the hospital within 24 hours of their child's birth (1,186 marital births and 3,712 nonmarital births).

In all, 4,789 mothers were interviewed at baseline, which constituted a 98% response rate. Mothers were re-interviewed for 1-year, 3-year, and 5-year follow-up data collection interviews. Response rates for the 1-year, 3-, and 5- year follow-up interviews were 87% (n = 4,270), 85% (n = 4,140), and 83% (n = 4,055), respectively (CRCW, 2007). Fathers were also interviewed in the hospital when possible and contacted in other locations if they were not present at the birth (Reichman, Teitler, Garfinkel, & McLanahan, 2001). In all, 3,742 fathers were interviewed at baseline, which constituted a 78% response rate. Fathers were re-interviewed for 1-year, 3-year, and 5-year follow-up data collection interviews. Response rates for the 1-year, 3-, and 5-year follow-up interviews were 74% (n = 3,306), 72% (n = 3,225), and 70% (n = 3,087), respectively (CRCW, 2007). Mothers of African American decent represented the largest group with 48%, followed by 27% Hispanic, and 21% White. African American fathers represented 49%, Hispanic fathers represented 28%, and White fathers represented 18% of study participants (CRCW, 2011).

Sample

The sample for the present analyses consisted of families whose children completed the 9-year follow-up interview data collection wave of the Fragile Families Study (CRCW, 2011) and where there was either a father or a mother report of father involvement in the children's lives. This sample included 1149 boys (mean age at father 1-year interview = 15.55 months (SD = 3.78) and 1087 girls (mean age at father 1-year interview = 15.70 months (SD = 3.80). Mothers in this sample had a mean age at the 1-year interview of 26.81 (SD = 6.09), while fathers' mean age at the 1-year interview was 29.51 (SD = 7.28).

Measures

Conner's Teacher Rating Scale (TRS)–Revised Short Form. This teacher rating scale (Conners, 2001) is a 28-item survey in which a teacher is asked to rate the child's behavior. Items were responded to on a 4-point scale where 1 = never, 2 = sometimes, 3 = often, and 4 = very often. Teacher reports from the 9-year follow-up were used to assess children's functioning at that timepoint. Seven items (controls temper in conflict with others (reversed), fights with others, threatens or bullies others, argues with others, talks back to adults when corrected, gets angry easily, has temper tantrums) were combined (averaged) to form an externalizing scale ($\alpha = .94$), while 5 items (has low self-esteem, appears lonely, shows anxiety about being with a group of children, is easily embarrassed, acts sad or depressed) were combined (averaged) to form an internalizing scale ($\alpha = .84$).

Delinquent behavior. These 17 yes-no items (centered around physical aggression, stealing, vandalism and substance use) administered at the 9-year follow-up were modeled after the "Things That You Have Done" instrument (Ensminger, Elliott, Huizanga, & Menard, 1991; Liska, Elliott, Huzinga, & Ageton, 1986) and asked the child to report if they had ever engaged

in anti-social behaviors (e.g., purposely damaged or destroyed property, skipped school without an excuse). The Cronbach's alpha for the scale was .70, and scores are the sum of the yes responses.

Father involvement. Father involvement at the 5-year follow-up was operationalized as mother- and father-reported father involvement using 8 items on time spent with the child for different activities. The items (e.g., "Days/week: sing songs/nursery rhymes with child? Days/week: read stories to child? Days/week: you tell stories to child?") were measured on a 7-point scale ranging from 0 (none) to 7/days a week. The internal consistency alpha for the father-reported father involvement subscale was .76, whereas, the alpha for the mother-reported father involvement subscale was .88. Reported scores are the means across the items.

Mother involvement. Involvement at the 5-year follow-up was operationalized as mother-reported mother involvement using 8 items. The items (e.g., "Days/week: sing songs/nursery rhymes with child? Days/week: read stories to child? Days/week: you tell stories to child?") were measured on a 7-point scale ranging from 0 (none) to 7/days a week. The internal consistency alpha for the mother-reported mother involvement subscale was .68. Reported scores are the means across the items.

Father characteristics. Father characteristics considered for the present analyses included father age at the 1-year interview, father SES, and father health. SES was based on whether family incomes fell within one of five categories: 1 = below 49%, 2 = 50-99%, 3 = 100-199%, 4 = 200-299%, 5 = above 300% of the Federal poverty line. Father health was self-reported on a scale of 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 =excellent.

Results

Table 1 presents the means and standard deviations for 1-year follow-up father age, father SES, and father health, 5-year follow-up father-reported father involvement, mother-reported father-involvement, and mother-reported mother involvement, and 9-year follow-up teacher-reported child externalizing and internalizing and child-reported child delinquency by child gender. Among the predictor variables, the only significant gender difference was that mothers reported greater involvement for girls than boys. There were significant gender differences for all the dependent variables, with boys scoring higher than girls on externalizing, internalizing, and delinquency.

Table 2 presents the correlations among the variables separately by gender. For both boys and girls, father age, SES, and health did in places significantly correlate with father and mother involvement, although relationships were both positive and negative. In contrast, father age, SES, and health were all negatively correlated with child externalizing, internalizing, and delinquency, with several of these correlations reaching statistical significance. Mother-reported father involvement was significantly negatively correlated with child externalizing for girls ($r = -.08, p < .05$) and child delinquency for boys ($r = -.10, p < .01$). Mother-reported mother involvement was significantly positively correlated with child delinquency for boys ($r = .07, p < .05$).

Table 1

Means and Standard Deviations by Child Gender

	Boys			Girls			<i>t</i>
	N	Mean	SD	N	Mean	SD	
Father age (1 year)	966	29.40	7.14	914	29.43	7.43	-0.66
Father SES (1 year)	965	3.37	1.38	911	3.34	1.36	0.43
Father health (1 year)	966	3.91	0.97	913	3.89	1.00	0.40
Father involvement – father report (5 year)	878	3.98	1.26	810	3.96	1.28	0.27
Father involvement – mother report (5 year)	1017	3.03	1.65	977	3.11	1.68	-1.16
Mother involvement – mother report (5 year)	1110	4.59	1.15	1053	4.69	1.13	-1.99*
Child externalizing – teacher report (9 year)	769	1.65	0.72	734	1.44	0.56	6.45***
Child internalizing – teacher report (9 year)	773	1.60	0.57	734	1.54	0.53	2.27*
Child delinquency – child report (9 year)	1129	1.54	1.97	1074	0.82	1.39	9.84***

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 2

Correlations by Child Gender^a

	Father age	Father SES	Father health	Father inv. - f	Father inv. - m	Mother inv. - m	Child extern.	Child intern.	Child delinq.
Father age		.27***	-.07*	-.08*	.03	-.13***	-.03	-.04	-.11**
Father SES	.27***		.12***	.02	.06	.03	-.09*	-.07	-.08*
Father health	-.04	.09**		.05	.04	.10**	-.07	-.05	-.02
Father involvement – father	-.08*	-.07*	.11**		.30***	.18***	-.03	.05	.03
Father involvement – mother	.06	.05	.07*	.38***		.42***	-.08*	.02	-.04
Mother involvement – mother	-.06	.02	.00	.18***	.39***		.02	.04	.00
Child externalizing	-.15***	-.23***	-.05	.01	-.07	.05		.37***	.33***
Child internalizing	-.05	-.21***	-.01	.07	-.04	.04	.39***		.19***
Child delinquency	-.08*	-.13***	-.05	-.02	-.10**	.07*	.34***	.10**	

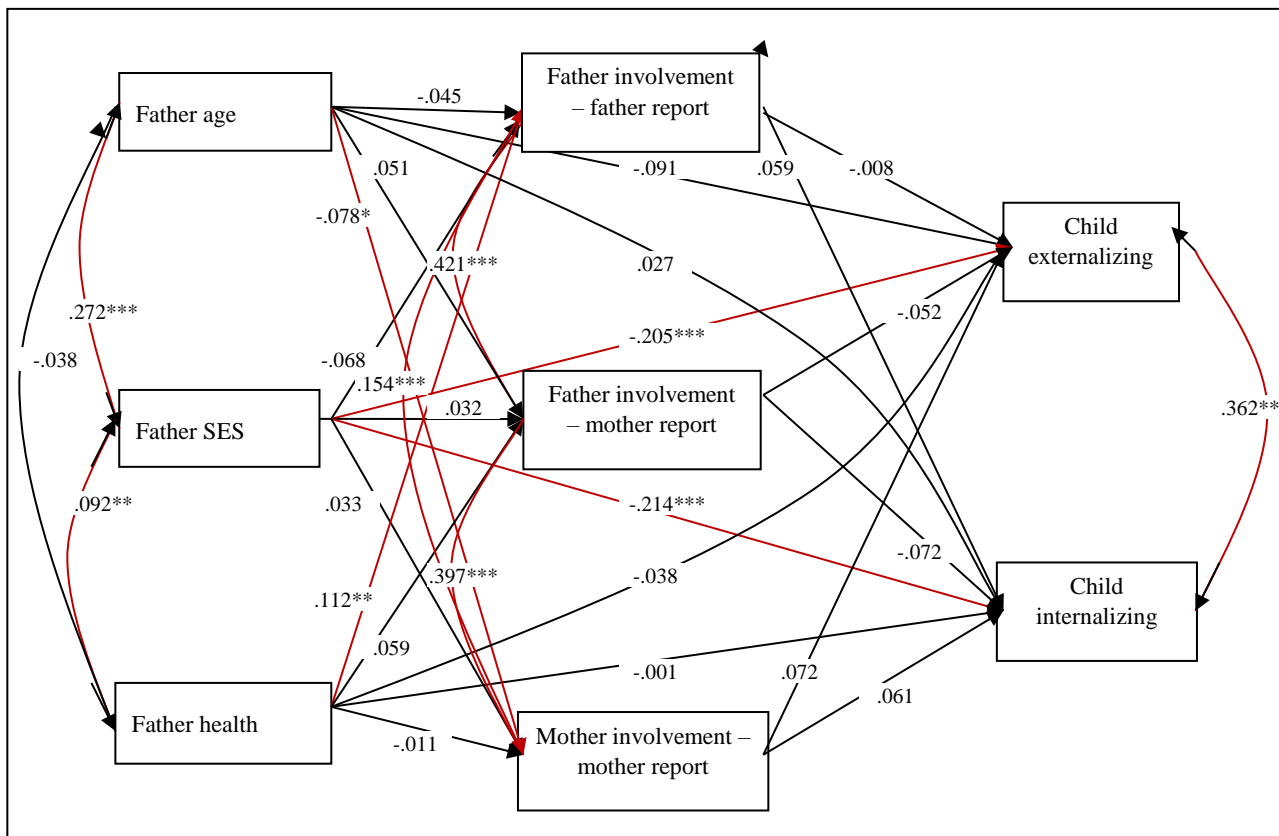
Note. ^a. Girls above the diagonal and boys below the diagonal.

* $p < .05$ ** $p < .01$ *** $p < .001$

Path analyses were conducted to test the effects of father involvement on child externalizing, internalizing, and delinquency in the context of father characteristics predictive of father involvement and with the effects of mother involvement included in the model. The path analyses modeled 1-year follow-up father age, father SES, and father health as exogenous variables predicting 5-year follow-up father-reported father involvement, mother-reported father involvement, and mother-reported mother involvement that, in turn, predicted 9-year follow-up teacher-reported child externalizing and internalizing and child-reported child delinquency (Figures 1 to 4).

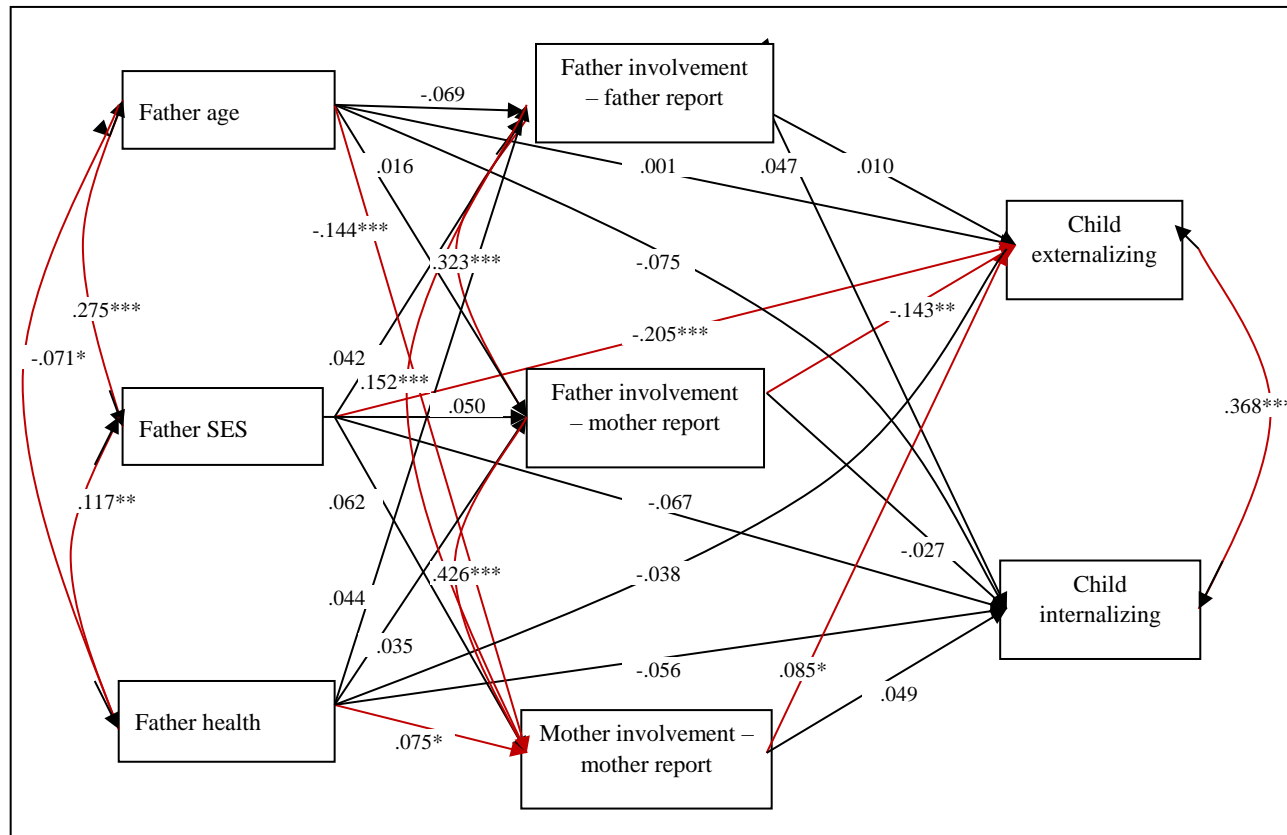
These analyses also tested whether the relationships between father age, SES, and health with child externalizing, internalizing, and delinquency were mediated by father and mother involvement, i.e., whether there were significant indirect paths from father characteristics to child behaviors through father and mother involvement. Combined and separate analyses were also run for child gender, with a difference chi-square calculated for the combined analyses to test for the equivalence of the estimated paths for the male versus female matrices. Mediation effects were tested using the bias corrected bootstrapping of confidence intervals option in Mplus version 5.21 (Muthén & Muthén, 2012) with maximum likelihood estimation using the covariance matrix. Missing data were handled using full information maximum likelihood. Given the differences in the available sample sizes for teacher-reported child externalizing and internalizing vs. child-reported delinquency, analyses were run separately for these dependent variables.

Figure 1. Standardized path coefficients for the path model predicting child externalizing and internalizing from father characteristics and father and mother involvement: Boys.



* $p < .05$ ** $p < .01$ *** $p < .001$

Figure 2. Standardized path coefficients for the path model predicting child externalizing and internalizing from father characteristics and father and mother involvement: Girls.

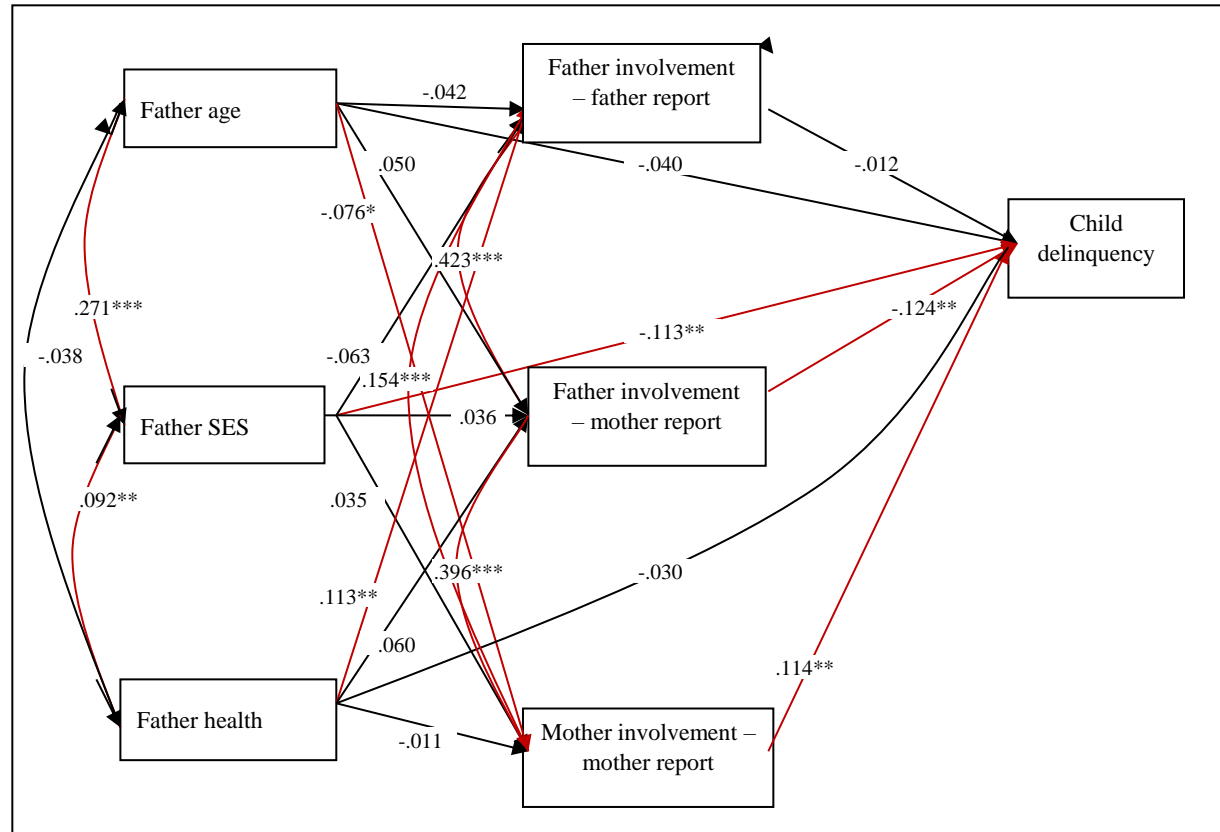


* $p < .05$ ** $p < .01$ *** $p < .001$

Results of the path analyses are presented separately for the male and female estimates, as the difference chi-squares for the combined models were both significant ($\chi^2 = 42.67$, 28 df, $p = .038$ for externalizing/internalizing; $\chi^2 = 46.95$, 25 df, $p = .005$ for delinquency). Bootstrapped mediation analysis indicated that the relationships between father age, father SES, and father health with child externalizing, internalizing, and delinquency were not significantly mediated by father nor mother involvement. The only exception to this was the pathway from father age through mother involvement to child delinquency (95% confidence interval: -.006, -.001). For boys, father SES significantly predicted child externalizing (standardized estimate = -.21, $p = .001$), internalizing (standardized estimate = -.21, $p = .001$), and delinquency (standardized estimate = -.11, $p = .001$), while father age significantly predicted child externalizing (standardized estimate = -.09, $p = .021$). For girls, father age significantly predicted child delinquency (standardized estimate = -.10, $p = .002$).

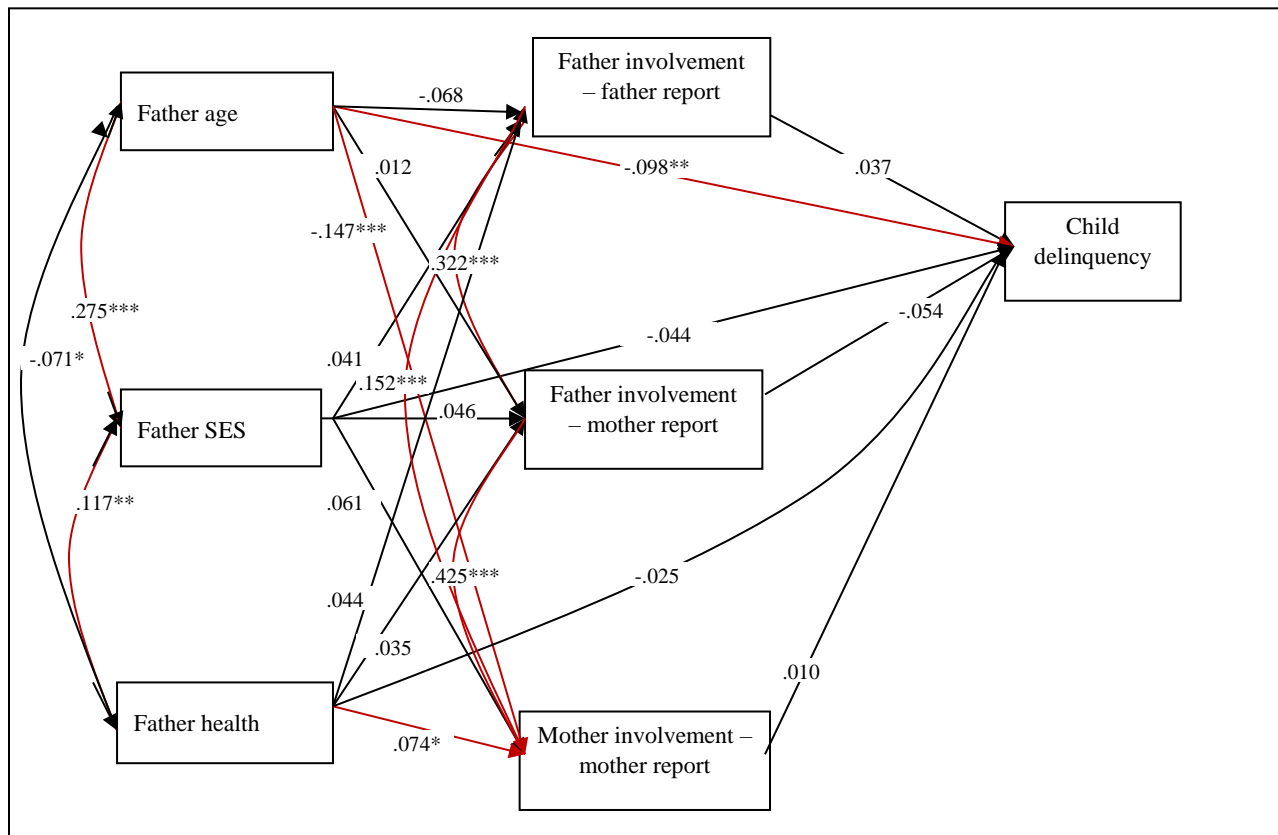
In these path models, which controlled for the effects of father age, SES, and health and included both father and mother involvement, mother-reported father involvement significantly predicted girls' externalizing (standardized estimate = -.14, $p = .004$) and boys' delinquency (standardized estimate = -.12, $p = .002$). Mother-reported mother involvement also significantly predicted girls' externalizing (standardized estimate = .09, $p = .044$) and boys' delinquency (standardized estimate = .11, $p = .001$), but in contrast to the effects for mother-reported father involvement, the relationships between mother involvement and child behaviors were positive.

Figure 3. Standardized path coefficients for the path model predicting child delinquency from father characteristics and father and mother involvement: Boys.



* $p < .05$ ** $p < .01$ *** $p < .001$

Figure 4. Standardized path coefficients for the path model predicting child delinquency from father characteristics and father and mother involvement: Girls.



* $p < .05$ ** $p < .01$ *** $p < .001$

Discussion

The primary aim of this study was to assess the effects of father involvement on child behavioral outcomes in the context of predictor variables that may influence both father involvement and child outcomes. Additionally, we explored father involvement effects in the context of mother involvement which may facilitate (or hinder) fathers' interactions with their children. The results of our study further highlight the importance of father involvement on child behavior outcomes.

We tested the Cabrera et al. (2007) conceptual model of paternal behavior and influence on children, using father characteristics, two indicators of father involvement, and one indicator of mother involvement in predicting teacher-reported child internalizing and externalizing behaviors and child self-reported delinquency behaviors. Cabrera et al.'s (2007) model argues that fathers' rearing, cultural, and biological history, coupled with father characteristics, converge to serve as catalysts for father involvement which, in turn, can have effects on child behavioral outcomes. Our results suggest that father characteristics, including age, socioeconomic status, and health, are, in fact, predictive of father involvement and of child behavioral outcomes. Previous research has found that father age, education, and SES, are predictors of father involvement (Craig, 2006; Duursma, Pan, & Raikes, 2008; McMunn, Martin, Kelly, & Sacker, 2015), but child age and gender (Barnett & Baruch, 1987; Raley & Bianchi, 2006) may moderate father caregiving activities, as fathers prefer to interact with their sons rather than with their daughters. The lack of significant mediational effects of father involvement on the pathways from father age, SES, and health to child behavioral outcomes in the present findings, however, suggests that father involvement effects are largely independent of these father characteristics.

The present findings support previous studies (Amato & Rivera, 1999; Carlson, 2006; Phares et al., 2005) which found father involvement is associated with lower prevalence of child internalizing and externalizing behaviors. These effects were found, even after controlling for the effects of father age, SES, and health, and including the effects of mother involvement. In terms of gender differences and consistent with prior research (Aldous & Mulligan, 2002; Carlson, 2006), this study found boys scored higher than girls on externalizing and delinquency behavior scores.

However, inconsistent with prior research (Carlson, 2006), our study found gender differences in the effects of father involvement on child behavioral outcomes (Aldous & Mulligan, 2002; Flouri & Buchanan, 2002; Keizer, Lucassen, Jaddoe, & Tiemeier, 2014; Vaden-Kiernan, Ialongo, Pearson, & Kellam, 1995), with greater father involvement, based on mother reports, being associated with lower teacher-reported externalizing behaviors in girls and lower self-reported delinquency behaviors in boys. A systematic review conducted by Sarkadi et al. (2008) found that father involvement had positive effects on behavioral outcomes for mainly boys and for poor families. A possible reason for this is that fathers are more involved with their sons than daughters (Bronte-Tinkew, Moore, Capps, & Zaff, 2006; Bronte-Tinkew, Moore, & Carrano, 2006; Yeung, Sandberg, Davis-Kean, & Hofferth, 2001) and fathers spend their time differently with their sons by taking on a larger share of child caregiving tasks (Keizer, Lucassen, Jaddoe, & Tiemeier, 2014; Sarkadi et al., 2008; Yeung et al., 2001). While the delinquency finding for boys is consistent with these studies, the externalizing finding for girls is anomalous and may reflect reporting biases (teacher vs. self-reports).

The results of our study further the understanding of how variables associated with fathers' rearing, cultural, and biological history, coupled with father characteristics, converge

and interact to effect child behavior outcomes at middle childhood. In general, the findings of this study support previous research (Cabrera, Tamis-LeMonda, Shannon, & Bradley, 2012; Eagly & Wood, 2013; Fletcher, St. George, & Freeman, 2013; Howe, 2009; Joussemet, Landry, & Koestner, 2008; Kuczynski & Parkin, 2008; Panksepp, Burgdorf, Turner, & Gordon, 2003; Paquette & Dumont, 2013; and Sameroff, 2010). Based on our findings and guided by the Cabrera et al. (2007) model of paternal behavior and influence on children conceptual model, we confirmed father predictive variables influence father involvement at 4-6 years of a child's life, and the effects of that father involvement are found to influence behavior outcomes at middle childhood (10-11 years).

Limitations

Limitations of the study include location, self-report measures, and sample size. Most study participants interviewed in the Fragile Families study were from large urban cities in the Midwest and Northeast regions of the United States (CRCW, 2011). The variation in cultural norms and beliefs in relation to geographic regions must also be considered.

Although we have father and mother reported measures of involvement, self-reported measures are difficult to validate or corroborate and therefore serves as the second limitation of the study. According to Brutus, Aguinis, and Wassmer (2012), self-reported data can be biased in 4 ways: (1) selective memory; (2) telescoping (recalling events that occurred at another time); (3) attribution (positive events are internal and negative event are external); and, (4) exaggeration. Over the course of a longitudinal study, fathers may exaggerate or telescope their involvement and mothers may have selective memory about father involvement or attribute father involvement to mother influence. The discrepancies between the effects of father- vs. mother-reported father involvement indicate that reporting biases are an issue here.

Conclusion

The present findings highlight the importance of early father involvement in fostering healthy psychological development in their children. These findings also demonstrate the importance of considering contextual factors, such as fathers rearing, cultural, and biological history, father SES and child gender, as they enhance or diminish father involvement behaviors. Future longitudinal studies of internalizing and externalizing behaviors starting from early childhood need to include more comprehensive assessments of father parenting behaviors that include father reported measures of involvement and when appropriate, child reported measures of father involvement. Qualitative research would also shed light on the mechanisms and the contexts in which father involvement has lesser or greater impact on children's development.

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**Chapter 4: Testing a Conceptual Model of Father Involvement on
Educational Outcomes at Middle Childhood**

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Abstract

Guided by the heuristic dynamics of paternal behavior and influence on children contextual model of father involvement, data from the Fragile Families and Child Wellbeing Study were analyzed to assess the effects of father involvement (mother and father report) at nine years of age on children's academic performance measured at middle childhood. Path analyses found that mother and father-reported father involvement was not significantly predictive of academic performance in girls, but mother-reported father involvement was significantly positively predictive of child academic performance in boys, even after controlling for the effects of father age, socioeconomic status, education, and relationship with child's mother, and including the effects of mother-reported mother involvement in the models. Mother-reported mother involvement was not predictive of child academic performance in both girls and boys.

Keywords: academic performance, educational outcomes, father-reported father involvement, middle childhood, mother-reported mother involvement

Testing a Conceptual Model of Father Involvement on Educational Outcomes at Middle Childhood

The extant literature has identified father involvement as a predictor of positive cognitive development and educational attainment in children (Flouri & Buchanan, 2004; Jeynes, 2016; Yogman, Kindlon, & Earls, 1995). Similarly, Fagan and Iglesias (1999) found children with involved fathers had higher mathematics scores and a study by Flouri and Buchanan (2004) found father involvement at age seven, positively affected educational attainment from adolescence through late teens. McBride, Schoppe-Sullivan, and Hos' (2005) study further supported these findings by linking fathers' involvement with school-related activities to student achievement.

More recently, a meta-synthesis of pre-school, elementary school, and secondary school aged children (Jeynes, 2016), found a positive relationship between father involvement and academic outcomes from pre-kindergarten through 20-year-old youth. Comparing academic outcomes to behavioral outcomes, there is a paucity of research on predictors, or pathways, to and from father involvement in context of child academic performance. Given the correlation between father involvement and outcomes in children, "relatively few studies have investigated the individual contributions that mothers and fathers make to their children's schooling" (Flouri & Buchanan, 2004, p. 142) and even less have specifically researched the influence of father involvement on educational outcomes (Curtis, Grinnell-Davis, & Alleyne-Green, 2017).

Guided by the expanded Cabrera et al., (2014) heuristic model of the dynamics of paternal behavior and influence on children over time as the conceptual framework, this study sought to: measure the pathways from father involvement predictors to father involvement, explore the mediating effects of mother and father involvement on father predictors and

academic performance, test pathways from father involvement to academic performance at middle childhood, and evaluate the moderating effects of gender on predictors, involvement, and academic performance.

Literature Review

The percentage of births to unmarried women has octupled from 5% in 1960 to 40% in 2016 (United States. DHHS, 2009, 2018; Ventura & Bachrach, 2000). According to 2016 U.S. Census data, 25% of children under the age of 18 (roughly 17 million) are being raised with a non-resident father (United States. Bureau of the Census., 2017a). At face value these percentages do not reflect the dire situation of children raised in single-mother households without the aid or involvement of fathers. In 2016, 40% of children in single-mother families were impoverished compared to 12% of children in two parent families (United States. Bureau of the Census., 2017c). Single-mothers also have little opportunity for upward social mobility through education. With nearly 85% of single-mothers' income spent on housing, housing expenses, and child care (United States. Bureau of the Census., 2017b), financial restraints have resulted in 36% having a college degree and 16% without a high school diploma. These statistics are especially troubling because of the correlations between parent education, socioeconomic status, child maltreatment, father absence, and negative child outcomes (e.g., behavioral, emotional, educational) (Berger, 2003; Guterman & Lee, 2005). Father presence, or involvement, has shown to mediate and improve outcomes in children across their life course.

Several studies have identified the positive influences of father involvement on child outcomes, fewer behavior problems in children, increased positive attitude toward school at adolescence, mental health wellbeing in young adulthood, and increased socioeconomic and educational achievements in adulthood (Alfaro et al., 2006; Lamb, 2010; Gliozzi et al., 2009).

Researchers have also identified significant positive correlations between father availability, father involvement and increased cognitive and academic achievement and healthy socioemotional and peer relationship development (Lamb, 2010; Tamis-LeMonda, & Cabrera, 2002). The literature clearly and consistently reveals correlations and influences between fathers and their involvement and outcomes in children. Researchers are continually working to identify the specific groups of parenting behaviors which direct father-child interactions and how these interactions contribute independently and in the context of mother-child interactions.

As attitudes on fatherhood and the understanding of the relationship between father involvement and child outcomes evolved, so did the concept of father involvement. Interest in father involvement has gained attention over the past 30 years with several researchers conceptualizing father involvement into three general domains: engagement (e.g., father interacting one-on-one with child), availability (e.g., present and accessible to child), and responsibility (e.g., ensuring care and welfare of child) (Lamb et al., 1987; McBride & Mills, 1993; Palkovitz, 1997; Pleck, 2010) and operationalizing father involvement with measurable activities, e.g., doctor appointments, feeding, bathing, reading together, homework (Palkovitz, 1997).

The new millennium saw a more focused concept of father involvement, shifting from quantity of activities to the quality of activities. A re-conceptualized model of father involvement was developed by Pleck (2010) to include three primary components of quality vs. quantity father involvement activities: 1) positive engagement activities, interaction with the child of the more intensive kind likely to promote development; 2) warmth and responsiveness; 3) control, particularly monitoring and decision making. Pleck's (2010) model also contained two auxiliary components: 4) indirect care, activities done for the child that do not entail interaction with the

child; and 5) process responsibility, referring to a father's monitoring that his child's needs for the first four components of involvement are being met.

Predictors of Father Involvement

Specific social or demographic factors may influence father involvement; father age, education, father relationship with child's mother, and socioeconomic status, have all served as predictors of father involvement.

Age. Several studies have explored the influence of "age" on father involvement. A handful of studies found no relationship between father age and father involvement (Ahmeduzzaman & Roopnarine, 1992; Landale & Oropesa, 2001; Sanderson & Sanderson-Thompson, 2002). Conversely, many studies identified differences in father involvement based on father age (Baker, 2014; Hofferth, 2003; Volling & Belsky, 1991); finding that younger fathers are more likely to spend time and play with their children compared to older fathers.

Socioeconomic status (SES). Fathers' socioeconomic status has been found to influence levels of father involvement with researchers (Cabrera et al., 2007; Flouri, 2005; Rienks et al., 2011) identifying linkages from father SES to father involvement. One study highlighted the exchange of father financial responsibility for father involvement activities among low-income fathers. Wood and Repetti (2004) found low-income fathers engaged in more caregiving activities after reductions in work or pay. Researchers posit, low-income or low earning fathers may view child care-giving as a "resource that is activated in times of need" (Wood & Repetti, 2004, p. 246) when they are unable to provide financially. Contrarily, Marsiglio et al., (2000) found lower-income and less educated fathers were less involved in child caregiving compared to middle-class higher educated fathers.

Education. Several studies have identified the predictive nature of father education on father involvement. Hofferth et al. (2007) identified father education as significant to the relationship between father and child. Researchers have long posited, that father education is positively correlated with levels of involvement; higher educated fathers are more likely to be involved with their children than lower educated fathers (Gerson, 1993; Grossman et al., 1988, Roggman, et. al, 2002; Sandberg & Hofferth, 2001).

Relationship with child's mother. Parental conflict, maternal gate-keeping, social support, etc. are terms used to describe the relationship between mother and father. Researchers confirm father involvement and accessibility are mediated by the relationship with the child's mother (Cowan et al., 2014; Padilla et al., 2013; Rienks et al., 2011). A few studies (Coates & Phares, 2014; Lamb & Lewis, 2010) have highlighted the correlation between father-mother relationship and father involvement, showing father involvement increases as mother-father relationship improves.

Father Involvement in School-Related Activities

Father involvement in school related activities (e.g., homework, read a book, etc.) have shown to influence children's academic performance. In a NCES (2016) report, findings revealed father involvement and the influence of that involvement differs between two-parent and single parent households (Rathbun & Zhang, 2016). Jeynes (2016) and Somers et al., (2011) found that children in traditional two-parent households with active fathers have better educational outcomes than children in non-traditional households.

However, studies by Castillo, Welch, and Christian (2010) and White and Gilbreth (2001) found when non-resident fathers and stepfathers actively participated in school related activities, they had the same effect on children's educational outcomes as resident and biological

fathers. Given, studies have found 50% of all children born to married parents will experience at least one divorce before their 18th birthday and 10% will experience three or more parental divorces (Fagan & Rector, 2000; Gallagher, 1996), King & Sobolewski (2006) posited traditional, two-parent households, are no longer “traditional” and research should instead focus on the relationship between children and their father or father figure (e.g., stepfathers, common-law, uncles, etc.)

Another NCES report (1997) found additional benefits of father involvement in children’s school-related activities: 1) father involvement influences higher GPA’s; 2) father involvement reduces the likelihood of children being suspended or expelled from school; and 3. father involvement reduces the likelihood children will fail or repeat a grade (Smith et al., 1997).

Academic Performance & Delinquency

Academic performance and achievement are of special importance because they have been found to be predictors of juvenile and adult delinquency. The findings of a meta-analysis by Maguin and Loeber (1996), found academic performance and achievement in children, was one of the strongest and most consistent correlates of delinquency and that these children offended more frequently and committed more serious and violent offenses. “Whether for rational or irrational reasons, poor academic performance motivates them to commit crime” (Felson & Staff, 2006, p. 300).

For decades the extant literature has identified linkages between academic achievement and later delinquency in children. Researchers have long posited that low achieving students turn to the rewards of crime (e.g., money, status, self-esteem) because these rewards are unattainable in school and low grades are the negative experiences that lead children to criminal behavior (Agnew, 1985, 1992; Maguin & Loeber, 1996; Toby, Cloward & Ohlin, 1961). The ability of

academic achievement to predict child delinquency is of extreme importance due to the linkages between child delinquency and adult criminality.

Theoretical Model of Father Involvement

Heuristic Model of Fathering

Building on their 2007 model, Cabrera et al. (2014) conceptualized an expanded model of heuristic dynamics of paternal behavior and influence on children over time, that focused on fathers and their influence on children's development, while considering the transactional and reciprocal nature of the community and systems in which the father interacts. The original Cabrera et al. (2007) model posited that fathers' rearing, cultural, and biological history, coupled with father characteristics, converge to serve as predictors of father involvement which, in turn, can have effects on child outcomes.

The expanded model contextualized these predictors of father involvement as a function of his community, societal systems, and evolving reciprocal father-child relationship, with influences from family relationships and family members personality, personal characteristics, and behaviors (Cabrera et al., 2014). In short, Cabrera et al. (2014) posited, predictors of father involvement are interwoven in the evolving individual, contextual, and family relationships of the father all serving as motivators or inhibitors to involvement.

Guided by the Cabrera et al. (2014) heuristic model of father involvement and utilizing the Lamb, et al. (1987) Engagement domain (to identify father involvement activities) of father involvement, this study sought to assess predictors that influence father involvement, which in turn, influence educational outcomes in their children. This study will address the following research questions:

Research Questions

1. What effects do father characteristics, including father age, education, SES, and relationship with child's mother, have on father involvement and child academic performance at middle childhood?
2. What effects does father involvement have on child academic performance at middle childhood?
3. Are the effects of father characteristics on child academic performance mediated by father involvement?
4. Are the above effects found even in the context of mother involvement effects on child academic performance?
5. Are the above effects moderated by child gender?

Methods

Participants and Procedures

The data for this study were drawn from a sample of the Fragile Families and Child Wellbeing Study (FFCWS), a national study that followed a cohort of low-income married and unmarried parents and their young children living in 20 U.S. cities with populations over 200,000. The FFCWS was designed primarily to investigate the conditions of low-income and unmarried families, how children born into these families' fare, and how local policies and environmental circumstances affect families (Center for Research on Child Well-Being, 2005).

Nested sampling occurred in three stages: 1) cities; 2) hospitals within cities; and 3) births within hospitals. A national sample of 16 cities was selected randomly from a stratified sample of 77 cities. Four additional cities were added to the sample because they were of primary interest to the funding bodies. Baseline data were collected between 1998 and 2000,

4,898 mothers and 4,898 fathers were interviewed for the study. Mothers were interviewed in the hospital within 24 hours of their child's birth (1,186 marital births and 3,712 nonmarital births). Fathers were also interviewed in the hospital when possible and contacted in other locations if they were not present at the birth (Reichman et al., 2001).

Mothers were re-interviewed for 1-year, 3-year, 5-year, and 9-year follow-up data collection. Response rates for the 1-year, 3-year, 5-year, and 9-year follow-up interviews were 89% (n = 4,270), 86% (n = 4,140), 83% (n = 4,055) (Reichman et al., 2001), and 76% (n=3,515) (CRCW, 2011) respectively.

Fathers were re-interviewed for 1-year, 3-year, 5-year, and 9-year follow-up data collection interviews. Response rates for the 1-year, 3-year, 5-year, and 9-year follow-up interviews were 69% (n = 3,306), 67% (n = 3,225), 64% (n = 3,087) (Reichman et al., 2001), and 59% (n=2,652) respectively (CRCW, 2011). The data for this study were drawn from the mothers' and children's 9-year follow-up interview.

Sample

The sample for this study was selected from the baseline (demographics) and 9-year (involvement) follow-up interview data collection waves of the Fragile Families Study and included fathers, mothers, and their children. The demographics of the sample are presented in Table 1. In total, the sample contains completed interviews of 3,400 fathers, 3,389 mothers, and 3,400 children (1,781 boys and 1,619 girls). The mean age of fathers was 37 at child age 9. African American fathers represented 49%, Hispanic fathers represented 28%, and White fathers represented 18% of study participants. Roughly 35% of fathers reported having a high school diploma or equivalent (GED), followed by 31% reporting having less than a high school education, 20% having some college or technical school, and 10% having a college or graduate

degree. Seventy-one percent of father reported having a good, very good, or excellent relationship with child's mother.

Table 1

Sample Demographics

Variables		Mother	Father	Child
Gender	#	3,389	3,400	3,400
	Male	1,781		52%
	Female	1,619		48%
Race	African American	48%	49%	49%
	Hipanic	27%	28%	28%
	White	21%	18%	18%
Age (Standard Deviation)		34.53 (SD=6.13)	37.24 (SD=5.23)	9.05 (SD=8.24 m)
Education	Did not complete HS	35%	31%	
	HS/GED/Equiv	30%	35%	
	Some College/Tech	24%	20%	
	College/Grad Degree	11%	10%	
Mean Income		\$44,999	\$56,656	
Father relationship with child's mother		N	%	
	Poor	247	9%	
	Fair	390	15%	
	Good	549	21%	
	Very good	641	24%	
	Excellent	683	26%	
	N/A	142	5%	

The mean age of mothers at child age nine was 34. Mothers of African American descent represented the largest group with 48%, followed by 27% Hispanic, and 21% White. Nearly 35% of mothers reported having less than a high school education, followed by 30% having a high school diploma or equivalent (GED), 24% having some college or technical school, and 11% having a college or graduate degree.

Measures

Father characteristics. Father characteristics considered for the present analyses included father age at the 9-year interview, father SES, father education, and father relationship with child's mother. SES was measured by income and based on whether father income fell within one of seven household incomes (United States. Bureau of the Census., 2017d) categories: 0 = Impoverished (less than \$14,999); 1 = Low income (\$15,000 - \$34,999); 2 = Middle class (\$35,000 - \$49,999); 3 = Median (\$50,000 - \$74,999); 4 = medium middle-class (\$75,000 - \$99,999); 5 = Upper middle-class (\$100,000 - \$149,999); 6 = high Income (\$150,000+). Father education was self-reported on a scale of 1 = No HS/GED, 2 = 2 HS or equivalent, 3 = Some college/technical school, 4 = College or graduate degree. Father relationship with child's mother was measured: 0 = Never see her, 1 = Poor, 2 = Fair, 3 = Good, 4 = Very good, 5 = Excellent.

Father involvement. Father involvement was operationalized as father and mother-reported father involvement activities guided by Lamb, Pleck, Charnov, & Levines' (1987) Engagement domain of father involvement. The father involvement subscale contained ten items (1. Frequency father did household chores with child; 2. Frequency father played sports or outdoor activities with child; 3. Frequency father watched TV or videos with child; 4. Frequency father played video or computer games with child; 5. Frequency father read books or talked about books with child; 6. Frequency father participated in indoor activities with child; 7.

Frequency father talked about current events with child; 8. Frequency father talked about day with child; 9. Frequency father made sure child's homework was complete; and 10. Frequency father helped child with homework in the past month) measured on a 5-point scale: 0 = 0 times in the past month, 10 = 1-2 times past month, 20 = Once a week, 30 = Several times a week, 40 = Every day. The internal consistency alpha for the father-reported father involvement (N = 1,467) subscale was .86 (averaged for girls and boys), whereas, the alpha for the mother-reported father involvement (N = 1,571) subscale was .92 (averaged for girls and boys). Reported scores are the means across the items.

Mother involvement. Involvement at the 9-year follow-up was operationalized as mother-reported mother involvement using the same 10 items that were used for fathers. The items (e.g., 1. Frequency father did household chores with child; 2. Frequency father played sports or outdoor activities with child; 3. Frequency father watched TV or videos with child; 4. Frequency father played video or computer games with child; 5. Frequency father read books or talked about books with child) were measured on the same 5-point scale: 0 = 0 times in the past month, 10 = 1-2 times past month, 20 = Once a week, 30 = Several times a week, 40 = Every day. The internal consistency alpha for the mother-reported mother involvement (N = 2,531) subscale was .72 (averaged for girls and boys). Reported scores are the means across the items.

Academic performance. Performance was measured by the initial Passage Comprehension (Woodcock-Johnson Subtest 9) and Applied Problems (Woodcock-Johnson Subtest 10) Tests. The Woodcock-Johnson Subtest 9 gauges symbolic learning through increasingly difficult items that measure the ability of the student to match a picture with a phrase, read a short passage and identify missing keywords, etc. (Woodcock, McGrew, & Mather, 2001). The Woodcock-Johnson Subtest 10 tests the students' math skills by having them

listen to a math problem, identify the appropriate method, and solve the problem (Woodcock, McGrew, & Mather, 2001). The raw scores of the Woodcock-Johnson Subtest 9 and Woodcock-Johnson Subtest 10 tests were added, then divided, for one averaged measure of child Academic Performance.

Results

Table 1 presents the means and standard deviations for father involvement (father-reported), father involvement (mother-reported), mother involvement (mother-reported), father relationship with child mother, father education, father age, father income, and child academic performance by child gender. There were no significant gender differences for the dependent variables, with girls scoring slightly higher than boys on academic performance.

Table 2 presents the correlations among the variables separately by gender. In girls, father relationship with mother, father income, father education, and father age were all significantly positively correlated with both mother-reported father involvement and child academic performance. Similar patterns of correlations were found for boys, but for boys, father-reported father involvement was also significantly positively correlated with child academic performance. For both girls and boys, mother-reported mother involvement was not significantly correlated with child academic performance and for the most part, was not significantly correlated with father relationship with mother, father income, father education, and father age.

Table 2

Means and Standard Deviations by Child Gender

Variables	Boys			Girls			t
	N	Mean	SD	N	Mean	SD	
Father involvement (father-reported)	750	21.36	8.66	717	21.47	8.22	.177
Father involvement (mother-reported)	812	23.74	9.65	759	24.29	9.67	.842
Mother involvement (mother-reported)	1332	27.42	5.77	1199	27.10	5.97	.398
Father relationship with child mother	1781	3.37	.962	1619	3.37	.971	.457
Father education	1781	2.49	.728	1619	2.53	.739	.468
Father age	1781	37.19	5.23	1619	37.29	5.24	.791
Father Income	976	3.15	1.78	873	3.10	1.76	.665
Child Academic Performance	1781	95.14	12.02	1619	95.29	11.04	.105

Path analyses were conducted to test the effects of father involvement on child academic performance, in the context of father characteristics predictive of father involvement and with the effects of mother involvement included in the model. The path analyses modeled father age, father income, father education, and father relationship with child's mother, as exogenous variables predicting father-reported father involvement, mother-reported father-involvement, and mother-reported mother involvement, in turn, predicting child academic performance (Figures 1 and 2).

These analyses tested whether the relationships between father age, income, education, and relationship with child's mother and child academic performance were mediated by father and mother involvement (e.g., whether there were significant indirect paths from father characteristics to child academic performance through father and mother involvement). These analyses also tested the individual relationships between fathers age, income, education, and relationship with child's mother and child academic performance.

Combined and separate analyses were also run for child gender, with a difference chi-square calculated for the combined analyses to test for the equivalence of the estimated paths for the boy versus girl matrices. Mediation effects were tested using the bias corrected bootstrapping of option in AMOS version 21 (Arbuckle, 2014) with maximum likelihood estimation using the covariance matrix. Missing data were handled using regression imputation and full information maximum likelihood.

The chi-square difference test was approached but did not reach statistical significance ($\chi^2 = 29.677$, 19 df, $p = .056$). Given the theoretical importance of gender differences in parental effects on child behavioral outcomes, results of the path analyses are presented separately for girl and boy estimates (Figures 1 & 2) to illustrate significant paths within each model. Paths that

were set as equal for chi-square difference testing were from the independent variables to the mediators, and paths from the mediators to the dependent variable.

Mediation

Bootstrapped mediation analysis indicated for girls and boys, the relationships between father age, income, education and relationship with child's mother and child academic performance was not significantly mediated by mother-reported mother involvement. For girls, the relationships between father age, income, education, and father's relationship with child's mother and child academic performance was not significantly mediated by father or mother-reported father involvement. For boys, mother-reported father involvement significantly mediated (95% confidence interval: = .105, .364) the relationship between father age, income, education, and father's relationship with child's mother and child academic performance, indicating that father-involvement effects on boys' academic performance may partly be due to father characteristics that predict father involvement.

Father-reported Father Involvement

There were several significant pathways to father-reported father involvement for girls, including father relationship with child's mother (standardized estimate = .351, $p = .001$), father education (standardized estimate = .114, $p = .001$), and father income (standardized estimate = -.129, $p = .001$). In terms of boys, there were three significant pathways to father-reported father involvement: father income (standardized estimate = -.156, $p = .001$), father education (standardized estimate = .083, $p = .001$), and father's relationship with child's mother (standardized estimate = .408, $p = .001$).

Mother-reported Father Involvement

Girls had three significant pathways to mother-reported father involvement: father relationship with child's mother (standardized estimate = .087, $p = .001$), father age (standardized estimate = .078, $p = .001$), and father education (standardized estimate = .079, $p = .001$). There were four significant pathways to mother-reported father involvement in boys: father relationship with child's mother (standardized estimate = .574, $p = .001$), father age (standardized estimate = .047, $p = .05$), father education (standardized estimate = .075, $p = .001$), and father income (standardized estimate = -.037, $p = .05$).

Mother-reported Mother Involvement

Two significant pathways were found for mother-reported mother involvement in girls: father relationship with child's mother (standardized estimate = .087, $p = .001$) and father age (standardized estimate = -.101, $p = .001$). For boys, there were two pathways that also significantly predicted mother-reported mother involvement: father relationship with child's mother (standardized estimate = .067, $p = .05$) and fathers age (standardized estimate = -.139, $p = .001$).

Academic Performance

There were three significant pathways to academic performance in girls: father education (standardized estimate = .215, $p = .001$), father age (standardized estimate = .078, $p = .05$), and father relationship with child's mother (standardized estimate = .081, $p = .05$). There were two significant pathways to academic performance in boys: mother-reported father involvement (standardized estimate = .119, $p = .001$) and father education (standardized estimate = .167, $p = .001$).

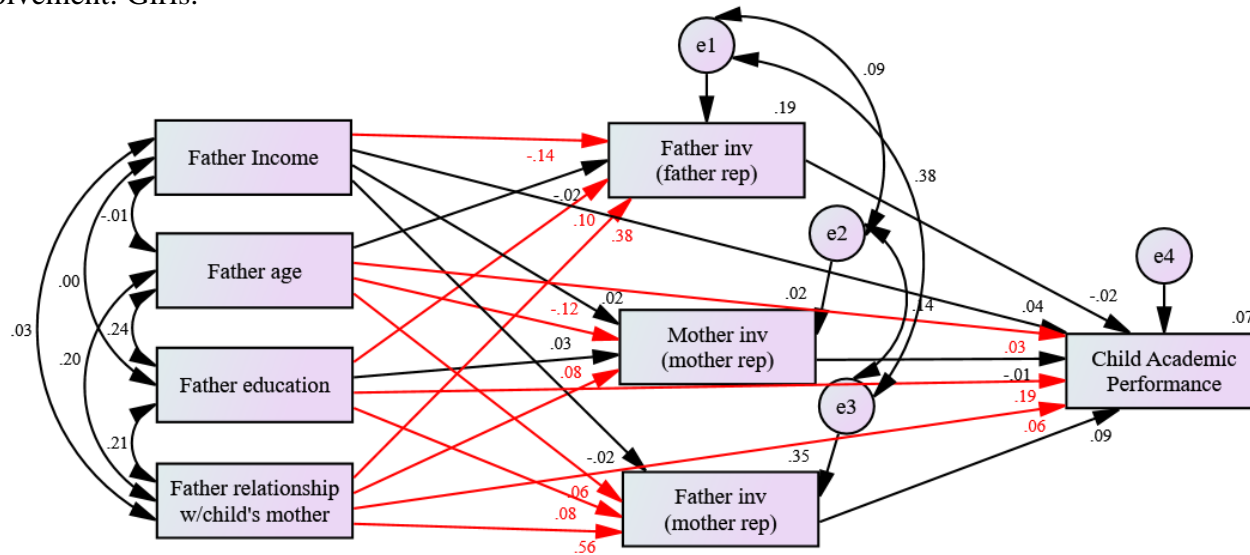
Table 3

Correlations by Child Gender^a

	Child Academic Performance	Father relationship with child mother	Father Income	Father education	Father age	Father involvement (father-reported)	Father involvement (mother-reported)	Mother involvement (mother-reported)
Child Academic Performance		.170**	.229**	.254**	.172**	.023	.104**	.036
Father relationship with child's mother	.153**		.258**	.217**	.213**	.302**	.480**	.071*
Father Income	.203**	.269**		.506**	.221**	.119**	.294**	.026
Father education	.201**	.204**	.520**		.247**	.156**	.191**	.025
Father age	.065**	.190**	.199**	.228**		.058	.182**	-.071**
Father involvement (father-reported)	.115**	.367**	.173**	.131**	.062		.570**	.141**
Father involvement (mother-reported)	.168**	.520**	.306**	.188**	.152**	.550**		.223**
Mother involvement (mother-reported)	-.017	.043	.009	.004	-.119**	.116**	.132**	

Note. ^a. Girls above the diagonal and boys below the diagonal. * $p < .05$ ** $p < .01$

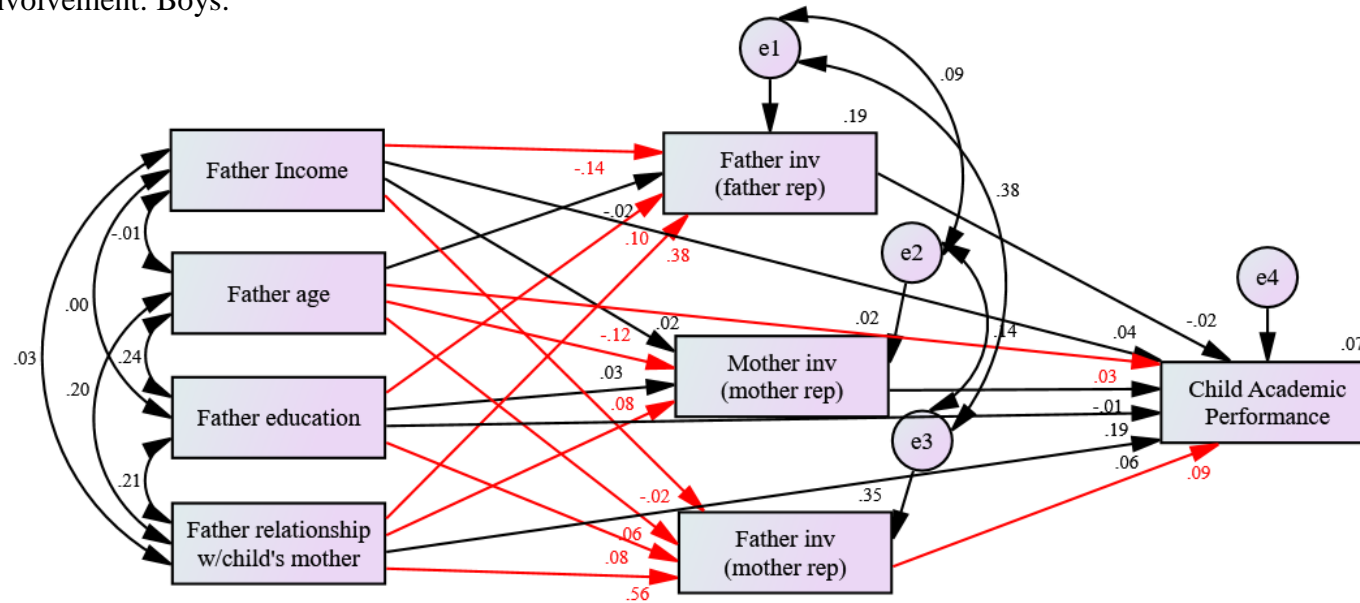
Figure 1. Coefficients for the path model predicting child academic performance from father characteristics mediated by father and mother involvement: Girls.



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

- | | | | | | |
|---------------------------------------|---|------------------------------------|--------------------------------------|---|------------------------------------|
| ***father income | → | father-reported father involvement | **father relationship w/child mother | → | mother-reported mother involvement |
| ***father education | → | father-reported father involvement | ***father age | → | mother-reported mother involvement |
| ***father relationship w/child mother | → | father-reported father involvement | **father age | → | academic performance |
| ***father relationship w/child mother | → | mother-reported father involvement | **father relationship w/child mother | → | academic performance |
| ***father education | → | mother-reported father involvement | **father education | → | academic performance |
| **father age | → | mother-reported father involvement | | | |

Figure 2. Coefficients for the path model predicting child academic performance from father characteristics mediated by father and mother involvement: Boys.



Note. ** $p < .05$ *** $p < .01$

- | | | | | | |
|---------------------------------------|---|------------------------------------|--------------------------------|---|----------------------|
| ***father income | → | father-reported father involvement | ***father age | → | academic performance |
| ***father relationship w/child mother | → | father-reported father involvement | ***mother-reported father inv. | → | academic performance |
| ***father education | → | father-reported father involvement | | | |
| ***father relationship w/child mother | → | mother-reported father involvement | | | |
| ***father education | → | mother-reported father involvement | | | |
| **father age | → | mother-reported father involvement | | | |
| **father income | → | mother-reported father involvement | | | |
| **father relationship w/child mother | → | mother-reported mother involvement | | | |
| **father age | → | mother-reported mother involvement | | | |

Discussion

The primary aim of this study was to measure the effects of father involvement on child academic performance in the context of predictor variables that may influence father involvement and academic performance. Additionally, the study explored father involvement effects in the context of mother involvement. The results of this study further highlight the direct effect of father involvement on child educational outcomes. These findings are useful in understanding the motivational factors and specific pathways that lead to or influence father involvement. The following discussion focuses on the predictive factors in relation to our proposed research questions guided by the Cabrera et al. (2014) expanded model of heuristic dynamics of paternal behavior and influence on children over time.

Guided by the Cabrera et al. (2014) model, the study assessed the predictive influence of four father characteristics on two indicators of father involvement, and one indicator of mother involvement on child academic performance. Cabrera et al. (2014) posits, predictors of father involvement are a fabric of the fathers' individual, contextual, and family relationships, that influence levels of involvement. The results suggest that father characteristics, including age, socioeconomic status, education, and relationship with child's mother, are, in fact, predictive of father involvement and of child academic performance.

The present findings confirm previous studies (Baker, 2014; Cabrera et al., 2007; Cowan et al., 2014; Flouri, 2005; Gerson, 1993; Grossman et al., 1988; Hofferth, 2003; Padilla et al., 2013; Rienks et al., 2011; Roggman, et. al, 2002; Volling & Belsky, 1991) showing father SES, education, age, and relationship with child's mother, all serve as predictors to father involvement. The lack of significant mediational effects of father involvement and mother involvement on the pathways from father age, SES, education, and relationship with child's

mother to academic performance for girls in the present findings, suggests that father involvement effects differ for girls and boys and are largely independent of these father characteristics.

Using the Cabrera et al. (2014) model, the five research questions set forth in the study were addressed. First, the study assessed the effects of father characteristics on father involvement and child academic performance. The Cabrera et al. model posits fathers' personal characteristics influence father parenting behaviors (involvement). Reviewing pathways to father-reported father involvement and mother-reported father involvement, the current study found evidence to support the model. Results from the study found father education, SES, and relationship with child's mother to be significantly positively predictive of father-reported father involvement in girls and boys. Three of four father characteristics were found to be significantly positively predictive of mother-reported father involvement in boys, with father income being significantly negatively predictive of father involvement; whereas, father age, education, and relationship with mother was significantly positively predictive of mother-reported father involvement in girls.

Given a few slight differences, the study also found significantly positively direct pathways from father predictors to child academic performance for boys and girls. For girls, fathers' education, age, and relationship with mother, were significantly positively predictive of academic performance but in boys only fathers age significantly positively predicted academic performance. Interesting to note and inconsistent with other studies (Cabrera et al., 2007; Flouri, 2005; Rienks et al., 2011), fathers' income was only significantly predictive of academic performance when mediated through mother-reported fathers' involvement in boys.

The study tested another tenant of the Cabrera et al. (2014) model, the influence of father parenting behaviors on child development, through the second and third research questions: “What effects does father involvement have on child academic performance at middle childhood;” and “Are the effects of father characteristics on child academic performance mediated by father involvement?” Surprisingly, the study found little evidence to support this aspect of the model, finding only one significant positive pathway predicting mother-reported father involvement to academic performance at middle childhood in boys.

The Cabrera et al. (2014) model hypothesizes the interaction and influence of familial relationships (e.g., mother-child, mother-father relationship) and father characteristics on father parenting behaviors, in the context of child development outcomes; therefore, through the fifth research question “Are the above effects found even in the context of mother involvement effects on child academic performance,” the study measured this interaction. Mother-reported mother involvement was not found to significantly predict child academic performance at middle childhood in girls or boys. However, fathers age and relationship with child’s mother had significant pathways to mother-reported mother involvement. Interestingly, fathers age was significantly negatively predictive of mother-reported mother involvement.

One possible explanation could be the correlation between age and level of involvement extends beyond fathers. Mothers in the sample were three years younger than fathers, if the correlation between age and levels of involvement hold true for mothers and fathers alike, it is understandable that the path between fathers age and mother-reported mother involvement would be significantly negatively predictive of mother involvement (older mothers are more involved than younger mothers).

The results of the final research question of the study, “Are the above effects moderated by child gender,” were consistent with prior research (Carlson, 2006; Flouri & Buchanan, 2002; Keizer, Lucassen, Jaddoe, & Tiemeier, 2014) showing father involvement had significant mediating effects on boys but no significant effect on girls. The study found no significant gender differences between overall models of father characteristics predictive of father involvement and that influence on child academic performance. However, there were slight differences in significant positive and negative pathways between girls and boys in the model.

For example, in girls, the pathways between father age, income, education, and father’s relationship with child’s mother and child academic performance was not significantly mediated by father or mother-reported father involvement. But for boys, mother-reported father involvement significantly mediated the relationship between father age, income, education, and father’s relationship with child’s mother and academic performance. Figures 1 and 2 captures each significant pathway based on child gender.

Limitations

Two main limitations are present in the current study: sample and self-reported data. The sample of fathers in the study do not reflect the overall population; fathers in the sample were from large urban cities, African American (48%), and middle-class (avg income \$56k). Given cultural differences in parenting practices and positive correlations between income and father involvement, predictors of father involvement, levels of fathers’ involvement, and thus the influence on child academic performance, results of the study may not accurately reflect fathers within the overall population.

Brutus, Aguinis, and Wassmer (2012), identified four flaws in self-reported data (selective memory, telescoping, attribution, and exaggeration) that may impact results.

Depending on the nature of the study, one can understand the desire to over-report (involvement with children) or under-report (substance use) frequency of a certain behavior. However, innocent mistakes can occur when solely relying on self-reported data. For example, there is a discrepancy between father-reported involvement and mother-reported involvement; oddly, mothers reported higher rates of father involvement than fathers. This is probably not due to modesty, but errors in recording self-reported data.

Conclusion

The findings of the present study identified father characteristics that served as significant predictors of father involvement and the mediating effects of father-reported father involvement and mother-reported father involvement on childrens' academic performance. These results exhibit the significance of considering a myriad of variables, e.g., fathers age, education, relationship with child's mother, and SES, as they correlate with increases and decreases of father involvement behaviors. Future research of additional predictive father characteristics and types of father involvement activities are necessary to allow a better understanding of fathers from various ethnic, socioeconomic, industry specific, immigration, and sexual orientation backgrounds.

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Chapter 5: Conclusion

This study sought to explore the conceptualizations of father involvement in the extant literature, synthesize father involvement practices, and examine the effects of father involvement on child behavioral and educational outcomes at middle childhood. The main aim of the study was to explore the influence of father involvement on child outcomes during an imperative and transitional period that could alter the life course trajectory, middle childhood. Secondary and tertiary goals of the study were to review the conceptualizations within the extant literature that influenced the role of “father” and identify and synthesize the operational practices associated with the concept of father involvement.

The stated goals were addressed by the proposed research questions set forth in the study:

1. What effects do father characteristics, including father age, education, SES, and relationship with child’s mother, have on father involvement and child externalizing, internalizing, delinquency behaviors and child academic performance at middle childhood;
2. What effects does father involvement have on child externalizing, internalizing, delinquency behaviors and academic performance at middle childhood;
3. Are the effects of father characteristics on child internalizing, externalizing, delinquency behaviors and academic performance mediated by father involvement;
4. Are the above effects found even in the context of mother involvement effects on child academic performance; and
5. Are the above effects moderated by child gender?

These goals were accomplished by first, implementing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher, Liberati, Tetzlaff, & Altman, 2009) method to systematically review a thirty-five-year period of extant father involvement literature. Second, guided by the expanded Cabrera et al. (2014) heuristic model of the dynamics of paternal behavior and influence on children over time, the study employed path analyses to test

the mediating effects of operational practices of father involvement on child outcomes at middle childhood. This conclusion will highlight the theoretical underpinnings that guided the study, synthesize and expand the results, discuss limitations of the studies, and end with the implications for social work policy, practice, and future research.

Application of Theory

Heuristic Model of Fathering

The original Cabrera et al. (2007) model posited that fathers' rearing, cultural, and biological history, coupled with father characteristics, converge to serve as predictors of father involvement, and father involvement then influences child outcomes. Building on their 2007 model, model of heuristic dynamics of paternal behavior and influence on children over time, Cabrera et al. (2014) included the transactional and reciprocal nature of the community and systems in which fathers interact. The expanded model contextualized predictors of father involvement as a function of community, societal, and family systems interacting to influence father involvement. Discussed below in greater detail are the independent (father characteristics, mother-father involvement) and dependent (externalizing, internalizing, delinquency, academic performance) variables identified by the theoretical framework.

Predictors of Father Involvement

Identified by the Cabrera et al. (2014) heuristic model of father involvement, the study tested five father characteristics (age, socioeconomic status, education, health, relationship with child mother) to measure their predictive influence on father involvement and child behavioral and educational outcomes. The first characteristic, fathers' age is correlated with father involvement, finding younger fathers are more likely to spend time and play with their children compared to older fathers. Fathers' socioeconomic status, the second characteristic, has yielded mixed results, with studies finding (Wood & Repetti, 2004) low-income fathers engaged in more

caregiving activities after reductions in work or pay, whereas other studies have suggested (Marsiglio et al., 2000) lower-income and less educated fathers were less involved in child caregiving compared to middle-class higher educated fathers. The third father characteristic, education has been long posited to be correlated with involvement, higher educated fathers are more involved with their children than lower educated fathers (Gerson, 1993; Grossman et al., 1988, Roggman, et. al, 2002; Sandberg & Hofferth, 2001). Fathers' health was the fourth predictor, with findings of fathers physical and mental health influencing level of father involvement (Cheadle, Amato, & King, 2010; Davis, Caldwell, Clark, & Davis, 2009), while also influencing child outcomes (Allport et al., 2018). One the most influential predictors of father involvement is the fifth and final characteristic, the father-mother relationship (Coates & Phares, 2014; Cowan et al., 2014; Lamb & Lewis, 2010; Padilla et al., 2013; Rienks et al., 2011).

Father Involvement

Father-reported involvement, mother-reported involvement, and mother involvement were measured using two sub scales containing involvement activities in relation to child age.

Scale 1. The first involvement sub scale was employed to measure (and contrast) father involvement activities with 5-year-old children and the influence on child behavioral outcomes. Father involvement was operationalized using 8 items (e.g., “Days/week: sing songs/nursery rhymes with child? Days/week: read stories to child? Days/week: you tell stories to child?”) on time spent with the child. Mother involvement and mother-reported father involvement used the 8 item (e.g., “Days/week: sing songs/nursery rhymes with child? Days/week: read stories to child? Days/week: you tell stories to child?”) sub scale to assess father involvement activities with 5-year-old children.

Scale 2. The second father involvement sub scale measured father involvement activities with 9-year-old children and the effects on educational outcomes. Father involvement was operationalized using 10 items to assess age appropriate father involvement activities (e.g., “Frequency father did household chores with child? Frequency father played sports or outdoor activities with child? Frequency father participated in indoor activities with child?”) in the past month. Mother involvement and mother-reported father involvement used the 10 item (e.g., “Frequency father did household chores with child? Frequency father played sports or outdoor activities with child? Frequency father read books or talked about books with child?”) sub scale to assess father involvement activities with 9-year-old children.

Child Outcomes

Teacher Rating Scale (TRS)–Revised Short Form. The TRS (Conners, 2001) is a 28-item survey in which teachers assess child behavior; seven items (controls temper in conflict with others (reversed), fights with others, threatens or bullies others, argues with others, talks back to adults when corrected, gets angry easily, has temper tantrums) were combined (averaged) to form an externalizing behavior scale ($\alpha = .94$), while 5 items (has low self-esteem, appears lonely, shows anxiety about being with a group of children, is easily embarrassed, acts sad or depressed) were combined (averaged) to form an internalizing behavior scale ($\alpha = .84$).

Delinquent behavior. Delinquent behaviors were measured using a delinquency scale of 17 yes-no self-reported anti-social behaviors (e.g., purposely damaged or destroyed property, skipped school without an excuse) ($\alpha = .70$).

Academic performance. Raw scores of the Woodcock-Johnson Subtest 9 and Woodcock-Johnson Subtest 10 tests were added, then averaged for a measure of child academic

performance. The Woodcock-Johnson Subtest 9 gauges symbolic learning and the Woodcock-Johnson Subtest 10 tests students' math skills (Woodcock, McGrew, & Mather, 2001).

Summary of Findings

The extant literature generally conceptualized father involvement as three constructs: 1. Engagement/Interaction; 2. Availability; and 3. Responsibility. The parenting practices fathers associate with these domains were operationalized as: 1. Engagement/Interaction (father-child interaction, play, functional, cognitive, affective, behavioral, etc.) 2. Availability (available to engage, participate, etc.); and 3. Responsibility (provider, responsibility, control and monitoring, decision making, safety, indirect care, etc.).

The literature on father involvement often revealed an overlap between the conceptual and operational domains of engagement and availability. Additionally, the conceptual domain of responsibility in nature, seemed to be expectational (safety, provider) between father and mother and transactional (decision making) between father and child. Therefore, *engagement* and *availability* domains were merged into one overarching theme entitled, "*Nurturing: fathers' direct one-on-one contact with his child, through affection, encouragement, discipline, interaction, caretaking, and shared activities*" (Slaughter, 2018). The merge resulted in a synthesization of 28 father involvement activities (e.g., ethical/moral development; spiritual development; physical development; career development; developing responsibility; developing independence; leisure, fun, play; sharing activities or interests; mentoring or teaching; caregiving) associated with the new domain.

The *responsibility* domain was expanded to include the expectational and transactional relationships between father-mother and father-child. The new domain was renamed "*Accountability: father responsible for ensuring child is taken care of and arranging for*

resources (food, clothing, housing, safety and security, healthcare, etc.) to be available for the care and welfare of child, not necessarily through direct contact,” (Slaughter, 2018) and is comprised of 10 behaviors (e.g., activities done for the child that do not entail interaction with the child (excluding breadwinning); material indirect care (purchasing goods and services); social indirect care (fostering community connections with institutions); giving children's mother encouragement and emotional support) related father involvement practices.

Equipped with a clear and concise foundational understanding of father involvement concepts and operational activities, the study addressed the primary aim of this dissertation, exploring the influence of father involvement on child outcomes. The study assessed the effects of father involvement on child behavioral and educational outcomes in the context of predictor variables that may influence both father involvement and child outcomes. Additionally, the effects of father involvement in the context of mother involvement which may facilitate (or hinder) (and helps isolate) fathers' interactions with their children were explored.

Girls

Mediation. Bootstrapped mediation analysis indicated that the relationships between father age, father SES, and father health with child externalizing, internalizing, and delinquency were not significantly mediated by father nor mother involvement. The only exception to this was the pathway from father age through mother involvement to child delinquency (95% confidence interval: -.006, -.001).

Bootstrapped mediation analysis indicated the relationships between father age, income, education and relationship with child's mother and child academic performance was not significantly mediated by mother-reported mother involvement. For girls, the relationships between father age, income, education, and father's relationship with child's mother and child

academic performance were not significantly mediated by father or mother-reported father involvement.

Father-reported father involvement. There were several significant pathways to father-reported father involvement for girls: 1. father relationship with child's mother (standardized estimate = .351, $p = .001$); 2. father education (standardized estimate = .114, $p = .001$); and 3. father income (standardized estimate = -.129, $p = .001$).

Mother-reported father involvement. In these path models, which controlled for the effects of father age, SES, and health and included both father and mother involvement, mother-reported father involvement significantly predicted girls' externalizing (standardized estimate = -.14, $p = .004$). Girls had three significant pathways to mother-reported father involvement: 1. father relationship with child's mother (standardized estimate = .087, $p = .001$); 2. father age (standardized estimate = .078, $p = .001$); and 3. father education (standardized estimate = .079, $p = .001$).

Mother-reported mother involvement. Mother-reported mother involvement also significantly predicted girls' externalizing (standardized estimate = .09, $p = .044$), but in contrast to the effects for mother-reported father involvement, the relationships between mother involvement and child behaviors were positive. Two significant pathways existed to mother-reported mother involvement in girls: 1. father relationship with child's mother (standardized estimate = .087, $p = .001$); and 2. father age (standardized estimate = -.101, $p = .001$).

Externalizing behaviors. In these path models, which controlled for the effects of father age, SES, and health and included both father and mother involvement, mother-reported father involvement significantly predicted girls' externalizing (standardized estimate = -.14, $p = .004$).

Internalizing behaviors. No pathways significantly predicted internalizing behaviors in girls.

Child delinquency. For girls, mother age significantly predicted child delinquency (standardized estimate = $-.10$, $p = .002$).

Academic performance. There were three significant pathways to academic performance in girls: 1. father education (standardized estimate = $.215$, $p = .001$), 2. father age (standardized estimate = $.078$, $p = .05$); and 3. father relationship with child's mother (standardized estimate = $.081$, $p = .05$).

Boys

Mediation. Bootstrapped mediation analysis indicated that the relationships between father age, father SES, and father health with child externalizing, internalizing, and delinquency were not significantly mediated by father nor mother involvement. The only exception to this was the pathway from father age through mother involvement to child delinquency (95% confidence interval: $-.006$, $-.001$). Bootstrapped mediation analysis indicated for boys, the relationships between father age, income, education and relationship with child's mother and child academic performance was not significantly mediated by mother-reported mother involvement. For boys, mother-reported father involvement (95% confidence interval: $.119$) significantly mediated the relationship between father age, income, education, and father's relationship with child's mother and child academic performance.

Father-reported father involvement. There were three significant pathways to father-reported father involvement: 1. father income (standardized estimate = $-.156$, $p = .001$); 2. father education (standardized estimate = $.083$, $p = .001$); and 3. father's relationship with child's mother (standardized estimate = $.408$, $p = .001$).

Mother-reported father involvement. In these path models, which controlled for the effects of father age, SES, and health and included both father and mother involvement, mother-reported father involvement significantly predicted boys' delinquency (standardized estimate = $-.12$, $p = .002$). There were four significant pathways to mother-reported father involvement in boys: 1. father relationship with child's mother (standardized estimate = $.574$, $p = .001$); 2. father age (standardized estimate = $.047$, $p = .05$), 3. father education (standardized estimate = $.075$, $p = .001$); and 4. father income (standardized estimate = $-.037$, $p = .05$).

Mother-reported mother involvement. Mother-reported mother involvement also significantly predicted boys' delinquency (standardized estimate = $.11$, $p = .001$), but in contrast to the effects for mother-reported father involvement, the relationships between mother involvement and child behaviors were positive. Two significant pathways existed to mother-reported mother involvement in boys: 1. father relationship with child's mother (standardized estimate = $.067$, $p = .05$); and 2. fathers age (standardized estimate = $-.139$, $p = .001$).

Externalizing behaviors. For boys, father SES (standardized estimate = $-.21$, $p = .001$) and age (standardized estimate = $-.09$, $p = .021$) significantly predicted child externalizing behaviors.

Internalizing behaviors. For boys, father SES (standardized estimate = $-.21$, $p = .001$) significantly predicted child internalizing behaviors.

Child delinquency. For boys, father SES significantly predicted child delinquency (standardized estimate = $-.11$, $p = .001$).

Academic performance. There were two significant pathways to academic performance in boys: 1. mother-reported father involvement (standardized estimate = $.119$, $p = .001$); and 2. father education (standardized estimate = $.167$, $p = .001$).

Discussion

Cabrera et al.'s (2014) model argues certain father characteristics (e.g., cultural, biological, economic, etc.) serve as predictors of father involvement, that in turn influences child behavioral outcomes. Therefore, guided by the expanded Cabrera et al. (2014) model of heuristic dynamics of paternal behavior and influence on children over time, the study used five father characteristics (age, socioeconomic status/income, health, education, relationship with child's mother), two indicators of father involvement, and one indicator of mother involvement to explore the predictive influence on teacher-reported child internalizing and externalizing behaviors, child self-reported delinquency behaviors, and academic performance at middle childhood.

The results of the study suggest father characteristics, including age, socioeconomic status/income, education, relationship with child's mother, and health, are, in fact, predictive of father involvement and of child behavioral and educational outcomes. The study results were consistent with previous research that found father age, education, relationship with child mother, and SES, are predictors of father involvement (Cowan et al., 2014; Craig, 2006; Duursma, Pan, & Raikes, 2008; McMunn, Martin, Kelly, & Sacker, 2015; Padilla et al., 2013; Rienks et al., 2011), but child gender (Barnett & Baruch, 1987; Raley & Bianchi, 2006) may moderate father caregiving activities, as fathers prefer interacting with sons over daughters.

The lack of significant mediational effects of father involvement on the pathways from father age, SES, education, relationship with child's mother, and health to child behavioral and educational outcomes in the present findings, however, suggests that father involvement effects are largely independent of these father characteristics.

The present findings support previous studies (Amato & Rivera, 1999; Carlson, 2006; Phares et al., 2005) which found father involvement is associated with lower prevalence of child internalizing and externalizing behaviors and increased academic performance (Flouri & Buchanan, 2004; Jeynes, 2016; Yogman, Kindlon, & Earls, 1995). These effects were found, even after controlling for the effects of father age, education, SES, relationship with child's mother, and health, and including the effects of mother involvement. In terms of gender differences and consistent with prior research (Aldous & Mulligan, 2002; Carlson, 2006), this study found boys scored higher than girls on externalizing and delinquency behavior scores and perform slightly better academically.

However, inconsistent with prior research (Carlson, 2006), this study found gender differences in the effects of father involvement on child behavioral and educational outcomes (Aldous & Mulligan, 2002; Flouri & Buchanan, 2002; Keizer, Lucassen, Jaddoe, & Tiemeier, 2014; Lamb, 2010; Tamis-LeMonda, & Cabrera, 2002), with greater father involvement, based on mother reports, being associated with lower teacher-reported externalizing behaviors in girls and lower self-reported delinquency behaviors in boys. Interestingly, with greater father involvement, mother-reported father involvement was significantly predictive of higher academic performance in boys but having no effect in girls.

Limitations of the Study

Despite reaching the research aims, there are four major limitations of this study, social desirability bias (self-reported data), cultural/ethnic limitations, location, and sample size. According to Brutus, Aguinis, & Wassmer (2013), self-reported data may contain biases that may pose as a limitation due to: 1. selective memory (remembering or not remembering experiences or events that occurred at some point in the past); 2. telescoping (recalling events

that occurred at one time as if they occurred at another time); 3. attribution (the act of attributing positive events and outcomes to one's own agency but attributing negative events and outcomes to external forces); and 4) exaggeration (the act of representing outcomes or embellishing events as more significant than is actually suggested from other data). Depending on the nature of the study, one can understand the desire to over-report (involvement with children) or under-report (substance use) frequency of a certain behavior. However, innocent mistakes can occur when solely relying on self-reported data. For example, there is a discrepancy between father-reported involvement and mother-reported involvement; oddly, mothers reported higher rates of father involvement than fathers. This is probably not due to modesty, but errors in recording self-reported data. In short, self-reported data cannot be independently verified. Thus, allowing fathers to over-report father involvement with the child.

Additional limitations of the study include culturally/ethnically limited, location, and sample size. The variation in cultural norms and beliefs in relation to geographic regions must also be considered. The sample of fathers in the study are not reflective of the overall population; most study participants were from large urban cities in the Midwest and Northeast regions of the United States (CRCW, 2011), African American (48%), and middle-class (avg income \$56k). Given cultural differences in parenting practices and positive correlations between income and father involvement, predictors of father involvement, levels of fathers' involvement, and thus the influence on child academic performance, results of the study may not accurately reflect fathers within the overall population. Lastly, given there are more than 72 million fathers in the United States (Monte, 2017), the study sample size is a very small percentage of fathers and may not be extrapolated to the general father population.

Policy, Practice, & Research Implications

Policy Implications

In September of 2011, the Administration for Children and Families' (ACF) Office of Family Assistance (OFA) announced it would provide nearly \$60 million in funding for responsible fatherhood programs (Office of Family Assistance, 2018). Reauthorized under The Claims Resolution Act of 2010 (CRA), the Healthy Marriage and Responsible Fatherhood (HMRF) initiative is a community-based approach to promote healthy families and responsible fatherhood. Between 2005 - 2015, \$550 million was spent on fatherhood programs (OFA, 2016). Currently the OFA provides funding for 36 organizations across the United States for responsible fatherhood activities that strengthen positive father-child engagement.

Despite the levels of funding, these fatherhood programs are not required to use evidenced-based practices. Each program can choose its programmatic design. This study offers suggestive evidence for the OFA Responsible Fatherhood initiative to adopt a policy requiring fatherhood programs to employ evidenced-based practices to guide their responsible fatherhood activities. Researchers have found fathers positive relationships with their children, to positively effects their behavioral and educational outcomes (Flouri & Buchanan, 2004; Jeynes, 2016; Yogman, Kindlon, & Earls, 1995). Programmatic activities guided by theoretical frameworks will serve as directional map from predictors of involvement, to involvement influencing child outcomes. The framework identifies father characteristics of interest for program staff, specific father involvement behaviors for fathers, and a standard set of evaluative measures across all programs for agencies and funders to assess effectiveness. This study has presented evidenced-based findings that provide justification for consideration of a policy review to require a theoretically based model of father involvement to guide programmatic training activities.

Implications for Social Work Practice

Through the implementation of theoretically driven and evidence-based practices guiding programmatic activities, practitioners will have a framework to develop and implement responsible fatherhood programs. For example, this study has synthesized father involvement as two domains, Nurturing and Accountability, operationalized as 28 and 10 evidenced-based father involvement behaviors, respectively. Practitioners can use these activities to first, gain proficiency in their understanding of father involvement practices and their subsequent influence on child outcomes and second, aid in designing targeted training curriculums to build parenting skills in fathers.

It is the hope of this study that by practitioners having father involvement activities (e.g., ethical/moral development; spiritual development; physical development; career development; developing responsibility; developing independence; leisure, fun, play; sharing activities or interests; mentoring or teaching; caregiving) shown to influence child outcomes, they begin to develop profiles which aid in their delivery. Through gained proficiency, social work practitioners will be able to identify the inadequate aspects of father involvement by the negative outcomes in their children. Working with fathers and their children, practitioners could design individual treatment plans, incorporating specific father involvement activities to address negative outcomes in their children. This study suggests practitioners use a theoretical framework to guide to aid in the development of programmatic activities and individualized treatment plans designed to build parenting skills in fathers.

Implications for Future Research

In 2017, there were over 72 million fathers in the United States (Monte, 2017). To address this vast and diverse population, future research will need to include a myriad of studies, implementing a variety of research designs, collecting several levels of data, which may then be generalizable to the overall population. Each of the research designs may possibly yield unique results, that when compiled, provide a complete understanding of the father characteristics - father involvement and the father involvement - child outcome dynamics. Once this is accomplished and guided by the Cabrera et al., (2014) theoretical model, father characteristics predictive of father involvement and thus improved child outcomes, can be tested in the larger “father” population.

The implications for future research center around the ability to extrapolate findings to the general population of fathers. To accomplish a broader more encompassing approach to father involvement inclusive of fathers from a variety of communities, socioeconomic backgrounds, and “all walks of life,” future research should focus on one main strategy, research design. Research Design refers to the methodological approach to integrate the various components of the study in a coherent and logical way, providing the methodology for the collection, measurement, and analysis of data.

For the purposes of future research, this study proposes three research designs to achieve extrapolatable findings to the general father population. First, an action research design (understanding of a problem with plans for some form of intervention, “action”), is a community-based design focusing on practical, results-oriented research (Coghlan & Brydon-Miller, 2014). This provides practitioners with an opportunity to increase proficiency through their experience with fathers. This type of study design often has direct relevance to improving practice and advocating for policy change. Second, a mixed-method design (research problems

that require an examination of real-life contextual understandings, multi-level perspectives, and cultural influences), affords father a “voice” within the extant literature (Burch & Heinrich, 2016). Instead of pre-defined responses to a set of standardized questions, fathers will have the opportunity to identify and discuss predictors and motivational factors to their involvement. The third research design recommendation to improve future research, is sequential design (research is that which is carried out in a deliberate, staged approach where one stage will be completed, followed by another) (Bovaird & Kupzyk, 2010). Sequential design provides researchers with a limitless sample size. This particular research design structure allows for minor changes and adjustments during the study period.

Testing the predictive power of characteristics among and within countless types of fathers (traditional vs non-traditional), in a myriad of professional industries (e.g., blue collar vs white collar), and from a variety of backgrounds and communities (e.g., American vs immigrant; cultural variations within African, Asian, Hispanic, and European Americans) will yield results that are truly generalizable to the more than 72 million fathers in the United States.

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Appendix A: List of Variables for Chapter 3

Variable	Label	Variable Defined	Level of Measurement	Value	Response Categories
CSEX	Child Gender	Child gender	Nominal	F M U	Female Male Unknown
Socioeconomic status-POV1	Below 33% of the Federal poverty line	<i>Socioeconomic status</i> was based on whether family incomes fell within one of four categories: below 33%, 33%-67%, 67%-99%, above 99% of the Federal poverty line. For purposes of these analyses, the lowest group was contrasted with the remaining groups.	Nominal	0 1	0=Income not < 33% of poverty level 1=Income < 33% of poverty level
Socioeconomic status-POV2	33%-67% of the Federal poverty line	<i>Socioeconomic status</i> was based on whether family incomes fell within one of four categories: below 33%, 33%-67%, 67%-99%, above 99% of the Federal poverty line.	Nominal	0 1	0=Income not 33-67% of poverty 1=Income is 33-67% of poverty or higher
Socioeconomic status-POV3	67%-99 of the Federal poverty line	<i>Socioeconomic status</i> was based on whether family incomes fell within one of four categories: below 33%, 33%-67%, 67%-99%, above 99% of the Federal poverty line.	Nominal	0 1	0=Income not 67-99% of poverty higher 1=Income is 67-99% of poverty or higher
Socioeconomic status-POV4	Above 99% of the Federal poverty line	<i>Socioeconomic status</i> was based on whether family incomes fell within one of four categories: below 33%, 33%-67%, 67%-99%, above 99% of the Federal poverty line. For purposes of these analyses, the lowest group was contrasted with the remaining groups.	Nominal	0 1	0=Income not 100% of poverty higher 1=Income is 100% of poverty or higher
BVP_FAT1	14-36m Continuous Biological	<i>Father involvement</i> was operationalized as caregiving activities that	Nominal	0 1	No Yes

	Father Involvement	reflect a level of father engagement during the first 14 – 36 months of their children’s life. These activities were mother-reported amounts of care the father provided for the child.			
B4CBCLAG	Pre-K CBCL Aggressive Behavior Scale (Achenbach ASEBA) Scale	<i>Externalizing behaviors at Pre-K</i> were assessed by mother reports using the Aggressive Behavior Scale from the Achenbach System of Empirically-Based Assessment (ASEBA). The Pre-K ASEBA captures the prevalence of 19 child behaviors (α at 24 months = .91, α at 36 months = .88) that cluster and constitute aggressive behavior.	Continuous	-8 -7 -6 -5 -4 -3 -2 -1	-8=not in version -7=notValid/uncdbl -6=missingSectn -5=missing item -4=NA -3=refused -2=logical skip -1=DK
B5CB_INR	5 th Grade CBCL Internalizing Raw Score	Internalizing behaviors were measured by summing the Withdrawn /Depressed, Somatic Complaints, and Anxious/Depressed subscales ($\alpha = .72$).	Continuous	-8 -7 -6 -5 -4 -3 -2 -1	-8=not in version -7=notValid/uncdbl -6=missingSectn -5=missing item -4=NA -3=refused -2=logical skip -1=DK
B5CB_EXR	5 th Grade CBCL Externalizing Raw Score	Externalizing behaviors were measured using a sum of the Rule-Breaking and Delinquent Behavior and Aggressive Behavior subscales ($r = .77$).	Continuous	-8 -7 -6 -5 -4 -3 -2 -1	-8=not in version -7=notValid/uncdbl -6=missingSectn -5=missing item -4=NA -3=refused -2=logical skip -1=DK

Appendix B: List of Variables for Chapter 4

Variable	Label	Level of Measurement	Value	Response Categories
cm1bsex	Focal baby's gender	Scale	1 2	Boy Girl
cf5age	Father age	Scale		
cf5edu	Father education	Scale	1 2 3 4	No HS/GED HS or equiv Some College/Tech College or Grad
f5c1	Father relationship with child's mother	Scale	0 1 2 3 4 5	Never see her Poor Fair Good Very good Excellent
FaIncome	Father Income	Scale	0 1 2 3 4 5 6	Impoverished Low Income Middle class Median Medium middle class Upper middle class High Income
cm5age	Mother's age (years)	Scale		
cm5edu	Mother's education	Scale	1 2 3 4	No HS/GED HS or equiv Some College/Tech College or Grad
momses	Mom SES	Scale		
f4fainvf	Father involvement <father rep>	Scale		
m4fainvm	Father involvement <mother rep>	Scale		
m4moinvm	Mother involvement <mother rep>	Scale		

Acad_Perf	Child Academic Performance	Scale		
f5k14a	K14A. In past month, you did household chores with child	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
f5k14b	K14B. In past month, you played sports or did outdoor activities with child	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
f5k14c	K14C. In past month, you watched TV or videos with child	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
f5k14d	K14D. In past month, you played video or computer games with child	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
f5k14e	K14E. In past month, you read books with child or talked with child about books	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
f5k14f	K14F. In past month, you participated in indoor activities with child	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
f5k14g	K14G. In past month, you talked with child about current events	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
f5k14h	K14H. In past month, you talked with child about his/her day	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday

f5k14i	K14I. In past month, you checked to make sure child had completed homework	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
f5k14j	K14J. In past month, you helped child with homework or school assignments	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i1a	I1A. Frequency you did household chores with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i1b	I1B. Frequency you played sports or outdoor activities with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i1c	I1C. Frequency you watch TV or videos with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i1d	I1D. Frequency you played video or computer games with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i1e	I1E. Frequency you read books or talked about books with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i1f	I1F. Frequency you participated in indoor activities with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i1g	I1G. Frequency you talked about current events with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday

p5i1h	I1H. Frequency you talked about child's day with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i1i	I1I. Frequency you made sure child's homework was complete in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i1j	I1J. Frequency you helped child with homework in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i31a	I31A. Frequency father did household chores with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i31b	I31B. Frequency father played sports or outdoor activities with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i31c	I31C. Frequency father watched TV or videos with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i31d	I31D. Frequency father played video or computer games with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i31e	I31E. Frequency father read books or talked about books with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday

p5i31f	I31F. Frequency father participated in indoor activities with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i31g	I31G. Frequency father talked about current events with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i31h	I31H. Frequency father talked about day with child in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i31i	I31I. Frequency father made sure child's homework was complete in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday
p5i31j	I31J. Frequency father helped child with homework in past month	Scale	0 10 20 30 40	0 times in past month 1-2 times past month Once a week Several times a week Everyday