

A LONGITUDINAL EXAMINATION OF FATHER INVOLVEMENT AND
ITS EFFECTS ON THE SOCIAL, EMOTIONAL AND ECONOMIC OUTCOMES OF
ADULT OFFSPRING

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ABSTRACT

HAYLEY MITCHELL: A longitudinal examination of father involvement and its effects on the social, emotional and economic outcomes of adult offspring.
(Under the direction of Barbara H. Wasik, Ph.D.)

The current study aimed to examine how early childhood intervention moderates the effect of father involvement on the long term social, emotional and economic outcomes of participants in the Abecedarian Project. Treatment was expected to buffer against the negative effect of low father involvement. Multiple regression analyses were used to examine the interaction between Abecedarian treatment status and father involvement (through childhood and adolescence), and their effect on five outcome measures of participants at age 30: adaptive functioning, problem behaviors, education attainment, job prestige and income-to-needs ratio. The results indicated that the interaction between early childhood intervention and father involvement did not predict any of the social, emotion or economic outcomes of participants. No relationships were observed between treatment status, father involvement and any of the outcomes measures. Continued research is needed to determine whether early childhood intervention may provide additional social supports for children and families experiencing limited father involvement.

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TABLE OF CONTENTS

LIST OF TABLES	viii
LIST OF FIGURES	ix
INTRODUCTION	1
Importance of Fathers	1
Father Absence	2
Father Absence and Poverty	3
Children in Poverty	3
Early Intervention	4
The Abecedarian Project.....	5
Summary	6
LITERATURE REVIEW	8
Conceptual Framework.....	8
Who Are Fathers?	9
What is the Role of the Father?	11
Benefits of the Father-Child Relationship	13
Sons versus Daughters	16
Factors Influencing Father Involvement.....	18
The Mothers Role in Father Involvement.....	20
African American Fathers.....	22
Fathers in Poverty	27

Early Intervention	29
Early Intervention as a Moderator of Father Involvement	31
The Present Study	34
METHODOLOGY	37
Study Design.....	37
Initial Recruitment	37
Early Childhood Procedures	37
School-Aged Procedures.....	38
Follow- Up Procedures	39
Participants.....	40
Procedures.....	40
Measures	41
Data Analysis	48
RESULTS	51
Preliminary Analysis.....	52
Primary Analysis.....	56
DISCUSSION	61
Explanation of Findings.....	62
Study Limitations.....	65
Implications	67
Future Directions	68
Conclusions.....	69
REFERENCES	71

LIST OF TABLES

Table

1. Frequency of Father Involvement by Treatment Status.....	51
2. Mean Differences of Outcome Measures for Participants with Father Data and Participants without Father Data	52
3. Descriptive Statistics- Adult Outcome Variables	54
4. Correlation Matrix of Predictors, Outcomes and Control Variables	55
5. Full Model- Regression Analysis of Social-Emotional Outcomes	57
6. Full Model- Regression Analysis of Economic Outcomes.....	58
7. Regression Analysis of Social-Emotional Outcomes	59
8. Regression Analysis of Economic Outcomes	60

LIST OF FIGURES

Figure

1. Interaction Model.....	49
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CHAPTER I:

INTRODUCTION

Children are increasingly growing up in single parent, mother-only present homes, and contact with their fathers is often limited, inconsistent, or non-existent (Fields, 2003; McKenry, McKelvey, Leigh, & Wark, 1996; Seltzer, 1991). Furthermore, low father involvement has an impact on the resources, financial and social, available to the family (Coley, 1998; Fields, 2003; Florsheim, Tolan, & Gorman-Smith, 1998). This consequence of father absence makes it more likely that fatherless families end up suffering the maladaptive effects of poverty (Coley & Hernandez, 2006; Nelson, 2004). However, research on early intervention has been found to buffer the maladaptive effects of poverty in the lives of children (Bradley, Burchinal, & Casey, 2001; Campbell & Ramey, 1994; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Guidubaldi, Cleminshaw, & Perry, 1985; Ramey & Campbell, 1984; Reynolds et al., 2007; Schweinhart, Barnes, & Weikart, 1993). The current study proposed that early intervention would provide children with additional social supports that can help buffer the maladaptive effects of low father involvement.

Importance of Fathers

Although mothers are often the primary caregivers for children, the involvement of fathers also has significant impact on children's development across their lifetime. Specifically, researchers have suggested that having involved fathers leads to higher self-

worth, academic success and better social skills, and lower levels of maladaptive behavior and psychological distress for offspring (Amato, 1994; Biller & Kimpton, 1997; Brody & Forehand, 1990; Coley, 1998; Cooksey & Fondell, 1996; Dubowitz et al., 2001; Hendricks et al., 2005; Krampe, 2009; Martini, 1995; Plunkett, Henry, Robinson, Behnke, & Falcon, 2007; Thomas, Farrell, & Barnes, 1996; Zimmerman, Salem, & Maton, 1995). In addition, researchers have proposed that fathers who spend more time taking care of their children are more likely to develop stronger attachments to them (Palkovitz, 1985) and sustain contact with them as the children mature (Popenoe, 1996). More contact, in turn, relates to better well-being of children across their lifetime (Acock & Demo, 1994).

Father Absence

In 2009, there were approximately 74.5 million children under the age of 18 living in the United States, 26% of whom lived with a single parent (Wallman, 2010). Furthermore, the likelihood of being raised in a single parent home is more common in African-American households. According to the U.S. Census Bureau, black children constituted the lowest percentage of children living with both of their biological parents (38%) and the highest percentage of children living with only one parent (48%; Fields, 2003; Kreider, 2008.)

Inconsistent father involvement may create an inconsistent environment for children. In one study examining the differences in father presence and child well being, more consistent presence of biological fathers was related to better child outcomes (Vogel, Bradley, Raikes, Boller, & Shears, 2006). Children with unstable and transient contact with their fathers had poorer developmental outcomes than children with more

involved fathers (Vogel et al., 2006). Inconsistent father involvement also has an effect on the father-child relationship. Researchers have found that children growing up in families where their father was present during childhood, but later left the family, expressed bitterness towards their father (Feldman, 1995; Jarrett, Roy, & Burton, 2002).

Father Absence and Poverty

Research suggests that one of the greatest barriers to father involvement is lack of economic power. Men living in impoverished conditions are less likely to graduate from high school, maintain skillful employment and avoid delinquent behavior (Elster, Lamb, Peters, Kahn, & Tavaré., 1987; Lerman, 1993; Marsiglio & Cohan, 1997). Furthermore, males living in poverty are more likely to begin having children at younger ages and less likely to marry the mother of their children (Nelson, 2004).

With fewer resources to provide for children, studies have demonstrated that poor fathers are less likely to have meaningful contact with their children than more affluent fathers. In one study of low-income families receiving federal aid, non-residential fathers spent less time with their children and provided less economic support as the child aged than fathers from other nationally representative samples. These factors were further impacted by the father's education and employment status; fathers with no education beyond high school and unemployed fathers were less likely to provide economic and social support for their children. (Erikson & Gecas, 1991; Rangarajan & Gleason, 1998).

Children in Poverty

Family composition often plays a significant role in the economic resources of the household. According to the U.S. Census Bureau, in 2009, 14.3% of all people in the United States were living in poverty; more than a third of these were children (Bishaw &

Macartney, 2010). Approximately 44% of children in poverty lived in a home where there was no father present, compared to 11% of low income children living in homes with two parents (DeNavas-Walt, Proctor, & Smith, 2010). Thus, father absence significantly increased the likelihood that children would experience the maladaptive effects of poverty (Bradley et al., 2001; Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Hanson, McLanahan, & Thomson, 1997; Lamb, 1997). Children raised in low-income environments are at higher risk for malnourishment, neglect, underachievement, low self-esteem, depression, teen pregnancy, substance abuse, physical abuse and antisocial behavior (Buchanan, Brinke, & Flouri, 2000; East, Jackson, & O'Brien, 2006; Farrell & White, 1998; Gilman, Kawachi, Fitzmaurice, & Buka, 2003; Hendricks et al., 2005; McLeod, Kruttschnitt, & Dornfeld, 1994; McLoyd, 1990; Nelson, 2004). Fortunately, studies have shown that early intervention can safeguard children against many of the maladaptive effects of poverty (Bradley et al., 2001; Campbell et al., 2002; Campbell & Ramey, 1994; Orthner, 1996; Reynolds et al., 2007; Ramey & Ramey, 2004).

Early Intervention

Early childhood interventions have been found to benefit individual families as well as the greater society (Feldman, 1995; Wallman, 2010). When children are involved in educational programs early in life, they are better prepared for school, have increased rates of subject mastery, are more likely to graduate from high school and are more likely to enroll in college (Campbell et al., 2002, 2008). Such achievements may also lead to greater education attainment and better employment outlooks (Wallman, 2010). Additional long term gains include lower rates of teen pregnancy and parenthood, less

drug usage and lower rates of depression (Campbell et al., 2008; McLaughlin, Campbell, Pungello, & Skinner, 2007). Long term societal gains have also been observed. For example, Feldman (1995) reports a reduction in spending in areas such as remedial education, crime control, unemployment and social services due to early life educational interventions.

For children with very erratic father involvement, early intervention may provide an additional level of support to children by providing consistency within the child's day to day life. Silverstein and Auerbach (1999) proposed that children's well-being is tied to the relationship between the child and a responsible caregiver with whom they have formed a positive, emotional attachment. Such findings suggest that emotional stability and predictability from at least one adult may influence positive child adjustment, with more than one responsible care giving adult adding even further to the successful outcomes of the child. Therefore, for children with inconsistent father involvement, the daily support from an early childhood intervention program may help to buffer against the negative impact of unpredictable fathering.

The Abecedarian Project

The age-30 follow-up of the Abecedarian Project provides a unique opportunity to take a longitudinal examination of the protective effects of early educational intervention on the social, emotional and economic outcomes of participants who have reached adulthood. The Abecedarian Project randomly assigned children from high-risk, low income families to a full-time, intensive child care program from infancy until age five or to an untreated control group. In addition, school age intervention continued through age eight, and children were then periodically followed up through adolescence and into

adulthood. The emphasis for treated children was on cognitive, linguistic and socioemotional development (McLaughlin et al., 2007).

Outcomes of the Abecedarian Project have added significantly to the literature on early childhood education, demonstrating that early intervention can moderate the effect of being raised in a lower quality home environment (Pungello et al., 2010; McLaughlin et al., 2007). In young adulthood, children in the treatment group had higher cognitive, reading and mathematics scores, higher levels of educational attainment, were more likely to acquire skilled employment and were less likely to experience teen parenthood than children in the control group (Campbell et al., 2002). Furthermore, treatment status was also significantly associated with reports of fewer depressive symptoms (McLaughlin et al., 2007).

Summary

In summary, research has shown that father involvement and poverty can have a lasting impact on the developmental outcomes of children across their lifetime (Brody & Forehand, 1990; Buchanan et al., 2000; Gilman et al., 2003; John, Gammon, Prusoff, & Warner, 1987; Thomas et al., 1996). When fathers form strong attachments to their children, they are more likely to maintain contact with them (Grossman, Pollack, & Golding, 1988). Likewise, children with involved fathers are more likely to develop strong attachments and reap academic, social, behavioral and cognitive benefits into adulthood (Amato, 1994; Biller & Kimpton, 1997; Coley, 1998; Cox, Owen, Henderson & Margand, 1992; Pleck, 1997; Radin, 1994). In many circumstances, however, the stress of poverty diminishes father involvement and makes it more likely that impoverished children grow up without the benefit that fathers bring. Nevertheless, early intervention

may act as a buffer against the maladaptive effects of poverty by providing a consistent and supportive environment that encourages cognitive, social and academic growth (Guidubaldi et al., 1985; Orthner, 1996; Ramey et al., 2000). However, whether early intervention may moderate the effects of father involvement within a sample of children from poor families has not yet been addressed in the literature. The current study aimed to address the gap of previous research by examining whether early intervention buffers against the effect of limited father involvement on outcomes of adult participants in the Abecedarian Project.

CHAPTER II:

LITERATURE REVIEW

Conceptual Framework

According to Bronfenbrenner's ecological model, human development does not take place in isolation but rather takes place within the context of interactions with various ecological systems (other humans, objects, and symbols) within the child's environment (Bronfenbrenner & Morris, 1998). Furthermore, according to proximal processes theory child development is guided by increasingly complex interactions between the child and their microsystem (e.g. parents, caregivers), which occur regularly, over an extended period of time (Bronfenbrenner & Morris, 1998; Pleck, 2007). As a result, children who have secure, supportive, reciprocal and sensitive relationships with their parents are more likely to be well adjusted psychologically, socially, and cognitively than children whose relationships with their parents are less satisfying (Lamb, 1997); and absence of a parent can have a potentially negative influence on a child's development.

Though mothers often take on the role of primary caregivers, the literature purports that fathers independently contribute to the development of children across the life course, separate from the mothers' contribution (Lamb, 2002). Lamb, Pleck, Charnov and Levine (1985) propose that paternal involvement includes three main components: paternal engagement, which involves the father's direct interaction with the child in the form of caretaking, play or leisure activities; accessibility, or the availability of the father

to the child and the amount of time they spend together; and responsibility which includes the amount of resources that the father provides for the child. The more accessible the father is to his children, the more likely he is to engaged with them and be responsible for them (Lamb et al., 1987). Lamb (1997) contends, however, that the amount of time that fathers and children spend together is less important than what they do with that time and how fathers, mothers, children and other essential people perceive and evaluate the relationship. In other words, time and financial contributions may only serve as proxies to qualitative and emotional parenting behaviors (Edin & Lein, 1997).

Who Are Fathers?

Although a seemingly simple label, the term father can give rise to many complex relationships including biological/genetic associations and social interactions. Webster's New World College Dictionary (Agnes, 2005), defines "father" as ". . . a man who has begotten a child; esp., a man as he is related to his child or children; a person regarded as a male parent; protector." In this sense, the role of father not only includes men who are biologically related to the child, but other father figures with whom the child relates.

According to the U.S. Census Bureau, in 2004, of the 51 million children who lived in two-parent households, 87% lived with both of their biological parents. Another 10% of these children lived with one biological parent and a stepparent; and 2% lived with either two adoptive parents or one adoptive parent and one biological (or step) parent. For children living with their unmarried parents, 10% lived with their single mother, 8% lived with a mother and her partner and nearly 2% lived with a single father and his partner (Kreider, 2008). Thus, we see that a large percentage of children in the U.S. live in homes where father figures have been identified.

Although a significant proportion of children live with a biological, step or adoptive father, the role of father is not limited to these groups. Social fathers are individuals who, independent of biology, take on the role of fatherhood in the life of a child (Palkovitz, 2002). Social fathers can be the married or cohabiting male partner of a child's biological mother (Berger, Carlson, Bzostek, & Osborne, 2008), or other males who take on the responsibility for caring for children in some way, such as grandfathers, uncles, foster fathers, older brothers, unrelated family friends and mentors (Jarrett, Roy, & Burton, 2002). In one study, residential social fathers were more engaged in the cooperative parenting of the child in the home than were non-residential biological fathers (Berger et al., 2008). Demographic analysis indicate that the number of social fathers in today's society is increasing (Palkovitz, 2002), and in some instances, making up for the inattentiveness of biological fathers.

In summary, whether it is taking on the legal obligation of paternity for a child or providing for the child's needs in other, more social ways, men are inducted into the role of fatherhood by multiple avenues. Men are fathers because of relationships (Palkovitz, 2002). Biological fatherhood is forged out of a relationship a man has with the mother of his child and step-fatherhood is forged when men marry women with biological children. Even children can give a man the role of father because of the connection they have established outside of the familial relationship. However, even more than the pairing of a man and child, fathering across time is a reflection of an ongoing decision that has behavioral, cognitive and affective significance for men and children (Palkovitz, 1997).

What is the Role of the Father?

Throughout history, the role of the father has been defined and redefined in a number of ways. In today's society, fatherhood can be viewed as a dynamic process that occurs over time, (Jarrett et al., 2002) rather than as something that is fixed and unchangeable. Fatherhood is a reflection not only of the individual man himself but a complex array of generational and cultural beliefs. As such, the view of fatherhood continues to evolve and change with each new generation.

In colonial times, the traditional fathering role of settlers in the United States was the dominant and stern patriarch. During this era, fathers acted as moral guides, responsible for ensuring that their children learned firm biblical values (Pleck & Pleck, 1997). Such fathers played a central role in the rearing of children and acted as provider, judge, disciplinarian and protector (Parsons & Bales, 1955; Pleck & Pleck, 1997). Subsequently, the role of breadwinner emerged in the nineteenth century when the father's position became more passive and the mothers took on the role of primary parent. Breadwinner fathers were focused on providing financially for their families (Pleck & Pleck, 1997). Though in today's society fatherhood is no longer defined by such concrete terms, the image of fathers as moral guides and breadwinner continue to permeate the role of paternity.

History has also defined fatherhood in the context of sex-role models. Scholars propose that fathers typically act as the first male role model for their offspring, aiding in the sex-role development of children of both genders (Popenoe, 1996; Young & Hamilton, 1978). For boys, fathers often influence the development of masculinity by posing as a role model for their sons to identify with and imitate (Popenoe, 1996;

Weinraub, 1978). According to Young and Hamilton (1978), in order for boys to develop a positive masculine self-concept, they must have access to strong, positive father-figures who help facilitate this development. For girls, fathers may aid in their development of femininity by helping them to learn how to relate to men (Popenoe, 1996; Weinraub, 1978). Young and Hamilton propose that a daughter's feminine self-concept is affected by how her father differentiates his masculine role from her feminine role and the type of behavior that he deems appropriate for her.

Today, the role of father is no longer seen as a one dimensional construct; rather, fathers play a number of significant roles in the lives of their offspring: companions, care providers, protectors, role-models, moral guides, teachers and breadwinners (Lamb, 1997; Popenoe, 1996). Accordingly, the literature proposes that the role that fathers take in the rearing of their children is different than that of mothers. As a member of the social family structure, the father's role is vital to the upbringing of children (Weinraub, 1978).

One way in which fathers are involved with young children is through play activities. In one study, researchers found that when fathers held their infants, it was more often to engage them in playful activities or to sooth the child. Furthermore, when engaging in playful activities with babies, fathers were more likely to participate in physically stimulating and unpredictable types of play than mothers (Lamb, 1978; Parke, 2000). In a study by Kelley and colleagues (1998), fathers were observed to engage in rough-and-tumble play with their sons, which often appeared to be enjoyable for the children. However, it is important to recognize that father interactions are not dominated by playful activities. Rather, play is a conduit used by fathers to engage their children (Lamb & Tamis-Lemonda, 2004).

Today's father is also expected to share in the daily care activities of children. He is present at childbirth, gives equal attention to sons and daughters and is expected to share in household tasks (Pleck & Pleck, 1997). Good fathers have been described as sensitive to their child's needs; they engage children in learning tasks, encourage children to explore their environment and adapt their interactions with the child according to the child's level of development (Lamb & Tamis-LeMonda, 2004). In summary, today's father assumes numerous roles in accordance with the needs of his family.

Benefits of the Father-Child Relationship

The involvement of fathers effects children in a variety of ways. When children have a positive, supportive relationship with their father they often experience more positive social development, greater cognitive and academic gains, fewer behavior problems and increased mental health across their lifetime (Cabrera et al., 2007).

Social Development

The social development of children is influenced by fathers, beginning at birth and continuing throughout their formative years. In a longitudinal study of married couples, Cox, Owen, Henderson and Margand (1992) found that fathers who were affectionate, spent more time with their 3-month olds, and had more positive attitudes were found to have more securely attached year-old infants. For 2 and 3 year old children, father sensitivity was related to better social and emotional development (Cabrera et al., 2007). Biller and Kimpton (1997) found that school-aged children with more involved fathers experienced more successful social and athletic pursuits.

Cognitive and Academic Gains

As childhood persists, children with active, nurturing and committed fathers are generally much more successful in their academic endeavors (Biller & Kimpton, 1997). A study by Cooksey and Fondell (1996) found that children whose fathers shared meals, spent leisure time, engaged in activities, and assisted with reading and homework, performed better academically than children whose fathers did not participate in such activities. Coley (1998) found that children who report more warmth and positive interactions with their fathers, perform better academically as well. Similarly, Dubowitz and colleagues (2001) found that children who identified a father figure acting in a supportive role in their life had higher cognitive scores than children who did not identify any father figure. Even in studies of single-parented children, findings suggests that having positive and warm social interactions with one's father was predictive of higher achievement scores in standardized assessments (Coley, 1998).

Child Behavior

Father involvement can have a lasting effect on the behavior of children. In a study by Amato and Rivera (1999), having involved residential biological and step-fathers was found to be negatively related to the number of behavior problems exhibited by their children, even when controlling for maternal involvement. Brody and Forehand (1990) found that children who report closer relationships with their nonresidential fathers and lower levels of inter-parental conflict, experienced lower risk of behavioral and emotional problems than children who do not report having a relationship with their father. Furthermore, in a study of adolescents living in single-mother households, children who had involved non-residential fathers were less likely to engage in delinquent

behavior or abuse substances (Thomas et al., 1996). For adolescent girls, closeness to fathers was related to expectations of postponing sexual activity (Hosley & Montemayor, 1997).

Mental Health

Researchers have found that self-esteem is significantly impacted by positive father involvement (Amato, 1994). In a study by Plunkett and colleagues (2007), paternal support was found to indirectly affect mental health through increasing self-esteem. Children who felt higher levels of positive support from their fathers and had higher levels of self esteem experienced lower levels of depression. Zimmerman and colleagues (1995) also found that spending time with fathers was associated with fewer instances of depression and anxiety. In contrast, conflict within the father-child relationship was more predictive of depression in adolescents (Cole & McPherson, 1993). In addition, Rhoner (1998) has argued that father love has a significant impact on children's and adult's psychological health. Researchers have found that young women with anorexia and bulimia were more likely to report lower levels of paternal emotional involvement and care during childhood (Calam, Waller, Slade, & Newton, 1990; Telerant, Kronenberg, Rabinovitch, & Elman, 1992). In research on depressed children, reports of more maladaptive relationships with their fathers have also been discovered (John et al., 1987). Jiloha (1986) also report that associations have been found between adolescents' abuse of substances and poor relationships with their fathers.

Mental health benefits of having strong father-child relationships also persist into adulthood. In a nationally representative sample of children from two-parent, married households, Amato (1994) found that adult offspring reported higher measures of

happiness and life satisfaction when they felt close to their fathers. They also reported lower levels of psychological distress. Such findings were independent of the children's closeness to their mothers.

In summary, researchers have found that father involvement has been linked to increased cognitive competence, empathy, less sex-stereotyped roles, more internal locus of control (Pleck, 1997; Radin, 1994) and higher self-control, self-esteem, life skills and social competence (Amato, 1994). Emotional support and care from fathers was also associated with less substance abuse and lower levels of depression. Overall, the literature supports the notions that as children grow and mature, having the love, support and guidance of their father leads to successful social, cognitive and emotional outcomes, even into adulthood.

Sons versus Daughters

The literature proposes that father involvement varies according to the gender of the child. Many researchers suggest that fathers spend more time with their sons than their daughters (Pleck & Masciadrelli, 2004). Often, this preference is mirrored by children as well. In addition, the activities and behaviors that fathers engage their children in are moderated by gender. Fathers interact in more sensitive ways with female children than males (Kelley et al., 1998).

In a study by Elder and Bowerman (1963), fathers assumed more active roles in large families that included one or more boys. Men with all girls or with a mixture of both male and female children were less likely to take part in activities with their children (Katzev, Warner, & Acock, 1994). The lowest level of father involvement occurred in families with all female children (Elder & Bowerman, 1963; Harris & Morgan, 1991;

Katzev et al., 1994). One explanation for this is that fathers may feel that they are better equipped to provide knowledge and skills to their sons (Marsiglio, 1991). Marsiglio (1991) also found that fathers are more likely to take their sons on outings, do projects, spend time in conversation and engage in play activities than with daughters.

Research suggests that the relationship between fathers and daughters is especially salient, particularly the way it develops during childhood (Perkins, 2001). Historically, fathers took on such roles as protector, keeping their unmarried daughters virginal in order to uphold her reputation (Pleck & Pleck, 1997). Even today, these roles persist between fathers and daughters. As girls grow up, however, some researchers suggest that fathers find it increasingly difficult to relate to their daughters in the same way they did earlier in her life (Freud, 1988; Secunda, 1992).

Children also may be more inclined to spend time with their same-sex parent (Marsiglio, 1991). A study by Harris and Morgan (1991) found that sons reported significantly more participation with their fathers than daughters reported. This may be because the father-son relationship allows boys to model after their fathers and receive training from them (Alston & Williams, 1982).

In summary, research suggests that fathers often take on the role of guide and teacher with their sons, while their relationships with their daughters are more sensitive as he takes on the role of protector. Although the research proposes that children tend to spend more time with their same-sex parent, involved fathers still have a lasting impact on the development of their children, and they have the ability to form special bonds with both their sons and daughters.

Factors Influencing Father Involvement

The determinants of father involvement are complex. Early life experiences, education about fatherhood and access to resources (Lamb & Tamis-Lemonda, 2004) each have been found to affect a man's view of his paternal role. Furthermore, father involvement is affected by these and other factors across the life course. As such, whether psychological, social or culturally based, determinants of father involvement influence the development of each man's individual view of fatherhood (Lamb & Tamis-Lemonda, 2004).

The Father's Early Experiences

Many fathers view paternity according to recollections of their own childhood. For example, having experienced a history of consistent and positive fathering may lead men to develop a healthy cognitive model to follow with their own children (Coley & Hernandez, 2006). On the other hand, Cooksey and Fondell (1996) found that when no father or stepfather was present during their own childhood years, fathers were less likely to report sharing activities with their own children. However, just as some men may view their fathers as a model for fatherhood, others may seek to compensate for the type of fathering they received during their formative years (Lamb, 1997; Pleck & Masciadrelli, 2004). As such, many men raised in homes without their fathers play very active roles in the lives of their own children (Pleck & Masciadrelli, 2004).

Education about Fatherhood

Fathers' perceptions of competence in the parenting role may have a significant impact on their desire to be involved in the lives of their children (Pleck & Masciadrelli, 2004). When fathers are more knowledgeable about child development, and feel that they

possess the skills and self-confidence to parent, they are more positively involved in child rearing (Bailey, 1993; Lamb & Tamis-Lemonda, 2004). In a study by Dickie and Gerber (1980), parents were given training in child development, infant temperament, awareness and the reciprocal relationship between parents and infants. Fathers who received the training increased their interactions with their infants and were rated as more socially competent by their spouses (Dickie & Gerber, 1980).

The Father's Resources

The present adult circumstances of the father also play an important role in his ability to parent his children. Specifically, education and income were positively associated with time spent with children (Coley & Morris, 2002; Cooksey & Fondell, 1996). Grossman and colleagues (1988) also found that men who enjoyed their work had more sensitive and responsive interactions with their young children. Consequently, studies suggest that barriers imposed by the workplace have been ranked by fathers as a significant reason for low levels of paternal involvement (Lamb, 1997).

In summary, studies have shown that father involvement is influenced by several factors including his own early experiences, feelings of competence as a parent and socioeconomic status (Coley & Hernandez, 2006; Lamb, 1997; Lamb & Tamis-Lemonda, 2004; Pleck & Masciadrelli, 2004). For many men, lacking father involvement in their formative years weigh heavily on their own ideas about father involvement (Cooksey & Fondell, 1996). In addition, such factors as self-sufficiency and socioeconomic satisfaction may increase a man's ability to be a provider (Coley & Morris, 2002; Cooksey & Fondell, 1996). Men who have higher education, are consistently employed

and enjoy their jobs are more likely to spend time with their offspring (Grossman et al., 1988; Lamb, 1997).

The Mothers Role in Father Involvement

Research suggests that mothers play an important role in how fathers interact with their children. Grossman, Pollack and Golding (1988) found that the more skillful mothers were at taking care of their children and fostering the child's autonomy, the more fathers followed suit in providing quality care and fostering autonomy. However, mothers may also act as "gatekeepers" of the home and childrearing, organizing and overseeing the time that father and children spend together (Allen & Hawkins, 1999). As gatekeepers, mothers may encourage father involvement by asking for help and encourage fathers to participate in the daily care of children, or they may criticize fathers and exclude them from parenting, thereby discouraging father involvement (Roggman, Boyce, Cook, & Cook, 2002).

Marital status can also have an effect on father involvement. Researchers have found that married and co-residential fathers are significantly more involved with their children than other fathers (Coley & Chase-Lansdale, 1999). Furthermore, separated and divorced fathers have been found to visit their children more often and pay more child support than never-married or remarried fathers (McKenry et al., 1996; Seltzer, 1991). In one study of unwed fathers, Lerman (1993) found that more often, when fathers were not married to the mothers of their children, they never resided in the same home as their offspring. In addition, only half of the fathers visited their children each week, while 20% visited their children once a year or less.

Although research suggests that married fathers are more involved with their children, there is also evidence that this may be because the father-child relationship is mediated through the quality of the parental relationship (Coley & Chase-Lansdale, 1999; McBride & Mills, 1993). McBride and Mills (1993) found that fathers with more favorable perceptions of their marriage were more likely to spend time with their children; and mothers who viewed their marriage as more favorable reported that their husbands were more involved with their children. However, whether the two parties are united in a marriage relationship or not, the mother's attitude toward the father has a direct effect on his ability to parent, as well as his desire to participate in the rearing of the children (Lamb & Tamis-Lemonda, 2004; Feldman, Nash, & Aschenbrenner, 1983). A study by Harris and Morgan (1991) found that men whose wives characterized their marriages as "not satisfying" or "partly satisfying" were less involved with their children. Alternatively, when there is cooperative communication over parenting, fathers are more involved (Rettig, Leichtentritt, & Stanton, 1999).

Another factor affecting the involvement of fathers is the legal agreement regarding custody of the children. For non-residential fathers, research finds that men reduce their involvement with their children if they think they are treated unfairly by the legal system (Kruk, 1991). This is especially salient because mothers are more likely than fathers to be awarded custody of their children (Meyer & Garasky, 1993; Nielson, 1999; Sheets & Braver, 1996). However, when parents are able to mediate the joint-custody arrangements of offspring, fathers are more likely to participate in their children's lives by spending time and providing financial and emotional support (Braver et al., 1993;

Emery, 1994; Emery, Mathews, & Wyer, 1991; Emery & Wyer, 1987; Hetherington & Stanley-Hagan, 1997).

In summary, mothers often contribute to the amount of time fathers spend caring for their children. As ‘gatekeepers’ mothers may either encourage fathers to be involved or exclude them from child rearing tasks, thereby discouraging their involvement (Roggman et al., 2002) Marital status can also influence father involvement as studies have shown that married fathers typically are more involved with their children than unmarried fathers. However, paternal absence from the home environment does not necessarily mean that fathers are absent from their children’s lives (Zimmerman et al., 1995). Fathers who also have the support of the mother of their children demonstrate higher levels of paternal involvement (Harris & Morgan, 1991). Alternatively, high levels of conflict between parents lead to lower levels of involvement (Coley & Morris, 2002). As such, because mothers are more likely to be awarded custody of children, fathers often feel that they have less power in child rearing (Meyer & Garasky, 1993); this imbalance can lead to less support from fathers. When cohesive agreements regarding custody are made, however, children reap the benefits.

African American Fathers

One myth concerning the African-American community is that black mothers are alone in raising their children, and black fathers are invisible, irresponsible dads who contribute little economically to the well-being of their children (Burton & Snyder, 1998; Gadsen, 1999; Hamer, 1998; Marsiglio et al., 2000). However, single-parent families in African American communities are often a more complicated arrangement of biological fathers, extended family (including grandparents, uncles, and cousins) and father figures.

Furthermore, contrary to research of unmarried white fathers, non-married black fathers are more likely to join their children's household, even when originally being absent (Nelson, 2004).

Paternal absence from the home environment does not necessarily mean that fathers are absent from their children's lives (Zimmerman et al., 1995). Studies of never-married African-American fathers have found that non-married African American fathers are more likely than non-married white and Hispanic fathers to live nearer and have more contact with their children, or even later join the household (Lerman, 1993; Nelson, 2004). Likewise, in an intensive qualitative study of divorced and never-married African-American fathers, fatherhood was defined by the men as maintaining relationships and providing for their children (Nelson, Clampet-Lundquist, & Edin, 2002). Furthermore, when single-parented black children are asked to identify a father figure in their life, they are more likely to identify their biological father than some other adult male (Mott, 1990; Zimmerman et al., 1995). Hence, black fathers often play more nontraditional roles in their children's lives (Coley & Chase-Lansdale, 1999).

Several factors, however, have been found to have an affect of the involvement of African-American fathers. Hamer (1998) found that involvement was influenced by three main areas: relationship with the children's mother, time and proximity to the offspring. When fathers were close to mothers and perceived them as supportive, friendly, respectful and kind, they were more likely to be involved in the child's life (Coley & Chase-Lansdale, 1999; Hamer, 1998). Alternatively, when an antagonistic relationship was established, father involvement lessened. Time was often a hindrance when fathers had demanding jobs or when he had to split his time between children from

multiple mothers (Hamer, 1998). Finally, when fathers lived in different towns, cities or states from their children, visitation occurred less frequently. Interestingly, the presence of a new maternal partner increased the likelihood of biological fathers being highly involved with his children (Coley & Chase-Lansdale, 1999).

In summary, the notion that African-American fathers are not involved in their children's lives is a myth. Studies have shown that African-American fathers take their role in their children's lives very seriously (Lerman, 1993) and are often involved in their care and support (Nelson, Clampet-Lundquist, & Edin, 2002). Furthermore, though black fathers are more likely to never marry the mother of their children, they are more likely than white and Hispanic fathers to remain involved in their children's lives (Nelson, 2004). Factors that contribute to a decrease in father involvement for African-American fathers, however, include a hostile relationship with the child's mother, having children with multiple women and living far away from their children. Overall, however, the research supports the idea that black fathers are engaged, accessible and responsible for their offspring.

Benefits of the Father-Child Relationship for African-American Children

Studies have found that involved black fathers also contribute significantly to the development of their children. Similar to Caucasian fathers, African American fathers serve as playmates for their children (Kelley et al., 1998). This relationship provides beneficial support for typical child development. In a study by Kelley and colleagues (1998), black fathers were observed to engage in rough-and-tumble play with their sons, which often appeared to be enjoyable for the children. However, such behaviors did not occur with their daughters. Rather, fathers with daughters were more sensitive in their

play. Researchers have also found that black fathers were more likely than white fathers to spend time reading, helping with homework (Cooksey & Fondell, 1996) and talking (Marsiglio, 1991) with their children. Black fathers, however, were less likely than white fathers to share meals with their children (Cooksey & Fondell, 1996).

In studies of African-American residential fathers with young children, a less restrictive attitude and higher levels of sensitivity expressed during play, were related to enhanced social and cognitive development (Kelley et al., 1998). African-American children who experienced greater warmth and control from their fathers experienced higher pro-social ratings and lower rates of problematic school behaviors (Coley, 1998). Research by Zimmerman and colleagues (1995) found that for poor, urban black adolescents, having the emotional support of their fathers or a father figure predicted higher levels of self-esteem and life satisfaction and lower levels of depression, anxiety and delinquent behaviors. Similarly, Alston and Williams (1982) found that there is a significant relationship between father presence in the home and the self-concept of African-American adolescent males. Boys whose fathers lived in the same home with them scored higher on self-esteem measures than boys whose fathers were not in the home. The researchers suggest that the father-child relationship allows sons to model after their fathers and receive training from them, thereby promoting a positive self-concept. Fathers use of positive, sensitive and nurturing strategies were also highly correlated with children's self esteem in low income African American families (Kelley et al., 1998).

Some studies have also found mixed results for African American children living in single parent homes. In one study of Black children, living in single-parent households

early in life, reduced the likelihood of higher educational attainment. Specifically, Krein and Beller (1988) estimate that 20 to 25 percent of a year of education is lost for each preschool year spent in a single-parent home family. Interestingly, no such impact was found when single parenthood began during the child's elementary and high school years. Dubowitz and colleagues (2001) found that black children who identified a father figure in their life had a stronger sense of competence and social acceptance, but lower scores on cognitive development compared to white children. Moreover, in a study by Furstenberg and Harris (1993), although having a strong relationship with their father did not prevent young black males from the risk of teen pregnancy, sons who had a strong relationship with their non-custodial fathers were more likely to report responsibility for a teen birth.

In summary, research suggests that African American fathers view their role as parents similarly to Caucasian fathers. Black fathers often act as playmates to their children and spend their time socially interacting with offspring (Kelley et al., 1998). In addition, similar to white children, black children benefit from higher self esteem and lower levels of depression and anxiety when their fathers are actively and positively involved in their lives (Alston & Williams, 1982; Coley, 1998; Zimmerman et al., 1995). Mixed results have been found, however, for the educational and cognitive gains black children living in single-parent homes. Some studies have shown that father involvement increases the likelihood of higher cognitive scores and more educational attainment, while others have not found such results (Dubowitz et al., 2001). Overall, however, research has demonstrated that having involved fathers benefits African American children in many ways.

Fathers in Poverty

According to Rettig and colleagues (1999), individuals who are able to amass resources beyond their minimal needs have the capacity to give resources to others. For people living in poverty, however, this becomes increasingly difficult and may affect the way families live. Furthermore, poverty not only impacts economic resources, but it can affect the way that men view themselves, others and the world around them. For fathers in poverty, a serious lack of economic stability can limit his ability to attend to his family. Such limited resources may influence the way that he feels about himself and those depending on him. Moreover, the culture of poverty can also have an effect on the lifestyle that men live. For many youth living in impoverished communities, age at onset of fatherhood is earlier (Nelson, 2004). Early parenthood could be a reflection of cultural messages transmitted through observing others with similar life circumstances, within the surrounding environment (Nelson, 2004; Robbers, 2009).

Socioeconomic status is tremendously important in the United States. However, low income fathers have limited access to economic resources and are therefore less likely to contribute financially to their children (Nelson, 2004; Rangarajan & Gleason, 1998). Because fathers have historically taken on the role of financial caretaker in families (Coley & Hernandez, 2006; Orthner, 1996), the inability to financially provide for their children has a significant effect on the father-child relationship. Often, men who have difficulty providing for their children feel emasculated, which can be a source of significant stress and anxiety (Marsiglio & Cohan, 1997). As a result, these fathers may also feel that they are not capable of fulfilling societal expectations of fatherhood

(Nelson, Clampet-Lundquist, & Edin, 2002) and so they limit their time with their children.

The study of underprivileged youth also contributes significantly to the literature on low-income fathers and their involvement with their children. Studies suggest that adolescents living in poverty begin having sex at younger ages, have more partners, and use less effective methods of birth control than their wealthier peers (Robbers, 2009). Some research also purports that low-income youth may be more inclined towards fatherhood because the stigma attached to teen parenthood is not as pronounced in lower-income communities as it is in upper and middle class communities (Nelson, 2004). Furthermore, children born to younger mothers and fathers are more likely to have children at younger ages (Robbers, 2009). As a result, research proposes that the younger the age of onset of fatherhood, the higher the rate of parenting failure (Elster & Lamb, 1982). Young fathers are less likely to have completed their formal education or have steady employment (Lerman, 1993). Thus, these fathers are more likely to be living in poverty. Studies have also found that younger fathers have higher rates of criminal behavior and substance abuse (Elster et al., 1987; Lerman, 1993; Marsiglio & Cohan, 1997).

The circumstances surrounding young fatherhood are often much different than the circumstances surrounding older fathers (Marsiglio & Cohan, 1997). Because young fathers are still continuing to develop emotionally and psychologically themselves, they are less likely to understand how to cope with the complex responsibility of raising a child (Elster & Lamb, 1982; Marsiglio & Cohan, 1997). This often leads to limited involvement with their offspring. However, younger fathers are more likely to remain

involved when they are better educated about the significance of their role as a father and when they have decision making power in the lives of their children (Robbers, 2009). Furthermore, the use of education and counseling may also lead young fathers to increase their involvement in their children's lives (Elster & Lamb, 1982; Robbers, 2009). Mazza (2002) found that promoting self-worth and educating teen fathers about the importance of remaining actively involved with their children helped increase their contributions to parenting.

In summary, fathers living in poverty face a number of difficult life circumstances that influence the role that they play in the lives of their children. Whether due to limited resources, lowered self-image, immaturity or a combination of factors, men in poverty face a number of challenges. They are far less likely to have regular employment due to lower levels of educational attainment and skills (Nelson, 2004), they are more likely to be effected by stress which can lower their sense of well-being, and males in poverty are more likely to experience fatherhood at younger ages. Fortunately, interventions have been shown to increase father's understanding of their importance in the lives of children (Mazza, 2002). These life lessons, in turn, can have a positive effect on their desire to parent their children.

Early Intervention

Early experiences provide a foundation for the development of individuals across their lifetime. This means that not only is the early home environment of children significant during the life course, but outside resources such as schools and communities can have an impact on development as well (Ramey & Ramey, 2004). Children raised in poverty often have access to the least amount of resources. Research implies that children

with the most need gain the most from early intervention programs that systematically provide enriched learning opportunities (Bradley et al., 2001; Brooks-Gunn & Duncan, 1997; Ramey & Ramey, 2004).

Researchers on early academic intervention have demonstrated that investment in the education of low income urban children and parents results in societal gains including lower rates of crime and unemployment, increased financial assistance through social services and increased academic performance (Feldman, 1995; Wallman, 2010). Such benefits may also decrease the amount of money spent on education remediation (Feldman, 1995). Furthermore, supportive and respectful early intervention programs are often requested and welcomed by low-income single parents (Robinson & Fitzgerald, 2002; Unger, Jones, Park, & Tressell, 2001). Therefore, for children living in homes who do not benefit from the social, emotional and financial support that fathers often provide, early interventions may provide single parents with education and support and may fill in some of the holes that fathers leave behind.

The literature has long-established that early childhood intervention programs help buffer many maladaptive outcomes for children living in poverty (Ramey et al., 2000). This is likely because early interventions provide the family with social support (Orthner, 1996), such as childcare assistance, that help buffer children and families from stressful life events (Guidubaldi et al., 1985). Furthermore, longitudinal studies of early intervention have found that long term outcomes for children include higher rates of high school graduation, better socioeconomic outcomes as a result of better employment outlooks and higher paying jobs, higher rates of home ownership and lower rates of crime and delinquency (Schweinhart et al., 1993; Reynolds et al., 2007).

The Abecedarian Project has demonstrated significant, persistent cognitive and academic benefits from early childhood through young adulthood (Campbell & Ramey, 1994; Campbell et al., 2002; Ramey & Campbell, 1991). During the preschool phase of the study, children in the treated group performed significantly better on cognitive measures than the control group (Campbell et al., 2002; Ramey & Campbell, 1984). In addition, school-aged treated children's scores in reading and mathematics increased as a linear function to the number of years they received treatment (Ramey & Campbell, 1991). In adolescence, treatment was associated with higher academic skills and fewer special education placements and grade retention (Campbell & Ramey, 1994, 1995; Campbell et al., 2002). At the age-21 follow-up, intellectual and academic gains continued to be observed for treatment children compared to controls (Campbell et al. 2002; Pungello et al., 2010). Treatment group participants had higher levels of education attainment, were less likely to experience teen parenthood, had lower rates of marijuana usage and lower rates of depression than control participants (Campbell et al., 2002, 2008; McLaughlin et al., 2007; Pungello et al., 2010; Ramey & Ramey, 2004). In summary, early intervention has been found to buffer against the maladaptive effects that poverty has on the development of children.

Early Intervention as a Moderator of Father Involvement

The literature proposes that human development is cultivated through the provision of resources and investment in social capital (Pancsofar & Vernon-Feagans, 2006; Marsiglio, Amato, Day & Lamb, 2000). Social capital involves the familial and community relationships that benefit children cognitively and socially (Marsiglio et al., 2000). Moreover, the number of adults within the child's social network, and the extent

to which these adults provide children with resources impacts their survival (Amato, 1995). Though parents are often the key adults within this network, other adults, such as child care providers, also provide resources for children; and typically, the more adults there are to provide stable, consistent, positive resources for children, the better of the child will be (Amato, 1995). Examples of social capital include the nurturing relationship between the parents and child as well as the positive connections that parents have with each other adults including family and community members, such as child care providers and teachers (Marsiglio et al., 2000). The absence of fathers, however, presents limitations in social capital because his involvement with other adults in the child's social network is often limited.

As described earlier, poverty has a significant and profound effect on families and the fathers' ability to consistently provide support for children. Especially in single-family households headed by mothers, economic hardship taxes children's development by the stress that it causes (Conger et al., 1992). When mothers experience high levels of stress they are more likely to suffer from psychological distress which alters their mood, making them less likely to be able to provide a consistent, stable, nurturing environment for their children (Brown & Lynn, 2010; McLoyd, 1990). As a consequence, the mother's behavior towards her children is often punitive and inconsistent (McLoyd, 1990). However, studies have shown that when single mothers have strong support networks, they experience better psychological health, improving their parenting abilities, thereby also improving child outcomes (Brown & Lynn, 2010; Weinraub & Wolf, 1983). The current study questions whether quality early child hood programs may also support

families by providing a strong social support network for children with limited father involvement.

Risk

According to the U.S. Census Bureau, in 2002, 30% of all children lived in families whose income was below \$30,000, and 17% of all children lived in extreme poverty (100% below the poverty line; Fields, 2003). Furthermore, rates of children living in poverty are consistently higher for single-parent families than two-parent families (Fields, 2003; Kreider, 2008). Black children, especially, have been found to be disproportionately likely to live in poverty than white children (McLeod et al., 1994).

Research suggests that children living in poverty are more susceptible to stressful life events and this is often related to the challenges faced by their parents (Brown & Lynn, 2010; Conger et al., 1992). For single parent families, daily stresses are increased due to decreased financial resources, reduced social supports and increased pressure and responsibility to maintain a household and care for children (Weinraub & Wolf, 1983). Such challenges can lead parents to provide less nurturing, supportive, responsive care and inconsistent discipline (Lempers, Clark-Lempers, & Simons, 1989; McCartney & Berry, 2009; McLoyd, 1990; Weinraub & Wolf, 1983). Furthermore, children in poverty are more likely to be exposed to violence (Barrett & Turner, 2005) due to living in dangerous neighborhoods and high parenting stress (Weinraub & Wolf, 1983; Unger et al., 2001).

Childhood poverty has many additional risk factors for children including poorer health and development and greater risk of child abuse. In addition, the behavioral impact of growing up in a low-income environment includes underachievement in school, truancy, teenaged pregnancy, smoking, drug use and juvenile crime (Buchanan et al.,

2000). Each of these factors can lead to significant mental health consequences in adolescence and adulthood (Buchanan et al., 2000; Gilman et al., 2003).

In summary, more than a quarter of children in the United States are living in low-income households, and many of these children are minorities. Unfortunately, these children are at an increased risk for poor health outcomes and mental health problems into adulthood. Children in poverty are also at an increased risk for continuing the cycle of impoverishment because they may have difficulty gaining the skills and education to escape from the disadvantage (Heath, Colton, & Aldgate, 1994).

The Present Study

The literature presents many findings on the impact that fathers have on the development of their children across the lifetime. As we have seen, children who have involved fathers are more likely to benefit psychologically, socially, academically and economically. However, there are many barriers that exist to limit the contact and support that children receive from their fathers. One of these barriers is poverty, and this is especially salient in African-American families.

Although a great deal of research has been conducted in the areas of father involvement, child development, poverty and early intervention, the current study proposes to understand how these areas are interconnected. According to Phares (1997), fathers remain underrepresented in the research on the development of psychopathology in children. There is far less literature on the impact of fathers and psychopathology in adult offspring, especially for African-Americans who grow up in poverty. Furthermore, although we know that early intervention can act as a social support network that provides significant benefits for families in poverty, there is little to no research on how

early intervention may buffer the effects that low father involvement may have on the social, emotional and economic outcomes of adult offspring.

The study sample was drawn from a longitudinal study of low-income children (mainly African-Americans), who were involved in an intensive early educational childcare program in a small college town in North Carolina. Access to this data set is significant for several reasons. First, families in poverty are often difficult to access and are less likely to participate in research for a variety of reasons (e.g., literacy challenges, mistrust of strangers) (Othner, 1996). Also, researchers have found that interventions must be intensive in order to maximize their effectiveness (Orthner, 1996), and interventions of comparable intensity to the Abecedarian Project, with long term follow-up are very rare. Participants in the original study were entered into the study as infants and participated for the first eight years of their lives. Subsequent follow-ups were also done at ages 12, 15, 21 and 30 years. Treatment status (experimental or control) and father involvement data collected at birth, five, eight, 12 and 15 were analyzed, along with measures of social and emotional functioning and economic outcomes at age thirty.

Research Questions and Hypothesis

The literature illustrates that father involvement significantly affects the social, emotional and economic outcomes of adult offspring. However, researchers have not investigated whether there is any interaction between early childhood intervention and father involvement and whether this interaction influences the outcomes of adult children. As such, the following research question and hypotheses were explored: *Does early intervention treatment moderate the effect of father involvement on adult outcomes?*

Hypothesis 1a- Treatment will moderate the effects of father involvement on the social- emotional outcomes of adult participants, such that treatment will buffer against the effect of low father involvement.

Hypothesis 1b- Treatment will moderate the effects of father involvement on the economic outcomes of adult participants, such that treatment will buffer against the effect of low father involvement.

CHAPTER III: METHODOLOGY

Study Design

Initial Recruitment

The data used in the current study were drawn from a longitudinal study of children born to low-income families between 1972 and 1977. The study, called the Abecedarian Project, recruited participants from local prenatal clinics and a social service department in North Carolina. Families from these local agencies were deemed eligible if they met the condition of high risk as assessed by a 13-factor Risk Index (Ramey & Smith, 1977). Those who met the criteria and also expressed interest were then visited by study personnel to conduct a formal assessment. During the enrollment procedures, the condition of random assignment to early childhood treatment or the comparison group was explained. Thus, two groups were formed: the Experimental Preschool (E) group and the Control (C) group. Ninety-one percent of eligible families chose to participate in the study (Ramey et al., 2000).

Early Childhood Procedures

Children entered the daycare program at a mean age of 4.4 months old. Children in the E group received an infant curriculum that was created especially for the program. The goal of the curriculum was to enhance cognitive, language, perceptual-motor, and social development. Later, language development and pre-literacy skills were also added to the curriculum (Ramey, McGinness, Cross, Collier, & Barrie-Blackley, 1982).

Treatment children also received medical care on site. For the control group, iron-fortified formula was provided for the first 15 months of life in order to ensure that the infants' daily nutrition intake was comparable to that received by the E group. Diapers were also provided for C group infants until they were toilet trained. In addition, families had access to social support services through the study (Campbell & Ramey, 1994).

Throughout the preschool program, all children were given assessments of cognitive functioning, academic readiness, social development, behavior and physical growth. Parents were also interviewed periodically to assess the home environment, attitudes about parenthood and family status.

School-Aged Procedures

Prior to kindergarten entry, children in each group, E and C, were again randomly assigned into school-aged intervention and control groups. Four groups were created in which half of the original E group continued on through the school-aged intervention, forming the Experimental-Experimental (EE) group. These children received a total of 8 years of experimental treatment. The other half of the original E group discontinued treatment after the preschool treatment ended (at 5 years of age). The children formed the Experimental-Control (EC) group. Likewise, half of the Control group was assigned the school-aged intervention, forming the Control-Experimental (CE) group. These entered the experimental group at age 5 and received a total of 3 years of treatment. The final half of the original C group formed the Control-Control (CC) group, as they did not receive any intervention for the full 8 years of the original study (Campbell & Ramey, 1994; Campbell et al., 2002).

In the school-aged program, a Home-School Resource Teacher (HSRT) worked with classroom teachers and parents of the children in the EE and CE groups. The goal was to increase parents' involvement in their child's education. Educational activities were provided to address the individualized learning needs of the children in these groups. The HSRT would alternate between visits to the classroom and home each week. During home visits, parents were taught how to do the learning activities with their children. HSRT's also acted as advocates for the school, parents and children (Campbell & Ramey, 1994; Campbell et al., 2002). Throughout the school-aged time period, all children were followed up and given measures of academic skills, cognitive functioning, language development, social adjustment and behavior. Parents were also interviewed to assess the home environment, attitudes about parenthood and family status. Teachers rated language competence and behavior.

Follow- Up Procedures

After the termination of phases 1 and 2 of the study, Abecedarian children were again followed up at ages 12, 15 and 21 years of age to assess their developmental progress. During these interviews, children were asked to complete measures of academic skills, cognitive functioning, mental health, relationships with parents and peers, behavioral functioning and their feelings about themselves. Parents of the participants also completed questionnaires about the children's development, their home environment, ideas about parenting and their socioeconomic circumstances. At age 12 and 15, teachers completed forms about the child's behavior in the classroom.

Participants

The original sample included 111 infants who were chronologically assigned into four cohorts. All children were initially judged to be healthy and free of developmental disabilities. Fifty-seven children were randomly assigned into the E group and 54 were controls. Slightly more than half of the study sample was female (53%); 98% of the subjects were African American (Campbell & Ramey, 1994; Campbell et al., 2002).

In the current study, 103 individuals who were originally included in the Abecedarian Project were alive and eligible for inclusion. Of these, 102 were located and 101 agreed to participate in the follow-up study. Participants were invited to come to the center for interviews about their current lives and what they had been doing since they had last been seen at their Young Adult Interview at age 21.

Procedures

Adults were first contacted by the Family Coordinator by letter or telephone to invite them to take part in the follow-up. Additional telephone calls were made, as needed, to answer questions and set up appointments during times that were convenient to the participant. Interviews were conducted in private rooms at the Frank Porter Graham Child Development Institute, designed to conduct research. Data collection included a semi-structured interview covering education, job status, residential history, family (immediate and extended), economic circumstances, problems with the law, health, religious beliefs, community involvement and feelings about themselves. After the interview, participants were asked to fill out several self-report questionnaires covering job satisfaction, mastery over their life circumstances, substance abuse, social supports, stressful life events, adaptive functioning and problem behaviors. For

participants who had children, additional questionnaires were completed describing their home environments, their feelings about parenthood, their ideas about education for children and assessments of their child's adjustment and behavior.

Data were collected in a single 2-4 hour session at the Institute by graduate student interviewers who were unaware of the early childhood intervention status of study participants. Travel expenses were paid for participants who lived out of town. All participants were paid \$125 for completion of the adult follow up, and received additional monetary incentives for child questionnaires. Participants who answered questionnaires about their children were given Wal-Mart gift cards in the amount of \$25 for the general parent questionnaire pack and \$10 for each behavioral questionnaire about individual children. The study protocol was approved after a full board review by the University's Academic Affairs Institutional Review Board.

Measures

The major domains measured in the current study included father involvement from birth to age 15 and social, emotional and economic outcomes in adulthood. Father involvement was measured by mother's report of father's contact, emotional support and financial support at birth, 5, 8, 12 and 15 years.

Father Involvement in Childhood

At each assessment time point throughout the study, mothers were asked to complete Parent Interviews covering family status, economic circumstances, residence, social supports and ideas about children. Interviews were conducted by study personnel who were familiar with the mothers. First, mothers were asked if the child resided in the same home or lived in separate homes from their biological father. For those whose

fathers were living outside the home, mothers were asked whether the child had contact with the father. If they did have contact with him, mothers were also asked how often the child saw the father and what types of activities the father and child did together. In the present study, data on father contact at birth, age five, age eight, age 12 and age 15 years were included. Five categories were created to describe the type of contact the children had with their fathers:

1. “Lived With”: the father was in the home a minimum of 4 of the 5 time points and there were no time points without father contact
2. “Frequent Involvement”: the father and child always had contact, but the father and child only lived together a maximum of three time points
3. “Inconsistent/Unpredictable Involvement”: the father was absent during one time point, and there was a mixture of contact ranging from visitation to living together during the remaining time points
4. “Infrequent Involvement”: during two to three time points, there was no father contact, and the child lived with or had visitation with the father during the remaining time points
5. “No Contact”: the father was absent during four or all five of the time points

Adult Self Report

The Adult Self Report (ASR) is an assessment completed by adults ages 18 to 59. It is part of the Achenbach System of Empirically Based Assessments (ASEBA) and was published in 2003. The ASR provides a comprehensive picture of an individual’s psychosocial functioning and problem behaviors (Achenbach & Rescorla, 2003). The ASR is a four page document that assesses adult functioning in several different ways.

The first half of the measure (pages 1 and 2) included items used to measure adaptive functioning. The second half of the measure (pages 3 and 4) included a list of items that measured behavioral, emotional and social problems.

Adaptive Functioning. The Adaptive Functioning Profile provided a general estimate of adaptive functioning that included an assessment of relationships with family, friends and significant others, employment and education. Participants were asked to answer questions that pertained to their life within the six months preceding the interview date. In Section I: Friends, individuals checked boxes to indicate the number of friends they had, how often they had contact with their friends, how they got along with their friends and how often they were visited by family and friends. In Section II: Spouse or Partner, participants were asked to indicate their marital status and whether or not they lived with a partner or spouse at any time within the six months period prior to their interview. Individuals who lived with a spouse or partner were asked to complete additional questions that described their relationship with their partner. A three-point scale (0= Not True, 1= Sometimes or Somewhat True, 2= Very True or Often True) was used to rank a series of eight questions such as “I get along well with my spouse or partner” and “ My spouse or partner and I disagree about living arrangements, such as where we live”. In Section III: Family, participants used check boxes to describe the degree to which they got along with members of their family (i.e. parents, siblings and children). Rankings allowed participants to describe their relationships as “Worse than Average,” “Variable or Average,” or “Better than Average.” Participants also specified when they had no contact with a particular family member, the family member was deceased or the question did not apply to their family structure. In Section IV: Job,

individuals used the three-point scale (as was used for section II) to describe their work experience during the previous six months. Only participants who reported having had a job at any time within the time period were asked to answer questions in that section. In Section V: Education, participants were asked to indicate whether or not they had attended school, college or any other educational or training program within the six months prior to completing the form. Participants who had participated in some educational program were asked to describe their educational experience using the three-point rating scale. Finally, in Sections VI, VII and VIII, participants were asked to describe any illnesses, disabilities or handicaps they had; their concerns or worries about family, work, education or miscellaneous areas of their life; and the best things about themselves.

The ASR yields a Mean Adaptive Score which provides a global estimate of adaptive functioning. All participants' completed questions for the Friends and Family scales, however, not all individuals completed the Spouse/Partner, Job and Education scales. On each individual scale, scores were summed to calculate a raw score. This raw score was then converted into a T score, or standard score, which compared that persons standing on a given scale with the distribution of scores obtained by a normative sample (Achenbach & Rescorla, 2003). Each of the scores were also assessed collectively when the Mean Adaptive Score was computed because individuals only scored sections that were relevant to their life within the preceding six month period. Low scores on the adaptive functioning scales and the Mean Adaptive score were indicative of poor adaptive functioning (Achenbach & Rescorla, 2003).

Problems. The Syndrome Profile provided an assessment of behavioral, emotional and social problems. Participants were asked to use the three-point scale to describe the degree to which items described themselves or their behavior within the preceding six months. The list included 123 statements, and for some items, individuals were instructed to describe the behavior if they rated it as being true (a score of 1 or 2). In addition, respondents were asked to write in the number of times they used tobacco, were drunk and/or used drugs for non-medical purposes within the preceding six month time period. The Total Problems Score provided an overall assessment of problem behaviors from pages three and four of the ASR. It was calculated by summing all scores of 1 and 2 on all 123 items. High scores on this scale were indicative of high levels of problems (Achenbach & Rescorla, 2003).

Reliability was estimated for the ASR's scale scores by using the test-retest method and assessing internal consistency (Achenbach & Rescorla, 2003). To estimate test-retest reliability, participants from a 1999 National Survey completed all scales on the ASR forms twice. All Pearson correlations (r) were significant at the .01 level. On the adaptive functioning measure, all scale scores fell within .71 and .85, with a Mean Adaptive r of .79. Syndrome Profile reliabilities were between .78 and .91 with a Total Problems r of .94. The Externalizing $r = .91$ and the Internalizing $r = .89$. The Mean Substance Use $r = .96$. Education items for participants under the age of 30 were not included in the 1999 National Survey and so could not be reported for the ASR. Instead, test-retest reliabilities for those aged 18-29 were reported from the Young Adult Self Report (YASR) measure and included in to ASR manual. YASR test-retest reliability estimates were calculated from data on a sample of 232 young adults who completed the

forms twice (Achenbach & Rescorla, 2003). Pearson's r for the YASR's Education scale was also, reportedly, significant and high.

Internal consistency was estimated for the adaptive functioning and Syndrome Profile Scales by calculations of Chronbach's Alpha for each scale (Achenbach & Rescorla, 2003). On the adaptive functioning scales alpha coefficients ranged from .51 to .78, however a Mean Adaptive alpha was not reported because the alpha coefficient for the Family scale was not computed (this may have been because all scales were not relevant for all participants). On the Syndrome Profile, alpha coefficients ranged between .51 and .88 for individual scales; the Total Problems alpha was estimated at .97 while the Internalizing and Externalizing scales were estimated at .93 and .89, respectively (Achenbach & Rescorla, 2003).

Pearson correlations between the 1997 YASR and the ASR were computed for the adaptive functioning and Syndrome Scales (Achenbach & Rescorla, 2003). Correlations ranged between .82 and .97 on individual scales and .93 for the Mean Adaptive Scale. Syndrome Scale r s ranged from .81 to .98 on individual scales (with the exception of the Thought Problems scale which had an r of .54). The Total Problems correlation was .99 while the Internalizing and Externalizing r s were .99 and .97, respectively. Because the correlation between the YASR and ASR were all relatively high, long term reliability data from the YASR were used to estimate stability over time for the ASR (Achenbach & Rescorla, 2003). Over a two year interval, stability r s ranged between .42 and .63 for individual Syndrome Scale scores. The Total Problems $r = .65$ while the Internalizing and Externalizing r s were .62 and .63, respectively. Only Syndrome Scale data were reported for long-term stabilities estimates. (Achenbach & Rescorla, 2003).

Education attainment

Education attainment was based on the number of years of schooling an individual completed. Participants who did not complete high school or obtain a general equivalency diploma (GED) received a score for the highest grade finished. If the participant graduated from high school or obtained a GED they received a score of 12; completion of an Associate's degree received a score of 14; completion of a Bachelor's degree received a score of 16; Master's degrees received a score of 18; and Doctorates received a score of 20.

Job Prestige

Job prestige rankings were derived from the 1989 Socioeconomic Index of Occupations in Nakao and Treas' (1992) 1990 Census Occupational Classification. This ranking provided an assessment of job status which was assigned to the primary job identified by participants during their age 30 interview. Scores ranged from 0 to 100, with rankings below 35 indicating low job status. Job prestige scores from 35-41 reflected modest status; scores from 42-55 reflected moderate status; and scores over 55 reflected relatively high job status (Reynolds, Temple, Ou, & White, 2009). Participants who reported that they were unemployed or incarcerated received a job prestige score of zero.

Income-to-needs ratio

The income-to-needs ratio (INR) was created by dividing the total household income by the official poverty income threshold, based on family size and composition. Data on household size and income were reported by each participant during their age 30 interview. Total household income was calculated from reports of income at the time of the interview (including overtime, bonuses, tips and commissions), spousal income and

other sources of income earned (e.g. child support, social security benefits). Participants scoring at 100% of the poverty threshold received a score of 1.00, while a score of 3.00 was considered middle class status. Participants who were incarcerated or homeless received an INR score of zero.

Data Analysis

The statistical support unit at the Frank Porter Graham Child Development Institute provided consultation for the data analyses of the study. Data analyses were conducted using SPSS, SAS and *MPlus* software packages.

Preliminary Analysis

Preliminary analysis included an examination of descriptive information on all variables to assess their distributions. For categorical variables (father involvement and Abecedarian treatment status), frequency data were calculated. Each of the dependent variables contained continuous data. Preliminary analysis for continuous data included measurements of central tendency, variability, skewness and kurtosis.

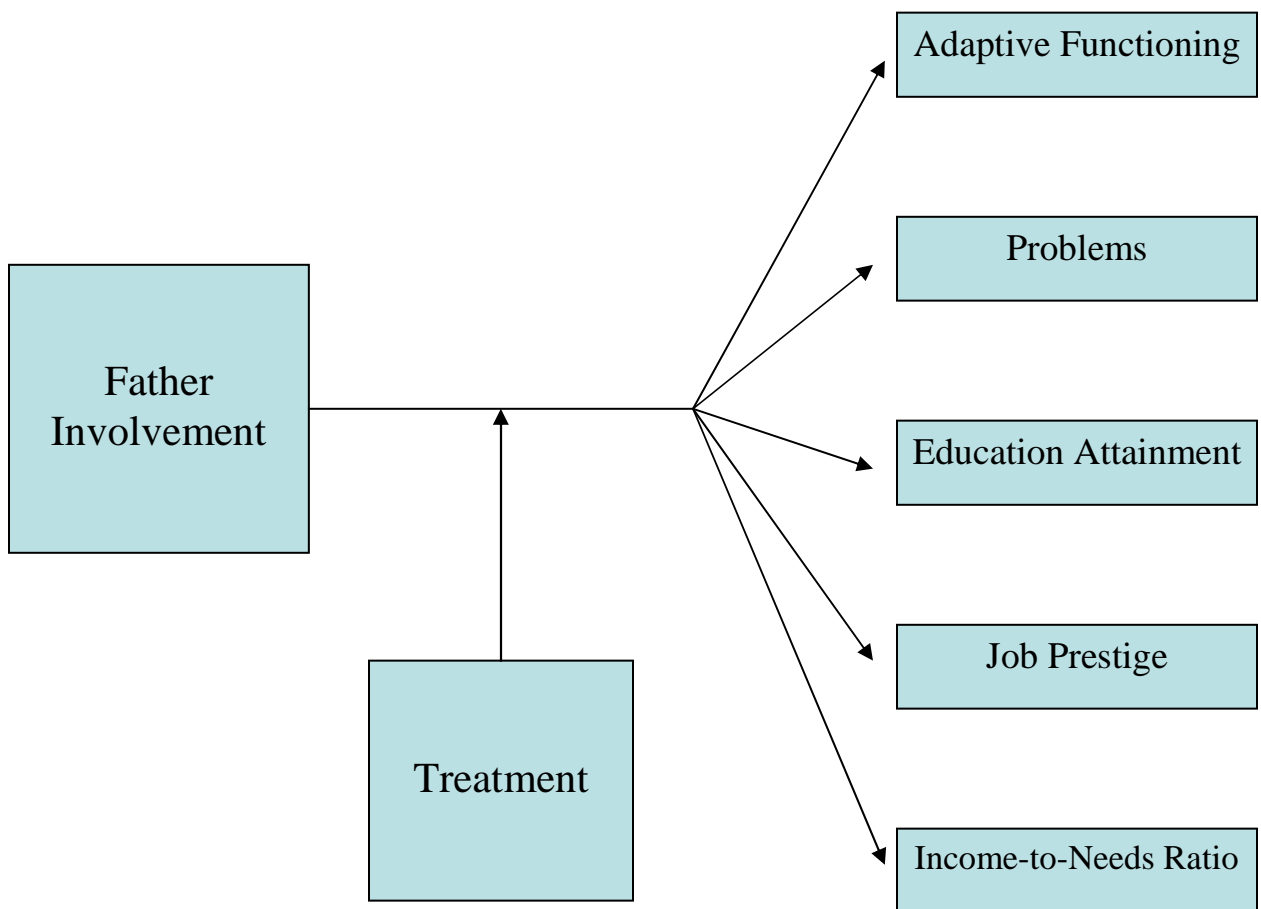
Primary Analysis

After preliminary analyses were completed, primary analyses were conducted in order to examine the effect of father involvement and Abecedarian treatment on the adult outcomes of the participants involved. Regression analysis was used to investigate the relationship between each dependent variable (ASR Mean Adaptive Score, ASR Total Problems Score, job prestige, education attainment and income-to-needs ratio) and the two independent variables (father involvement and Abecedarian treatment status). In addition, the current study controlled for maternal age at birth, participant gender, parent's highest education and maternal involvement as measured by the HOME.

Regression analysis was conducted because the current study used multiple predictors and outcome variables measured during a single time point (age 30). For each outcome, a full model that included an interaction term for father involvement x treatment was run. If the interaction was not found to be significant, it was dropped from the model, and the model was re-run with main effect and control variables only.

Figure 1

Interaction Model



Demographic Controls

In each model, the gender of the participant and several parental characteristics were entered as control variables. Maternal age at childbirth and mothers' and fathers' educational status have been found to be significant predictors of child development and well-being. Specifically, maternal age has been linked to lower education attainment and behavioral problems (Danziger & Radin, 1990) in children; while parental education status has been linked to children's economic, social and emotional development (Zill, 1996). Furthermore, as mothers are often the primary caregivers of children, they typically have a significant impact on both the development of the child and the child's relationship with their father. Therefore, when analyzing father involvement, it is especially important to control for maternal involvement in order to test whether the father's involvement uniquely contributes to the development of the child (Amato & Rivera, 1999; Pleck, 1997).

CHAPTER IV:

RESULTS

Statistical analyses were conducted using the SPSS PAWS Statistics 18 system, SAS 9.2 and *MPlus* statistical software packages. Data were screen for errors in scoring and coding, missing data, normality, multicollinearity, and outliers. All data were entered and double- checked by data management personnel at the Frank Porter Graham Child Development Institute. The data were screened for missing items. Complete father involvement data were present for 89% ($n = 90$) of the age-30 Abecedarian sample. Participants without father involvement data for all five time points were dropped from the analysis data set. Frequencies of the study's independent variables are displayed in Table 1.

Table 1

Frequency of Father Involvement by Treatment Status

	Lived With		Frequent Involvement		Inconsistent/Unpredictable Involvement		Infrequent Involvement		No Contact		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Treatment	8	53	15	56	6	55	8	57	12	52	49	54
Control	7	47	12	44	5	45	6	43	11	48	41	46
Total	15	100	27	100	11	100	14	100	23	100	90	100

Data were screened for multicollinearity by examining the Variance Inflation Factor (VIF) for each of the variables in the model. Some degree of multicollinearity was

observed between the main effects and the interaction term. This was expected because the interaction term is a linear combination of the variables: treatment and father involvement.

Attrition analysis were conducted to determine whether there were any significant differences between the groups of participants who had father involvement data and those who did not have complete father involvement data on each of the outcome measures.

Independent samples t-tests were run, and the results of these analysis are shown in Table 2. For all outcome measures except job SEI, no significant differences were observed between participants with father involvement data and participants without complete father involvement data. Participants without complete father involvement data were, on average, 13 points higher on job prestige scores than those with father involvement data.

Table 2

Mean Differences of Outcome Measures for Participants with Father Data and Participants without Father Data

	Mean Difference	df	Sig. (2-tailed)
ASR Mean Adaptive Score	-2.48	99	.36
ASR Total Problems Score	.35	99	.90
Education Attainment	.61	99	.28
Job Prestige	12.76	99	.05
Income-to-Needs Ratio	.70	99	.49

Preliminary Analysis

Means and standard deviations for each outcome measure are listed in Table 3. First order correlations between predictors, control variables and outcome measures are listed in Table 4. For the ASR Mean Adaptive Score, the ratio of skewness to its standard

error was 0.74 and the ratio of kurtosis to its standard error was -0.12, suggesting that the data were relatively normally distributed. For the ASR Total Problems Score the ratio of skewness to its standard error was -2.25 indicating a significant negative skew; the kurtosis to its standard error was -0.64. Though the ASR Total Problems Score was significantly negatively skewed, the robust nature of the general linear model provides relatively unbiased and accurate inferential statistics for data with this level of skewness (Tabachnick & Fidell, 2001). For the education attainment data, the ratio of skewness to its standard error was 1.41, and the kurtosis to its standard error was 0.49, suggesting that the data were normally distributed. On job prestige, the skewness to its standard error was -0.07, and kurtosis to its standard error was -1.32, also indicating that the data were relatively normally distributed. Finally, for the income-to-needs ratio, the ratio of skewness to its standard error was 15.81, and kurtosis to its standard error was 44.74. The income-to-needs ratio was significantly positively skewed and significantly leptokurtic. Such findings, however, were not unexpected, as the population for the Abecedarian Project was drawn from a high risk, low income demographic. In the current sample, nearly 33% of participants fell at or below the poverty threshold at age 30. Four outliers were observed with very high income-to-needs ratios. Analyses were also run without these outliers, and no significant differences in results were observed.

Table 3

Descriptive Statistics- Adult Outcome Variables

Variable	N	Minimum	Maximum	Mean	SD
ASR Mean Adaptive Score	89	24	60	47.34	9.41
ASR Total Problems Score	89	29	74	47.37	9.51
Education Attainment	89	9	18	12.81	1.79
Job Prestige	89	0	80.33	29.12	21.82
Income-to-Needs Ratio	89	0	26.82	2.57	3.64

Table 4
Correlation Matrix of Predictors, Outcomes and Control Variables

	Father Involvement	Treatment Status	Mean Adap. Score	Total Prob. Score	Education Attainment	Job SEI	Income-to-Needs Ratio	Maternal age at Birth	Gender	Mothers Highest Ed.	Fathers Highest Education	Maternal Involv.
Father Involvement	1.00	0.03	0.14	-0.05	-0.04	0.04	-0.05	0.29*	-0.25	-0.02	-0.09	0.02
Treatment Status		1.00	-0.01	0.02	0.39*	0.27*	0.18	-0.11	-0.14	0.26*	0.33*	0.08
Mean Adaptive Score			1.00	-0.43*	0.06	0.25*	-0.01	0.14	0.08	-0.01	-0.07	0.08
Total Problems Score				1.00	-0.15	-0.16	-0.07	-0.10	-0.09	-0.07	-0.01	-0.11
Education Attainment					1.00	0.57*	0.40*	0.04	-0.06	0.41*	0.24*	0.11
Job Prestige						1.00	0.47*	-0.02	0.03	0.26*	0.23*	0.14
Income-to-Needs Ratio							1.00	-0.07	-0.23	0.19	0.15	-0.01
Maternal age at Birth								1.00	-0.12	-0.13	-0.34*	-0.09
Gender									1.00	0.02	0.12	-0.09
Mothers Highest Education										1.00	0.39*	0.29*
Fathers Highest Education											1.00	0.22*
Maternal Involvement												1.00

* $p < .05$

Primary Analysis

The present analysis aimed to determine whether early intervention moderated the effect of father involvement on the social-emotional and economic outcomes of adult participants in the Abecedarian Project. Linear regressions were conducted to evaluate Hypothesis 1a and 1b. Separate regression analyses were run for each of the five outcome measures: adaptive functioning, problems, education attainment, job prestige and income-to-needs ratio. Each regression initially included an interaction term. To examine the primary questions most accurately, maternal age, gender of participants, maternal and paternal education, and maternal involvement were also added to the model to control for their possible contributions to the outcomes. Results are shown below in Tables 5 and 6.

The following models were not significant: adaptive functioning [$F(8,76) = 0.89$, $p = .53$]; problems [$F(8,76) = 0.60$, $p = .77$]; job prestige [$F(8,76) = 1.37$, $p = .23$]; and income-to-needs ratio [$F(8,76) = 1.12$, $p = .36$]. Significant findings for education attainment were observed, [$F(8,76) = 2.77$, $p = .01$, $R^2 = 0.23$]. Specifically, the regression weight for mother's education was significant [$t(98) = 3.29$, $p = .00$]. Because this was a control variable, however, the findings were not relevant to the current hypothesis. Consequently, the results of these analyses did not support Hypotheses 1a and 1b.

Table 5

Full Model- Regression Analysis of Social-Emotional Outcomes

	Mean Adaptive Score			Total Problems Score		
	df	Parameter Estimates	Standard Error	df	Parameter Estimates	Standard Error
Intercept	100	31.64*	10.20	100	63.12*	10.75
Father Involvement x Treatment Status	81	-1.89	1.41	81	1.43	1.49
Father Involvement	81	1.57	1.06	81	-0.78	1.12
Treatment Status	100	5.76	4.77	100	-3.27	5.03
Maternal Age	100	0.28	0.22	100	-0.24	0.23
Gender	92	2.63	1.99	92	-2.57	2.09
Mothers Highest Education	98	-0.14	0.47	98	-0.04	0.50
Fathers Highest Education	94	0.08940	0.57359	94	-0.24	0.60
Maternal Involvement	97	0.71659	0.84922	97	-0.68	0.89

* $p < .05$

Table 6

Full Model- Regression Analysis of Economic Outcomes

	Education Attainment			Job Prestige			Income-to-Needs Ratio		
	df	Parameter Estimates	Standard Error	df	Parameter Estimates	Standard Error	df	Parameter Estimates	Standard Error
Intercept	100	8.43*	1.89	100	-18.48	23.67	100	0.90	4.21
Father Involvement x Treatment Status	81	-0.09	0.26	81	-1.70	3.27	81	-0.29	0.58
Father Involvement	81	-0.04	0.20	81	0.91	2.47	81	-0.02	0.44
Treatment Status	100	0.89	0.88	100	9.21	11.07	100	1.29	1.97
Maternal Age	100	0.03	0.04	100	0.19	0.51	100	-0.01	0.09
Gender	92	-0.18	0.37	92	-0.50	4.61	92	-1.56	0.82
Mothers Highest Education	98	0.29*	0.09	98	1.89	1.09	98	0.31	0.19
Fathers Highest Education	94	-0.01	0.11	94	0.78	1.33	94	0.08	0.24
Maternal Involvement	97	0.16	0.16	97	2.47	1.97	97	-0.14	0.35

* $p < .05$

Since the interaction term was not significant at the .05 level for any of the five outcome measures, the models were re-run with only the main effects and control variables in order to examine the main effects more clearly. Results for these analyses are found in Tables 7 and 8. Again, the following models were not significant: adaptive functioning [$F(7,77) = 0.75, p = .63$]; problems [$F(7,77) = 0.56, p = .79$]; job prestige [$F(7,77) = 1.54, p = .17$]; and income-to-needs ratio [$F(7,77) = 1.26, p = .28$]. Significant findings were observed for education attainment, [$F(7,77) = 3.18, p = .01, R^2 = 0.22$]. Specifically, the regression weight for mother's highest education was significant, [$t(99) = 3.47, p = .00$]. However, because this was a control variable, the findings were not relevant to the hypotheses.

Table 7

Regression Analysis of Social-Emotional Outcomes

	Mean Adaptive Score			Total Problems Score		
	df	Parameter Estimates	Standard Error	df	Parameter Estimates	Standard Error
Intercept	101	33.28*	10.18	101	61.88*	10.67
Father Involvement	82	0.50	0.71	82	0.03	0.74
Treatment Status	101	-0.04	2.04	101	1.11	2.14
Maternal Age	101	0.33	0.22	101	-0.28	0.23
Gender	93	2.45	1.99	93	-2.44	2.09
Mothers Highest Education	99	-0.00	0.46292	99	-0.15	0.48

Fathers Highest Education	95	0.02	0.57450	95	-0.19	0.60
Maternal Involvement	98	0.72	0.85365	98	-0.69	0.89

* $p < .05$

Table 8

Regression Analysis of Economic Outcomes

	Education Attainment			Job Prestige			Income-to-Needs Ratio		
	df	Parameter Estimates	Standard Error	df	Parameter Estimates	Standard Error	df	Parameter Estimates	Standard Error
Intercept	101	8.52*	1.86	101	-17.01	23.39	101	1.15	4.16
Father Involvement	82	-0.09	0.13	82	-0.05	1.62	82	-0.18	0.29
Treatment Status	101	0.60	0.37	101	3.99	4.69	101	0.42	0.83
Maternal Age	101	0.04	0.04	101	0.23	0.50	101	-0.00	0.09
Gender	93	-0.19	0.36	93	-0.67	4.58	93	-1.59	0.81
Mothers Highest Education	99	0.29*	0.08	99	2.01	1.06	99	0.33	0.19
Fathers Highest Education	95	-0.01	0.11	95	0.72	1.32	95	0.07	0.23
Maternal Involvement	98	0.16	0.16	98	2.47	1.96	98	-0.14	0.35

* $p < .05$

CHAPTER V: DISCUSSION

The present study examined whether early intervention treatment moderated the effect of father involvement on the long term outcomes of adult participants in the Abecedarian Project. The first hypothesis of this study was that treatment would moderate the effects of father involvement on the social-emotional functioning of adult participants, such that treatment would buffer against the negative effect of low father involvement. The second hypothesis was that treatment would moderate the effects of father involvement on the economic outcomes of adult participants, such that treatment would buffer against the negative effect of low father involvement.

The statistical analyses did not support either hypothesis. The interaction between father involvement and early childhood intervention did not predict the social-emotion and economic outcomes of adult participants. Further, when the interaction term was dropped from the model, no relationship was observed between the primary predictors (father involvement and treatment status) and any of the outcomes measures.

In the section that follows, the research question will be interpreted in relation to existing research. Next, the study's limitations will be considered. Finally, implications and directions for future research will be discussed.

Explanation of Findings

While there was no preceding literature examining the interaction between father involvement and early childhood intervention, it was predicted that early intervention would buffer participants from the maladaptive effects of low father involvement during the formative years of study participants. This hypothesis was based on the theory that individuals with regular, supportive interactions with care-giving adults were more likely to be well adjusted psychologically and socially in adulthood than those who do not have positive early caregivers (Bronfenbrenner & Morris, 1998). However, no such relationships could be demonstrated here. Such findings may imply that early childhood educational intervention does not moderate the impact that father involvement may have on children. However, according to the literature, early educational intervention does moderate the effect of the early home environment (Pungello et al., 2010). Furthermore, studies have shown that early intervention has a lasting and positive impact on the well-being and economic outcomes of individuals into adulthood (Feldman, 1995; McLaughlin et al., 2007; Wallman, 2010).

Likewise, the literature on father involvement suggests that men contribute significantly to the development of their children across their lifetime. For young children, having involved fathers leads to cognitive and language gains and better social and emotional development (Brody & Forehand, 1990; Cabrera et al., 2007). In middle childhood, individuals with involved fathers have been shown to experience increased social competence and less psychological problems (Biller & Kimpton, 1997). For adolescents, having involved fathers is associated with a decrease in risk behaviors including substance abuse and delinquency (Bronte-Tinkew, Moore, Capps, & Zaff,

2006). Furthermore, even into adulthood, having an involved father leads to greater life satisfaction and less psychological problems (Amato, 1994). However, findings from the present study imply that the relationship between father involvement and socio-emotional and economic outcomes of adult children may not differ for participants in the treatment and control groups of the Abecedarian Project. Thus, though the literature suggests early intervention and father involvement independently predict child outcomes, the interaction between these two variables were not significant, nor did either independent variable significantly predict adult outcomes in the present analyses.

Alternatively, it is possible that early intervention may moderate the impact of father involvement, but the current study failed to measure father involvement appropriately and therefore, relationships could not be detected. The current study assessed father involvement in the context of contact with the child. As described earlier, the father involvement variable was derived from the Parent Interview questionnaires given to mothers at birth, age 5, age 8, age 12 and age 15. Mothers were asked to report whether or not the biological father lived in the home with the child, or if not residing in the home, whether the child saw the father and how often. Though it may be difficult for fathers and children to develop a meaningful relationship without some kind of contact, researchers have proposed that contact alone does not determine the quality of the relationship (Marsiglio et al., 2000). Rather, both quantity and quality of father involvement are essential for good parenting (Bronte-Tinkew et al., 2006). Though the father may be physically present, his emotional accessibility to the child during their time spent together is essential as well. Thus, the physical presence of the fathers is important to the emotional presence of the father, but it is not the sole contributing factor. Rather,

researchers suggest that the quality of the father-child relationship, and how that relationship is viewed by the various parties involved, is most important (Lamb, 1997). Furthermore, though fathers may be accessible to their child, not all fathers contribute positive resources to their children. Some fathers may be hostile, abusive, negative or negligent; therefore they are unlikely to enhance children's well being and development (Amato, 1995).

Lamb and colleagues (1985) proposed that father involvement consists of three domains: paternal engagement, which includes direct interaction with the child in the form of caretaking, play or leisure activities; accessibility or availability to the child; and responsibility for provision of the child's needs. The current study addressed the area of accessibility and availability of the father to the participant by examining how often the father spent time with the child during childhood and adolescence. However, the data did not take into account the fathers engagement with the child or whether he took responsibility for the child's emotional and financial well being. In the current study it was impossible to make the assumption that the father and child had a supportive, nurturing relationship that would benefit the child into adulthood.

It is also possible that father involvement, as a measure of quantity of time spent together, is predictive of adult outcomes, but in the current study, the manner in which the variable was created made it difficult to measure this construct effectively. By dividing the father involvement variable into five levels, there may have been too few participants in each group to allow for analyses to detect differences between groups. This is especially salient because the sample size was already relatively small. In

addition, the analyses also included several control variables, which may have lead to over specification of the model.

Study Limitations

The current study presents certain limitations that should be considered when interpreting the results of the present analyses. The following section will discuss methodological concerns including sample size and mothers report of father behavior that may have influenced study findings.

Sample Size

The size and demographics of the sample are limitations to this study. Due to the relatively small sample size, the power of statistical analysis to detect differences between groups is reduced. In addition, given that the study sample comes from a high risk, low-income population, primarily African-Americans, limits the variance in both predictors and outcomes, which could have obscured relationships that would appear in a more heterogeneous sample. In addition, the sample was drawn from a relatively distinctive geographic area of the U.S., which may also limit generalizability to similar geographic locations.

Mothers Report of Father Involvement

Though the use of longitudinal data provides a unique opportunity to examine the development of individuals across their lifetime, data from the current study were not originally collected with the intent of analyzing patterns of paternal involvement. Nonetheless, the childhood and adolescent data involved in the current analyses include mothers' report of father involvement. Though the use of mothers' report of father behavior is a common practice in research today, there are a number of limitations to

such reports. First, mother's report of father involvement is often used because access to father's reports is more limited, especially within households headed by single mothers (Coley & Morris, 2002; Mikelson, 2008; Seltzer, 1991). Second, research suggests that fathers reports of involvement are often overestimated (Seltzer, 1991). Finally, mothers' reports of father involvement are often underestimated (Coley & Morris, 2002).

Difficulties in recruiting and retaining fathers in research have lead to concerns over the reliability and validity of father reports of involvement with children (Hernandez & Coley, 2007). Researchers suggest that fathers who do participate in studies may be more involved with their children and stable than fathers who do not participate, leading to an overrepresentation of positive father involvement (Seltzer, 1991). However, limited information is available about fathers who do not participate in research.

Researchers have found that when mothers' and fathers' reports of father involvement are compared, agreement is more likely in co-residing pairs than non-co-residing pairs (Coley & Morris, 2002). Furthermore, mothers may not know much about how fathers and children interact when they do not reside in the same home (Mikelson, 2008). High levels of conflict between mothers and fathers may further confound reports of paternal involvement leading mothers to downplay the fathers' participation, and fathers to exaggerate their involvement (Coley & Morris, 2002).

In summary, researchers propose that caution should be exercised when interpreting reports that rely solely on mothers' reports of father involvement (Coley & Morris, 2002; Mikelson, 2008). Rather, data from mothers, fathers and children should be considered in order to provide a more comprehensive picture of the involvement of fathers.

Implications

The finding from the current study did not support the hypothesis that early childhood intervention would buffer against the maladaptive effects of low father involvement. However, limitations within the study may have significantly contributed to these difficulties. As previously stated, the data used in the present study may not have provided sufficient evidence to accurately measure father involvement. However, the results possibly do support previous research indicating that quantity of time spent with fathers does not provide an accurate measure of the father-child relationship (Lamb, 1997); rather a more comprehensive picture would include measures of the father's emotional and financial contribution to the child's life.

Bronfenbrenner's (1979) ecological model and proximal processes theory proposes that children are impacted by a number of systems that influence their development. Various microsystems includes parents, family members, teachers and other community members. Players within these systems consistently interact with the child and influence their development into adulthood (Pleck, 2007). Therefore, both the relationship that individuals have with their fathers and other important adults, such as early educational caregivers, have a lasting impact on their development. However, further research is needed to determine how far into the future these benefits may last as well as how other microsystems may intervene when the familial microsystem may be negatively impacting the child's development. One way to examine this may be to consider additional longitudinal studies that include nationally representative samples of participants in early childhood intervention programs but that also collect measures of father contact and support.

Future Directions

Past results suggest several recommendations for future research. First, including fathers in research on father involvement is very important. Studies have found that when mothers and fathers reports of father involvement are compared, agreement is higher when the relationship between the parents is satisfying (Coley & Chase-Landsdale, 1999; Coley & Morris, 2002). However, when examining relationships between mothers and fathers in poverty, a vast array of family structures and relationship dynamics may be observed (Coley & Chase-Landsdale, 1999). As such, fathers report should be further supplemented by mothers and children's reports of father involvement when possible, so as to provide a comprehensive picture of the father-child relationship.

Studies have found that greater contact with one's fathers is related to higher ratings of fathering quality (Williams & Finley, 1997). Rather than selecting only one construct to measure (quantity OR quality), future studies should examine both the amount of contact the child has with their father as well as what they do with that time. Such research may also wish to include measures of how the time with the father made the child feel. The child's report of how they view their relationship with their father would be especially vital in future research.

Future researchers may want to continue to examine early intervention as a way to provide social support for families. A significant amount of research demonstrates that children benefit from having supportive adults in their lives. Therefore, why wouldn't early intervention help buffer the maladaptive effects low father involvement, especially for impoverished families who need the most support? Thus far, studies have demonstrated that the negative impact of poverty has a significant impact on parent

behavior, which thereby has a negative impact on children (Brown & Lynn, 2010; Conger et al., 1992). However, the presence of social supports helps to alleviate some of the negative impact of financial hardship (Brown & Lynn, 2010). Brown and Lynn (2010) found that having a stable partner helped to buffer parents from the daily stressors that poverty contributes to adults and children. This in turn benefited children because parents with stable partners reported better moods. With this in mind, future studies may seek to examine how outside resources from the community, such as early childhood programs, may moderate the negative impact of poverty in families by providing additional social support, specifically in cases where the father is not present.

Conclusions

Though the hypotheses for the current study were not supported, the study did have a number of strengths. First, the study presented a unique opportunity to take a longitudinal examination of father involvement within a sample of participants involved in a consistent, nurturing early intervention program. In addition, being able to control for maternal involvement is another significant strength of the present study. As stated earlier, when examining the unique contribution of fathers, the mothers' involvement must be controlled in order to account for the unique contributions of fathers (Amato & Rivera, 1999; Pleck, 1997). Furthermore, though the father involvement variable may not have been a significant predictor of adult outcomes, having the opportunity to explore so many levels of father involvement helped to account for the vast differences of father contact within the population of the current study. Studies of African American fathers have found that the role of the father may be viewed very differently than the role of the father in Caucasian families. Though black fathers may not often live consistently in the

same home as their children, they often play a non-traditional role in child rearing (Coley & Chase-Lansdale, 1999). Finally, the current study provided a culturally sensitive framework in which to examine father involvement and early intervention and adds to the literature on low income minority populations.

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