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Factors of Paternal Involvement and Their Association with Developmental Outcomes of Nine-Month Olds

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FACTORS OF PATERNAL INVOLVEMENT AND THEIR ASSOCIATION WITH DEVELOPMENTAL OUTCOMES OF NINE-MONTH OLDS

by

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ABSTRACT

FACTORS OF PATERNAL INVOLVEMENT AND THEIR ASSOCIATION WITH DEVELOPMENTAL OUTCOMES OF NINE-MONTH OLDS

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Literature concerning paternal involvement has grown over the past thirty years due, in part, to the changing structure of the American family. Many researchers have published articles on the different ways fathers are involved in their children's lives and how fathers affect their children's development. The current study combined these two largely separate bodies of literature by using the same sample of fathers and children to examine the ways in which fathers were involved in their children's lives and how that involvement affected their development. The Early Childhood Longitudinal Study –Birth Cohort (ECLS-B) 9-month old dataset was used to investigate whether higher scores on the paternal involvement factors would be associated with better child development scores. ECLS-B is a large-scale, longitudinal study designed to provide detailed information about children's early life experiences and was funded by the U.S. Department of Education through the National Center for Educational Statistics (NCES). An Exploratory Factor Analysis conducted on the ECLS-B Resident Father Questionnaire resulted in a six factor structure. The present study tested the relationship between these factors and the Bayley Short Form-Research Edition (BSF-R) Mental and Motor Scale scores as well as the Nursing Child Assessment Teaching Scale (NCATS). The Bayley Motor Scale score was associated with the paternal involvement factor One-on-one Play. This finding is especially interesting considering there is little published

literature connecting paternal involvement and physical development in infants. The Bayley Motor Scale is comprised of tasks that assess eye-hand coordination, sitting, pre-walking, walking, and balancing; all things cultivated by One-on-one Play activities.

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CHAPTER I

INTRODUCTION

The average United States unemployment rate in 2010 was 9.6%, a twenty-five year high (http://www.bls.gov/cps/cpsaat1.pdf). More men (11.7%) than women (9.0%) were unemployed (http://www.bls.gov/cps/cpsaat3.pdf). This change in the labor force has affected American families in numerous ways. In particular, more mothers are in the work force now than ever before. As a result, fathers are spending more time with their children; either sharing the child's direct care needs with the mother or functioning as stay-at-home fathers (Doucet & Merla, 2007). This shift in caretaking presents a new challenge to researchers.

Prior to 1980, the majority of published literature portrayed fathers as having little direct impact on children's development (Meerloo, 1968; Hewlett, 2000). Fathers were viewed as providers and models of masculinity (Pleck, 1976; Pleck, 1984). Recently, researchers and policymakers have begun to recognize that fathers are involved beyond the role of providers, influencing their children's development in a variety of substantive ways (Barnett & Baruch, 1987; Cowan & Cowan, 1987; Crouter, Perry-Jenkins, Huston, & McHale, 1987; Deutsch, Lussier, & Servis, 1993; Lamb, 1997; Marsiglio, 1991; McBride & Rane, 1997; Pleck, 2007; Shannon, Tamis-LeModa, London, & Cabrera, 2002). As fathers spend more time with their children, not simply providing for the family, it is important to understand the modes by which fathers interact with their children, and how these interactions relate to child development. The purpose of this study was to investigate the relationship between participants' paternal involvement

factor scores derived from the Early Childhood Longitudinal Study Birth Cohort (ECLS-B) data to their child's development scores.

Effective Parenting

Before delving into a specific parent population (i.e., fathers), it is important to understand what defines an effective parent and how effective parenting leads to healthy child development. However, there is no single formula for effective parenting in the previous literature. Diversity in parent populations (including race, ethnicity, age, gender, residency, relationship to child) creates difficulties in defining a succinct set of characteristics. Dunifon and Kowaleski-Jones (2002) found differences in children of single versus two-parent families, married versus cohabitating, European versus African American families. Even how 'parent' is defined varies greatly between families (biological, step, foster, guardians, older siblings who help care for younger children) (O'Brien, 2007). Traditional two-biological-parent families, differences in parenting emerge between genders. For example, mothers typically spend more time taking care of the child's day-to-day needs (i.e., feeding, bathing, diapering) while fathers participate in more recreational, physically active types of behaviors (Pleck & Masciadrelli, 2004; Sayer, Bianchi, & Robinson, 2004; Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). Parents also differ in their approach to boundaries and responses to undesirable behavior (Dufur, Howell, Downey, Ainsworth, & Lapray, 2010).

Without a single, empirical path for effective parenting, researchers agree there are several attributes which aid in healthy child development regardless of parent type. Two attributes are repeated in the literature; 1) a stable home and 2) direct positive interactions between parent and child. There is evidence to support the relationship

between parental relationship quality and conflict child development (Gerard, Krishnakumar, &Buehler, 2006; Harold, Aitken, &Shelton, 2007). When there is a high level of stress or discontent in parental relationships, negativity from that relationship spills over to parents' interactions with their children (Almeida, Wethington, & Chandler, 1999). Parental involvement is integral to a child's literacy preparation (Nichols, Nixon, & Roswell, 2009). Nichols and colleagues found that parents' reading or telling stories to their children was more effective at developing literary skills than when the child interacts with a book, toy, or baby computer without their parent. There is an overall connection between parental time invested in children and child's well-being (McLanahan & Sandefur, 1994; Nock & Kingston 1988)

Identifying and Measuring Paternal Involvement

Paternal involvement is often viewed as a unidimensional construct measured via observable behaviors (e.g., feeding, bathing, playing) because these behaviors are most easily assessed (see Hernandez, & Brandon, 2002; Lamb, Pleck, Charnov, 1985; Lamb, Pleck, Charnov, & Levine, 1987; Parke, 1996; Pleck, 1983). However, several researchers have broken away from the unidimensional construct of paternal involvement and adopted models of multiple components coalescing under the umbrella of paternal involvement. The most notable of these is a three factor model published by Lamb and colleagues (1985). Their three components of paternal involvement were: interaction, accessibility, and responsibility. Interaction refers to direct contact through caretaking and other activities. Availability is defined as the *potential* for contact with the child. That is, the father is not directly interacting with the child, but he is accessible to the child (e.g., watching TV while the child is playing, cooking dinner while the child is in

the next room). Responsibility refers to the role a father takes in making sure that his child is taken care of by arranging for resources to be available to the child.

For many years, Lamb and colleagues' model was the dominant exemplar by which most researchers defined and measured paternal involvement. Even though Lamb's three factor model was well accepted, there was still inconsistency in how constructs underlying paternal involvement were measured (i.e., some through observable behaviors, others through mothers' reports of fathers' behaviors rather than fathers' reports of their own behavior), and even the behaviors included in 'involvement' varied depending on the researcher. As the field of fathering research grew, some continued to define paternal involvement by observable behaviors (e.g., Maurer, Pleck & Rane, 2003), yet others began to introduce a broader image of the construct which included more cognitive processes (Coltrane, 1996; Hawkins & Palkovitz, 1999; Palkovitz, 1997) and suggested that the definition of paternal involvement ought to encompass more than the traditional provider role, but also include the father as a caretaker and nurturer.

One researcher who provided such a model was Palkovitz (1997)who published a manuscript refuting many of Lamb's principles of involvement by identifying six misconceptions of paternal involvement (i.e., more involvement is better, involvement requires close proximity to the child, paternal involvement can always be observed or counted, involvement is static and predictable, patterns of involvement look the same regardless of culture, subculture, or social class, and women are more involved with their children than are men). As a result, he concluded that in addition to behavioral domains (overtly observable manifestations of involvement, such as feeding, talking to, teaching, etc.), paternal involvement includes both cognitive (reasoning, planning, evaluating, and

monitoring activities) and affective (emotions, feelings, and affections regarding the child) domains. Marsiglio, Day and Lamb (2000) responded to Palkovitz by asserting the responsibility construct in Lamb and colleagues' original 1985 model includes anxiety, worry, and contingency planning that the parent may engage in while performing other tasks supporting a broader, more multidimensional and integrative concept of fathering.

Regardless which model researchers prescribed to, it was evident that broad approach paternal involvement was gaining momentum. More recently, Schoppe-Sullivan, McBride and Ho (2004) published an article supporting the conceptualization of paternal involvement as a "multidimensional construct characterized by distinct facets of involvement" (p. 158). They found five domains of involvement: responsibility, love/physical affection, talking with the child, activities-household, activities-child, and cognitive monitoring. Similarly, Coley and Hernandez (2006) published a four dimensional model of paternal involvement, which included cognitive stimulation, emotional support, parenting competence, and instrumental involvement. Regardless of the model, evidence suggests thoughts, affects, and concerns about the child work together to form a foundation for paternal involvement. As a result of the strong field support for an integrative, multidimensional approach to paternal involvement, the current study used a paradigm of paternal involvement that is comprised of several factors.

Variations in how paternal involvement is measured act as a stumbling block to interpreting and generalizing findings. Cabrera and colleagues (2004), as part of the Developing a Daddy Survey (DADS) project, identified several other methodological concerns often overlooked when measuring paternal involvement. They include, but are

not limited to, the use of mothers as a proxy for fathers (i.e., using mothers' descriptions of father behavior instead of the fathers' own descriptions), the narrow definition of paternal involvement, and lack of generalizability when studying middle-class America. They found it was also difficult to compare fathers across varying family backgrounds (e.g., residential versus non-residential, custodial versus non-custodial, married versus single or divorced), as these differences play an important role in how a father interacts with his child (Cherlin & Griffith, 1998; Tamis-LeMonda & Cabrera, 1999). There is a growing heterogeneity in fathers as a population due to the diversity of who is identified as "father" (i.e., biological-, step-, adoptive-fathers, mothers' resident or nonresidential male partners) (O'Brien, 2007). Once fathers have been defined, and measures selected, there are still the issues of identifying these men in the public, recruiting them into the study, and retaining them (Tarkow, Carbrera, McFadden, & Shannon, 2007). One differentiating aspect of the current study is its use of the Early Childhood Longitudinal Study (ECLS), an archived longitudinal dataset. Researchers for ECLS collected a multitude of data from fathers of varying backgrounds, giving users of the dataset an opportunity to explore characteristics of modern day fathering.

Using Early Childhood Longitudinal Study–Birth Cohort Resident Father Self-Administered Questionnaire Factors to Measure Paternal Involvement

Most studies concerning paternal involvement cite the Lamb or Palkovitz model factors and fit their data to the model of choice either by formatting surveys to tap paternal involvement or by running a confirmatory factor analysis to affirm the existing model. Using the Early Childhood Longitudinal Study–Birth Cohort (ECLS-B) Resident Father Self-Administered Questionnaire, Keefe and colleagues (2007) took a different

approach, conducting an exploratory factor analysis to uncover potential factors represented by the data. Their research was also novel in its attempt to investigate the factors of paternal involvement by analyzing a spectrum of data reflecting fathering behavior, affects and cognitions. They also used data from fathers of very young children (nine months old), filling a void in the literature; most existing research targets fathers of school aged children, adolescence or a conglomerate of fathers of children of all ages.

The Early Childhood Longitudinal Study–Birth Cohort (ECLS-B) 9-month old dataset used in this study is the first wave of data collected from 2001-2002 for the Early Childhood Longitudinal Study. The ECLS-B is funded by the U.S. Department of Education through the National Center for Educational Statistics (NCES). The large-scale, longitudinal study was designed to provide detailed information about children's early life experiences (http://nces.ed.gov/ecls/Birth.asp, retrieved 11-7-06). The ECLS-B includes a fathering questionnaire. The Resident Father Questionnaire was completed by fathers regarding their behaviors, attitudes and beliefs, therefore it provides a unique opportunity to examine fathers' perceived contributions to their children's well-being and development.

Topics included in the Resident Father Questionnaire include activities and feelings about the child, time spent with the child, knowledge of the child's development, separations from the child, prenatal experiences, attitudes about being a father, current relationship with spouse/mother, childbearing and marital/partner history, basic background info, education/employment, health, social support network, and family background. Most items were measured using a Likert-type scale. For other questions (such as "How often are you away from your child for more than a week?") fathers

reported the appropriate number. The survey took approximately twenty minutes to complete. The Resident Father Questionnaire questions included in the EFA can be found in Appendix B. The ECLS-B manual (Andreassen & Fletcher 2005) contains more complete information on this and all measures used in the current study..

In order to obtain a more complete and homogeneous dataset for the exploratory factor analysis conducted by Keefe and colleagues (2007), only families with resident mothers and fathers were included for analysis. Residential fathers were defined as male residents in the child's permanent residence who were either the child's biological father or the person identified as the mother's partner or spouse. In addition, cases where children were identified as having either physical or developmental delays (i.e., Spina Bifida, Down's Syndrome) were excluded from the study. This resulted in a sample of 5,089 fathers. It is important to note that only the items that pertained to paternal involvement (i.e., activities with child, feelings about child, time spent with child, knowledge of child development, separations from child, attitudes about being a father) were included in the analysis. Appendix B contains Q2 through Q17 of the Resident Father Questionnaire included in the EFA (note that questions 2-7, 16, and 17 were multiple response items).

This sample (N = 5,029) is considered excellent according to guidelines for conducting an exploratory factor analysis (EFA) (Comrey & Lee 1992); ensuring item correlations would be reliably estimated. The data were tested for multicollinearity and singularity. A correlation matrix was constructed using the 56 paternal involvement items derived from the Resident Father Questionnaire. Item pairs with a correlation greater than .9 resulted in the deletion of one item in the pair. The deleted item was selected based on

its correlation to other items. Thirty items were included in the factor structure. A correlation matrix was constructed using these 30 items.

An EFA with varimax rotation was used to explore the factor structure among the 30 paternal involvement items of the Residential Father Questionnaire. The initial factor extraction was based on a visual inspection of the scree plot. After refining the item set to remove low communalities and unclear loadings, a final five-factor rotation was selected. These five distinct factors accounted for approximately 47% of item variance. To make sure that no two items were highly correlated, a post EFA correlation matrix was conducted and showed that no single pair of items had a correlation greater than .75, therefore all 30 items were included. The five factors were: Daily Care Activities (prepare meals/bottles, feed, change diapers, dress, hold, bathe, put child to bed, tickle, and play peek-a-boo with the child), Nurturing (stay home with ill child, take child to doctor, wake with child at night, soothe upset child, take child on errands, and look after child for spouse), Beliefs about Importance of Father Involvement (involvement has long term effect, fatherhood is rewarding, father must play with child, importance of providing financially, and affection), Investment in Child (think about child, talk about child, carry pictures of child, prefer buying things for child more than self, and believe holding child is fun), and Enrichment (tell stories, read, sing songs, and play outside). Refer to Table 1 for a detailed description of factor items and their loadings.

The large sample also allowed for a cross validation of the structure. To validate the factor structure, 50% of the cases were randomly selected to generate the factor solution, which was then cross-validated with the other 50%. The factor structure and most item loadings were highly consistent between the initial solution and its replication.

Three factors were behavioral in nature (Daily Care Activities, Nurturing, and Enrichment). Daily Care Activities, comprised mostly of activities the child needs assistance with every day (i.e., feeding, bathing, diapering), also included both tickling and playing peek-a-boo, likely because fathers engaged in these behaviors while feeding, changing the child, and so forth. Nurturing items revolve around times when the child is in distress (e.g., ill). They differ from the Daily Care items because these behaviors were done contingent on child need. Enrichment consists of behaviors that prior researchers have shown to facilitate cognitive development (e.g., language skills). It is important to note that each of the items for four of the five factors were reverse scored (1=behavior performed often, 6=behavior performed never or infrequently). The exception to this scoring archetype were the "How often…" items in Enrichment. These items were scored such that higher numbers equal an increase in that behavior.

The remaining two factors were more cognitive in nature (Beliefs about Importance of Father Involvement and Investment in Child). The Beliefs about Importance of Father Involvement factor is particularly important because it assesses the father's own view of his role in the child's life. In past studies, this has often been ascertained via reports from the child's mother, which may be less accurate. Investment in Child speaks to the father's investment in, perceived closeness with, and enthusiasm for his child, a relatively novel factor with respect to existing fathering literature.

Table 1. ECLS-B Residential Father Questionnaire Factor Structure

Resident Father Questionnaire Items	Daily Care	Nurturing	Beliefs about Importance of Father Involvement	Investment in Child	Enrichment
Feed/Give Child Bottle	-.792				
Prepare Meals/Bottles	-.784				
Change Child's Diaper	-.764				
Dresses Child	-.701				
Put Child To Sleep	-.653				
Hold Child	-.601				
Tickle Child	-.568				
Bathe Child	-.518				
Play Peekaboo with Child	-.411				
Stay Home with Ill Child		.637			
Take Child to Doctor		.630			
Wake with Child at Night		.560			
Soothe Upset Child		.494			
Dad/Mom Same Involvement		-.457			
How Often Take Child On Errands		-.324			
Dad Long Term Effect			-.684		
Fatherhood Rewarding			-.646		
Father Must Play with Child			-.606		
Providing More Important			.603		
Men Different Affection Babies			.522		
Think About Child				-.712	
Talk About Child				-.649	
Carry Pictures of Child				-.532	
Holding Child is Fun				-.520	
Prefer to Get Child Things				-.508	
How Often You Tell Child Stories					-.799
How Often You Read to Child					-.760
How Often You Sing Songs with Child					-.562
Outside To Walk or Play					-.397

Note. Items from the Resident Father Questionnaire were kept in the solution if their factor loadings were strong and communalities were above .3. Therefore, of the original

35 involvement items of the Resident Father Questionnaire, 29 were retained in the final factor structure.

After reviewing the model above, authors decided to revisit the data in 2011 to conduct the EFA with the slightly more stringent data criteria. Diversity in defining 'father' can lead to convoluted results, therefore in this EFA, resident fathers were restricted to only biological fathers of the target children. Children were also restricted to those born after 32 weeks gestation to remove potential developmental delays as a result of pre-maturation. Again researchers used the 9 month old dataset utilizing the following inclusion criteria: families in which the child's biological mother was the primary respondent, the child's biological father resided in the home (step-, foster-, adoptive and all other father figures respondents were excluded), participant children that were not twins, children without syndromes (i.e., spina bifida, down, etc.), and those that were not born prematurely (over 32 weeks gestation). The final sample was $N = 4,794$.

The second EFA resulted in a 27 item, six-factor rotation. This difference in factor structure between the two EFAs is not unexpected as a result of refinements made to the dataset. Refer to Table 2 below for how the items fell into each factor. These six distinct factors accounted for approximately 54% of item variance. To make sure that no two items were highly correlated, a post EFA correlation matrix was constructed and showed that no single pair of items had a correlation greater than .75; therefore, all items were included. It is important to note that each of the items for five of the six factors were reverse scored (1=behavior performed often, 6=behavior performed never or infrequently). The one exception to this scoring archetype is Enrichment. The items in this factor were scored such that higher numbers equal an increase in that behavior.

Table 2. ECLS-B Residential Father Questionnaire Factor Structure (redone)

Resident Father Questionnaire Items	Daily Care	One-on-one Play	Nurturing	Beliefs about Importance of Father Involvement	Investment in Child	Enrichment
Prepare Meals/Bottles	-.855					
Change Child's Diaper	-.828					
Feed/Give Child Bottle	-.821					
Dresses Child	-.722					
Put Child To Sleep	-.647					
Bathe Child	-.603					
Hold Child		-.830				
Tickle Child		-.827				
Play Peekaboo with Child		-.381				
Outside To Walk or Play		-.366				
Stay Home with Ill Child				-742		
Take Child to Doctor				-.727		
Soothe Upset Child				-.599		
Wake with Child at Night				-.564		
Dad Long Term Effect				-.728		
Fatherhood Rewarding				-.691		
Father Must Play with Child				-.644		
Supporting Mom is Important				-.522		
Dad/Mom Same Involvement				-.469		

Table 3. ECLS-B Residential Father Questionnaire Factor Structure (redone) Continued

Resident Father Questionnaire Items	Daily Care	One-on-one Play	Nurtur-ing	Beliefs about Importance of Father Involvement	Investment in Child	Enrichment
Think About Child					-.741	
Think About Child					-.741	
Talk About Child					-.696	
Carry Pictures of Child					-.590	
Prefer to Get Child Things					-.478	
Holding Child is Fun					-.409	
How Often You Tell Child Stories						-.805
How Often You Read to Child						-.777
How Often You Sing Songs with Child						-.573

Note. *Play Peekaboo crosses 3 factors with its highest loading on One-on-One Play. **Outside to Walk of Play loaded on 3 factors as well with its highest loading on Ono-on-One Play.

For the purpose of this study, this six factor structure was used in hypothesis testing. This structure and sample correspond to the most up to date ECLS-B data and provide the most accurate results when comparing the factor structure to child development data.

Defining Positive Child Development

The consequence of effective parenting is often indicated by child developmental outcomes. Specifically, fathers' interactions with their children have been found to effect

that child's development (Allen & Daly, 2002; Pleck & Masciadrelli, 2004). For that reason, the most useful way to assess successful fathering is through its association with positive child developmental outcomes. Palkovitz (2002) stated developmental outcomes were the report of "maturational or adaptive status at a particular time of data collection and were often empirically linked to another factor such as father involvement" (p. 129). In other words, a 'good' father will raise children with 'good' outcomes. Benson (1997) simply defines positive development as the absence of negative outcomes. The American Academy of Pediatrics posted an article by Johnson and Blasco (1997) that described early childhood milestones and warning signs. This publication and a lifespan development textbook written by Santrock (2008) were the basis of defining positive child development. Data used in the current study center on nine-month-old infant and is limited to typical children (as described by Johnson & Blasco, 1997 and Santrock, 2008). In keeping with the study data, only motor, cognitive and socio-emotional development are discussed.

Motor Development. By 9 months of age, most healthy children have mastered gross motor skills including rolling over, sitting without support, pulling themselves to stand, creeping on their hands and knees, and walking with help or along furniture. Infants at this age have also developed fine motor skills allowing them to perform radial-digital grasp of objects with their thumbs and finger tips.

Cognitive Development. Between the ages of 9 to 12 months, infants develop problem solving skills, receptive language (associate words with meanings, comprehend "no"), and expressive language (mimicking sounds and beginning to use "mama/dada" appropriately).

Socio-Emotional Development. By 9 months of age, a typical infant will begin to show signs of a more distinct personality (i.e., expressing traits of assertiveness and cautiousness). By 9 months, infants learn to discriminate emotional facial expressions and react differently to different expressions. At this time, infants begin to show preference for a given person, and exhibit signs of stranger anxiety. Infants this age understand means-to-an-end relationships in social interactions (i.e., dancing elicits clapping). This is also when children begin to understand the concept of self.

Associations between Paternal Involvement and Child Development

The degree to which resident fathers are involved with their children is associated with positive child outcomes (Pleck & Masciadrelli, 2004). Paternal support for child's autonomy is positively associated with child's emotional regulation (Cabrera, Shannon, & Tamis-LeMonda, 2007). Sensitive fathering, which involves responding to, talking to, teaching and encouraging their children, predicts children's socio-emotional, cognitive, and linguistic achievements (Conner, Knight, & Cross, 1997; Shannon, Tamis-LeMonda, London, & Cabrera, 2002; van IJzendoorn, & De Wolff, 1997). It would seem logical to expect positive father interactions with infants would be associated with healthy development of the child's motor skills. However, there is a lack of literature examining paternal involvement and its direct or indirect effect on, or association with, infants' motor development. Therefore, the remaining sections of this literature review will focus on research regarding father's association with child cognitive and socio-emotional development.

Father's Association with Child Cognitive Development. Conner and colleagues (1997) investigated scaffolding behavior (instructional interaction between a parent and

child in an informal problem-solving situation) in parents of 2 year olds. To assess scaffolding behaviors, researchers measured how contingently responsive parents were to their child's behavior during a joint activity. The joint activity was a story telling exercise in which each parent, during separate visits, read a story with their child who was then asked to retell the story to the experimenter as a measure of literacy. During a story reading exercise with their child, fathers were significantly more likely to keep their child on-task during the reading activity compared to mothers. Fathers were also significantly more likely to respond to their child's initiating behavior compared to mothers, which is likely related to their ability to keep the child on-task. Children's ability to retell the story during their interview was positively associated with their on-task behavior during the storybook interaction. In other words, higher levels of scaffolding during father-child literacy interactions were associated with higher levels of toddlers' success in their ability to retell the story they learned with the father.

Shannon and colleagues (2002) examined fathers with their 2 year old children. Fathers were interviewed and observed in free-play activities with their children. Two factors emerged in observing paternal behavior: Responsive-Didactic (i.e., positive affect, responsiveness, emotionally attunement to child) and Negative-Intrusive (i.e., achievement-orientation, high structuring, negative verbal statements, intrusiveness, inflexibility). Responsiveness, especially when combined with high quality language and play, was associated with enhanced play and communication in children. Accordingly, fathers' scores on the Responsive-Didactic factor predicted their child's mental scale score (normal or delayed range) on the Bayley Scales of Infant Development, 2nd Edition. Specifically, children in the normal range of mental scale were five times more likely,

compared to those in the delayed range, to have warm, communicative, and playful interactions with their fathers. Van Ijzendoorn and De Wolff's (1997) meta-analysis of eight studies investigating the association between paternal sensitivity (emotional responsiveness and quality of assistance) and infant-father attachment found paternal sensitivity was associated with infant-father attachment security. Infant-father security was predicted by father's attitudes regarding their three-month old and the paternal role (Cox, Owen, Henderson, & Margand, 1992).

There is also evidence to support the effects of paternal involvement on infant intelligence and verbal development. Both mothers and fathers adjust their speech patterns when interacting with infants – speaking more slowly, using shorter phrases, imitating, and repeating themselves more often when talking to infants rather than adults (Kokkinaki &Kugiumtakis, 2000). Infants prefer to listen to these exaggerated patterns of speech, referred to as motherese or parentese (Fernald, 1985; Werker & McLeod, 1989), allowing infants to gain a better understanding of the message, especially with dads (Werker & McLeod, 1989; Fernald & Kuhl, 1987; Fernald, 1992). Fathers use more directives, requests for clarification, wh- questions, references to past events, imperatives and countless utterances to develop more complex linguistic communication styles in children (Leaper, Anderson, & Sanders, 1998; Rowe, Coker, & Pan, 2004). The level of fathers' sensitivity to their 3- and 12-month olds was positively associated with linguistic and cognitive capacities measured by the Bayley and NCATS of their children when they were 18 months old (Magill-Evans, Harrison & Burke, 1999).

Nugent (1991) found infants whose fathers were highly involved in their caretaking had higher scores on the Bayley mental scores when infants reached one year

of age compared to infants whose fathers were not involved. Similarly, in a study assessing the longitudinal effect of paternal involvement on preterm infant intelligence, researchers found infants' mean IQ scores were 6 points higher in the high paternal involvement group compared to those with non-involved fathers, even after controlling for socio-economic status (Yogman, Kindlon, & Earls, 1995). In this case, paternal involvement level (high, moderate, low) was determined by a combined score including father's stable presence in the home and amount of play with the infant. In addition, father's use of indirect rather than direct help encouraged independent problem solving in 18 month olds (Labrell, 1990 as cited in Lamb & Lewis, 2010).

Father's Association with Child Socio-Emotional Development. Many researchers agree that the quality of a child's relationships and interactions with others can be reliably traced to the quality or security of their early infant-parent interactions (De Wolff & van IJzendoorn, 1997; Lamb, 1987; see also Lamb, 2005). Nevertheless, it is difficult to tease apart which childhood experiences or relationships directly affect particular traits that children later exhibit. Fathers' sensitivity toward their child during free-play was associated with positive infant-father attachment (Goosens & van IJzendoorn, 1990). More affectionate fathers, and those who spend more time with their three month olds, had more positive attitudes and more securely attached infants nine months later (Cox, Owen, Henderson, & Margand, 1992). Conversely, fathers who exhibited more detached interactions with their infants were more likely to have infants with insecure attachments at eighteen months of age (Caldera, Huston, & O'Brien, 1995).

Shannon and colleagues (2006) conducted an exploratory factor analysis on a set of longitudinally measured paternal behaviors and their association with 8-month-old

infants' development. They found that fathers who scored higher on the responsive-didactic scale (positive affect, positive verbal statements, positive touch, participation, responsiveness to nonverbal cues, responsiveness to child vocalizations, emotional attunement, structuring, achievement and play sophistication) had children who scored higher on social and communication scales. A significant correlation has been found between the amount of father interaction with an infant and the Bayley mental development index (Pedersen, Rubinstein, & Yaroow, 1979). Pederson and colleagues (1979) found male infants with involved fathers, as measured by the NCATS, scored significantly higher on a cluster of Bayley items measuring social responsiveness. These children were more responsive to social instigations in the testing situation.

Present Study

The majority of literature published on child outcomes, especially how they relate to paternal involvement, is focused on children two years of age or older. Additionally, most researchers investigating paternal involvement start with a theory of what constitutes involvement, and then select measurements to assess that theoretical model. The current study helps fill two voids by examining nine-month old infant developmental outcomes and factors of paternal involvement derived from measurement of general paternal behavior, beliefs and affects. The purpose of this study was to investigate the relationship between the ECLS-B fathers' scores on the Resident Father Questionnaire factor structure of paternal involvement and their children's developmental outcome data (i.e., motor, cognitive and socio-emotional development).

Hypothesis. Though there are varying theories and findings regarding the structure of paternal involvement, a greater part of literature recognizes that paternal

involvement is not simply a single construct. It is a composite of several factors of paternal behaviors, thoughts and affects. In recognizing the composite nature of paternal involvement, the current study utilized the ECLS-B six factor solution to investigate the hypothesis that higher levels of paternal involvement were associated with higher levels of child motor, cognitive and socio-emotional development.

CHAPTER II

METHOD

Participant data for the present study were derived from the Early Childhood Longitudinal Study 9-month wave of the Birth Cohort (a longitudinal, archival dataset collected from 2001 to 2002). The Early Childhood Longitudinal Study, funded by the U.S. Department of Education through the National Center for Educational Statistics (NCES), was designed to provide detailed information about children's early life experiences The birth cohort of the Early Childhood Longitudinal Study (ECLS-B) reflected infant health, development, care, and education during the formative years from birth through kindergarten entry (http://nces.ed.gov/ecls/Birth.asp, retrieved 11-7-06).

Sampling

Data collection for the 9-month wave of the Early Childhood Longitudinal Study Birth Cohort began in October of 2001 and continued through December of 2002. The following data collection procedures were derived from the ECLS-B handbook (Nord, Edwards, Andreassen, Green, Wallner-Allen, 2006). Individual birth certificates were sampled from data files provided by state registrars. These data files were processed through the National Center for Health Statistics (NCHS) state-based vital statistics system. NCHS receives birth certificate data from the states on a flow basis, with the number of births received and months included in a given shipment varying by state and throughout the year. Births were systematically sampled throughout 2001 and 2002. Each sampled birth had an equal overall probability of selection.

Parent interview, direct observation and self-report surveys were the principal modes of collecting data. Parents of the sampled children were initially contacted by

researchers through advanced mailing. Project packets included a letter describing the study, how the child was chosen, and that inclusion in the study was voluntary and all data derived from participants would be confidential. The packet also included a small bib and children's board book to encourage participation. Household representatives were then contacted in person or by phone to determine if the sampled child lived in the home. The parent respondent was identified. The biological mother was the preferred parent respondent. However, if the mother did not live in the home with the child, another guardian was identified in order of preference: child's biological father, another parent/guardian, another adult household member. Researchers reviewed the study procedures with the parent respondent. Respondents who chose to participate in the study signed an informed consent and then were contacted by researchers to schedule a home visit for the assessments. .

The preferred order for the home visit assessments was: parent CAPI instrument, Bayley Short Form – Research Edition, Nursing Child Assessment Teaching Scale, physical measurements of the child, Resident Father Questionnaire (if applicable), Parent Self-Administered Questionnaire, Parent Respondent Contacting and Locating Form, Father Contacting and Locating information (if applicable), and the Nonresident Father Questionnaire (if applicable). Respondents were offered fifty dollars as compensation for their participation in the study.

Participants

As previously stated, participant data for the present study were derived from the Early Childhood Longitudinal Study 9-month wave of the Birth Cohort. For the purpose of parsimony, only families with resident mothers and fathers (both biological and

adoptive) were included in the analyses. Like families were chosen to increase generalizability for the study's findings, and decrease confounding variables in the dataset. Additionally, only cases where the mother completed the parent Computer Assisted Personal Interviewing (CAPI) instrument were included in the sample. Cases were excluded if the child was identified as having either physical or developmental delays (i.e., Spina Bifida, Down's Syndrome). All identifying information was redacted prior to obtaining data from the NCES. Therefore, the study did not need Old Dominion University's Institutional Review Board approval to be conducted. Approval through the ODU College of Human Subjects Committee was obtained.

Data were collected by ECLS-B researchers from parents regarding their nine-month-old infants, on a range of developmental milestones as well as demographic characteristics of both parents and the residential family. Mothers were the primary respondents answering questions regarding the family's general demographic information, child development, and access to resources and support. Child development data were correlated with the father's involvement scores using the six factor structure described in the literature review. As with the resident father EFA, only residential fathers were included in this study for the purpose of maintaining homogeneity within the sample. Residential fathers were defined as the child's biological father who resided in the home.

Measures

Parent Computer Assisted Personal Interviewing (CAPI) Instrument. Demographic analyses were based on data derived from the parent interview instrument (CAPI); a sixty-minute, in-person interview conducted by a trained field interviewer who

would read the questions aloud and record the respondents' answers electronically (Nord, Edwards, Andreassen, Green, Wallner-Allen, 2006). According to the ECLS-B manual (Andreassen & Fletcher, 2005) the CAPI was given to the parent who was most knowledgeable about the care and education of the child. Only families in which the mother completed the CAPI were included for analysis.

Items in the CAPI reflected numerous descriptive characteristics of the participant family (i.e., number of current household members, family socioeconomic characteristics, languages spoken in the child's home, child care arrangements, parent education, employment, household income and assets). Inclusion of the CAPI provided demographic data regarding the children and their families. In addition, data were collected about the family's access to resources including community resources, social support available to the family, the household's food situation, and receipt of public assistance (a full list of the CAPI's demographic questions is available in Appendix A).

Resident Father Questionnaire. As previously stated, the ECLS-B's Resident Father Questionnaire was completed by fathers regarding their behaviors, attitudes and beliefs. It provides a unique opportunity to examine fathers' perceived contributions to their children's well-being and development. Topics included in the Resident Father Questionnaire included activities with the child, feelings about the child, time spent with the child, knowledge of the child's development, separations from the child, prenatal experiences, attitudes about being a father, current relationship with spouse/mother, childbearing and marital/partner history, basic background info, education, employment, health, social support network, and family background. Most items were measured using a Likert-type scale with varying response options. For other questions (such as "How

often are you away from your child for more than a week?") fathers reported the appropriate number. The survey took approximately twenty minutes to complete. The Resident Father Questionnaire questions included in the EFA can be found in Appendix B. The ECLS-B manual (Andreassen & Fletcher 2005) contains more complete information on this and all measures used in the current study.

Prior to the current study, the Resident Father Questionnaire items assessing paternal involvement were included in an exploratory factor analysis. Appendix B contains Q2 through Q17 of the Resident Father Questionnaire included in the EFA (note that questions 2-7, 16, and 17 were multiple response items). The EFA resulted in a six factor rotation. These six factors were summed to scale scores for inclusion in the current study's hypothesis testing. Note that each of the items for five of the six factors were reverse scored (1=behavior performed often, 6=behavior performed never or infrequently). The exception to this scoring archetype were the "How often…" items in Enrichment. These items were scored such that higher numbers equal an increase in that behavior.

Bayley Short Form-Research Edition (BSF-R; cognitive and motor development). The BSF-R was designed specifically for ECLS using a subset of items from the Bayley Scales of Infant Development, Second Edition – a measure of cognitive (mental) and physical (motor) development for children from one to 42 months of age (BSID-II; Bayley, 1993). The BSF-R was developed for national use in a home setting using trained survey interviewers with basic child development knowledge (Andreassen & Fletcher, 2005). Per the ECLS-B psychometrics manual, items in the BSF-R were chosen from the full BSID-II based on their operational ease and robust psychometric properties.

Therefore the BSF-R retains all the psychometric characteristics of the BSID-II. An entire description as to how the BSF-R was developed can be found in the *Early Childhood Longitudnal Study, Birth Cohort (ECLS-B), Methodology Report for the 9-month Data Collection (2001-02), Volume 1: Psychometric Characteristics* (NCES 2005-100) (Andreassen & Fletcher, 2005).

The BSF-R, like the BSID-II, has both a Mental and Motor Scale that measure participants' cognitive development (Mental Scale) and physical development (Motor Scale) (Andreassen & Fletcher, 2005). According to the ECLS-B manual, the Mental Scale items were designed to assess early cognitive and language ability as demonstrated in memory, habituation, preverbal communication, problem solving, and concept attainment. The Motor Scale items were designed to assess gross and fine motor abilities (e.g., picking up objects, crawling, walking), perceptual-motor integration, and problem solving. The BSF-R takes approximately forty minutes to administer. For most items, ECLS-B children were presented with objects and given verbal instruction, and their behavior was observed and recorded. The item-level scores were 'credit/no credit' and were calculated to create the separate total Bayley Mental and total Bayley Motor Scale scores. Data from this instrument were used to test the hypothesis that higher levels of paternal involvement on the factors derived from the ECLS-B Resident Father Questionnaire would be associated with positive child development outcomes including motor and cognitive development.

Nursing Child Assessment Teaching Scale (NCATS; social, emotional and cognitive development; Barnard, 1978). The NCATS (Barnard, 1978) was designed to assess parent-child interaction for early precursors of cognitive, emotional, and social

skills (Sumner & Spietz, 1994), and does so by measuring the child's clarity of cues and the child's responsiveness to the parent. The Cronbach's alpha for the child subscales was above .80. More information on the NCATS can be found in the *NCATS Caregiver/Parent-Child Interaction Teaching Manual, 2nd Edition* (Sumner & Spietz, 1994).

According to the ECLS-B manual, the NCATS scale was composed of binary (yes/no) items that were scored by trained observers, from videotaped interactions (Andreassen & Fletcher, 2005). Parents selected an NCATS task that the ECLS-B sampled child did not yet know how to perform, and then taught the child how to perform the task. Interactions were between the mother and sampled child and typically lasted less than five minutes. Each interaction was videotaped and later coded by a trained health or social service professional. A *yes* response indicates the presence of a behavior (or that it was observed) and a *no* indicates the absence of a behavior (or that it was not observed). The NCATS coding system has two main scales: the parent scale, and the child scale. However, only the child's scale was included in hypothesis testing for this study. The child items were grouped into two categories: Clarity of Cues and Responsiveness to Caregiver. Total child scale scores for the NCATS were the sum of "yesses" for each item in the scale. Child scores from this instrument were used in the current study to test the hypothesis that higher levels of paternal involvement on the six ECLS-B paternal involvement factors would be positively associated with child cognitive and social/emotional development.

CHAPTER III

RESULTS

Selection of Subsample from the ECLS-B

The current analysis began with the complete sample of the ECLS-B dataset and excluded cases based on case characteristics and missing data. Cases were included only if they had data for the following variables: socio-economic status (SES) indicator, parent and child race/ethnicity, child gender, resident father questionnaire items, Bayley scores and NCATS scores. Initial extraction yielded 10,688 cases. Cases were excluded if the child was less than 32 weeks gestation, had a syndrome such as Down's or spina bifida, was from a plural birth (i.e., twin), was above the ninety-fifth percentile in age (12 months old or older) at the time of data collection, residential father was not the child's biological father, or the biological mom was not the primary respondent for the study. Any cases with incomplete or missing data in addition to any cases with data coded 'not ascertained' for the six factors, Bayley scores or NCATS scores were also removed from the study sample. See Table 4 below for the exclusionary steps and corresponding *N*.

Table 4. Exclusionary steps for study dataset

Step	Excluded *N*	Remaining *N*
1) Extraction with all variables needed for study		10,688
2) Exclude premature infants	757	9931
3) Exclude on syndrome	40	9891
4) Exclude on twins	1573	8318
5) Exclude on child's age at X1	1609	6709
6) Exclude on dad type	1445	5264
7) Exclude on mom primary respondent	32	5232
8) Remove cases without complete data for study variables	2764	2468

Participant Demographics

The final sample of 2,468 children had a mean age of 9.7 months (minimum = 6.2 months; maximum = 12.0 months, *SD* = .89). The majority of these children and their parents were white (non-Hispanic) with 59% in the upper two quintiles for SES. The quintiles were composite scores computed at the household level on the father's and mother's education, father's and mother's occupation as well as the household income with quintile 1 being the lowest and quintile 5 being the highest. The majority of parents were married (87.6%) and approximately 30 years old (mothers *M*=29.7 years, *SD*=5.9; fathers *M* =32.3 years, *SD*=6.5). Refer to Table 5 for a comparison of participant race/ethnicity, SES and marital status for both the complete ECLS-B dataset and the subsample selected for this study.

Table 5. Participant demographics in overall ECLS-B dataset compared to subsample included for hypothesis testing

	Total ECLS-B *N* = 10,688		Study Sample *N* = 2,468	
	N	%	*N*	%
Child's demographics				
Male	5460	51.1	1244	50.4
Female	5228	48.9	1224	49.6
White (non-Hispanic)	4423	41.5	1276	51.7
Black/African American	1696	15.9	132	5.3
Hispanic (race specified)	1543	14.4	285	11.5
Hispanic (no race specified)	651	6.1	120	4.9
Asian	1205	11.3	366	14.8
Native Hawaiian or other Pacific Islander	48	0.4	8	0.3
American Indian or Native Alaskan	296	2.8	50	2.0
More than one race	807	7.6	226	9.2
Not ascertained	19	0.2	5	0.2
Mother's Demographics				
White (non-Hispanic)	4888	45.7	1376	55.8

Table 6. Participant demographics in overall ECLS-B dataset compared to subsample included for hypothesis testing Continued

	Total ECLS-B $N = 10,688$		Study Sample $N = 2,468$	
	N	%	*N*	%
Black/African American	1721	16.1	134	5.4
Hispanic (race specified)	1216	11.4	226	9.2
Hispanic (no race specified)	682	6.4	128	5.2
Asian	1392	13.0	444	18.0
Native Hawaiian or other Pacific Islander	56	0.5	10	0.4
American Indian or Native Alaskan	405	3.8	70	2.8
More than one race	299	2.8	77	3.1
Not ascertained	14	0.1	3	0.1
Father's Demographics				
White (non-Hispanic)	4370	40.9	1432	58.0
Black/African American	820	7.7	156	6.3
Hispanic (race specified)	982	9.2	221	9.0
Hispanic (no race specified)	537	5.0	125	5.1
Asian	1229	11.5	397	16.1
Native Hawaiian or other Pacific Islander	40	0.4	6	0.2
American Indian or Native Alaskan	233	2.2	60	2.4
More than one race	229	2.1	69	2.8
Not ascertained	9	0.1	2	0.1
SES				
First Quintile (lowest)	2134	20.0	206	8.3
Second Quintile	2124	19.8	351	14.2
Third Quintile	2106	19.7	455	18.4
Fourth Quintile	1962	18.4	624	25.3
Fifth Quintile (highest)	2372	22.2	832	33.7
Parent's Marital Status				
Married	6958	65.1	2163	87.6
Separated	294	2.8	5	0.2
Divorced	363	3.4	43	1.7
Widowed	30	0.3	n/a	n/a
Never Married	2954	27.6	256	10.4
Respondent is biological or adoptive parent	72	0.7	n/a	n/a
Not Ascertained	17	0.2	1	0.0

Descriptive Statistics and Assumptions

Prior to hypothesis testing, assumptions were tested to check for any deviations from normality within the dataset. For all independent and dependent variables, the data were normally distributed showing no variables as skewed or kurtotic (both within +1 to -1 range) and no outliers or floor or ceiling effects (normal bell curve, all data within +3 to -3 SD). Because the variables were normally distributed, there is multivariate normality.

Summing Involvement Factor Scores to Scale Scores

The paternal involvement factor items were summed to scale scores for each factor so that they could be used as composite predictor variables. Below are the alphas for each factor as a summed scale score.

Table 7. Involvement Factors Summed Scale Alphas

Factor	Cronbach's Alpha	Score Average (*M* / # of Items)
Daily Care	.89	2.46
Prepare Meals/Bottles		
Change Diaper		
Feed/Give Bottle		
Dress Child		
Put Child to Sleep		
Bathe Child		
One-on-One Play	.55	1.95
Hold Child		
Tickle Child		
Play peekaboo with Child		
Outside to walk or play		
Nurturing	.73	2.90
Stay home with Ill Child		
Take child to doctor		
Soothe upset child		
Wake with child at night		

Table 8. Involvement Factors Summed Scale Alphas Continued

Factor	Cronbach's Alpha	Score Average (*M* / # of Items)
Beliefs	.60	1.35
Dad long term effect		
Fatherhood rewarding		
Father must play with child		
Support Mom most important		
Dad/mom same involvement		
Investment	.55	1.36
Think about child		
Talk about child		
Carry pictures of child		
Prefer to get child things		
Holding Child is fun		
Enrichment	.63	2.30
How often do you tell child stories		
How often do you read to child		
How often do you sing songs		

None of the factors were made of more than six items (range was three to six items), which may have contributed to the overall low reliability scores. Additionally, the scale scores originated from EFA factors using varimax rotation, which forces the factors to be unrelated.

Hypothesis Testing

Prior to hypothesis testing, several aspects for the ECLS-B dataset needed to be addressed. ECLS-B oversampled selected ethnicities for researchers who typically have a difficult time obtaining a large number of persons in these subsamples. However, this oversampling is not representative of the nation's general population. As a result, weighting variables were included to adjust for the oversampling, so that populations that were oversampled would be weighted less to reflect the national averages. For example, the national average of female and male births is 51% and 49% respectively. The ECLS-

B oversampled male infants almost reversing the national averages, and provided a variable to weight the male respondents less to mathematically compensate for the lesser number of female responses.

A clustering sample design was used to select cases for inclusion in the study by sampling births at hospitals across the United States. As a result, births within the same location were more similar than those across sampling locations. To adjust for this effect, the Complex Sampling Module in SPSS was used to facilitate the regressions conducted during hypothesis testing. The Complex Sampling General Linear Model in SPSS estimates variance while incorporating the sampling design, which allows for more valid, conservative statistical inferences. The *F*-test using the Wald statistic, appropriate for analyzing complex survey data (Korn & Graubard, 1990), was used to test the individual relationships among paternal involvement and demographic variables and the child outcome assessment measures.

Sequential multiple regressions were conducted to examine the relationship between the six ECLS-B paternal involvement factors and the child Bayley Mental score, Bayley Motor score and NCATS score. The first step for each regression examined the effect of demographic variables (child's sex, child's age, child's ethnicity, mother's ethnicity, father's ethnicity, mother's age, father's age, marital status and SES) on each of the three criterion measurements (Bayley Mental and Motor scales and the NCATS score). Ethnicity and marital status were entered into the model categorically, meaning they were dummy coded such that each response code was entered against a criterion variable. The Bayley Mental Scale was positively correlated with child's age and SES. Females scored significantly higher on the Mental Scale. The Bayley Motor Scale was

positively correlated with child's age, mother's age and father's age. Children whose parents were married scored higher on the Motor Scale. The NCATS was positively associated with child's age and SES. Refer to Table 9 for a full review of associations between measurements and demographic variables. The non-significant demographic variables were removed and the models rerun (refer to Table 10). Step 2 for each measure includes only each measure's statistically significant demographic variables and all six of the paternal involvement scores.

Table 9. Step 1 Demographic Variables

	Bayley Mental Scale	Bayely Motor Scale	NCATS
	Wald F (R^2=.044)	Wald F(R^2=.031)	Wald F(R^2=.019)
Child's Sex	6.15*	.08	1.25
Child's Age	46.22***	4.58*	6.30*
Child's Race/Ethnicity	.78	1.34	1.79
Mother's Age	.30	4.98*	3.74
Mother's Race/Ethnicity	.74	.88	1.62
Father's Age	2.03	4.43*	2.20
Father's Race/Ethnicity	.96	.54	1.26
Marital Status	1.89	5.34***	1.04
SES	12.30***	.30	5.09*

Note. *=p<.05, ***=p<.001

Table 10. Step 1 Demographic Variables without Non-Significant Variables

	Bayley Mental Scale	Bayely Motor Scale	NCATS
	Wald F (R^2=.034)	Wald F(R^2=.019)	Wald F(R^2=.006)
Child's Sex	7.09**	--	--
Child's Age	48.60***	4.22*	6.08*
Mother's Age	--	4.30*	--
Father's Age	--	4.00*	--
Marital Status	--	8.90***	--
SES	14.84***	--	5.25*

Note. *=p<.05, **=p<.01, ***=p<.001

Bayley Mental Scale Analysis. The child's sex, age, SES, and paternal involvement factors were entered into the Bayley Mental Scale model. Other than the three demographic variables, there were no significant findings for influences on the Mental Scale. The model examining only the demographic variables as predictors of cognitive development produced an R^2 of .034. The model's R^2 changed to .035 by adding the paternal involvement factors, resulting in a difference of .001. Increase in child's age (*M*=9.7 months) was associated with higher scores on the Bayley Mental Scale. Higher levels of SES (*M*=3.41 quintile) were associated with higher scores on the Mental Scale.

Bayley Motor Scale Analysis. The child's age, mother's age, father's age, marital status, and paternal involvement factors were entered into the Bayley Motor Scale model. The model examining only the demographic variables as predictors of motor development produced an R^2 of .019. The model's R^2 changed to .031 by adding the paternal involvement factors, resulting in a difference of .012. In the step 2 model, mother's age (*M*=29.3 years) and marital status continued to be statistically significant predictors; however child's age and father's age were not. Results for mother's age indicated that the children of older mothers had higher scores on the Bayley Motor Scale. Children whose parents were married scored higher on the Motor Scale as well. The paternal involvement factor One-on-one Play was statistically significant (Wald $F(1,2852)=10.40$, $p=.001$, 95% CI [-.59, -.14]). To standardize the results, the Motor scores and paternal involvement scores were converted to z-scores. In the process of converting scores, nearly 700 cases were excluded as a result of missing scores. Even with fewer cases, similar findings to the unstandardized analyses emerged for the

standardized analyses (Wald $F(1,2157)=8.30$, $p=.004$, $\beta= -.10$, 95% CI [-.17, -.03]). The negative beta indicates that more One-on-one Play is associated with higher infant Motor Scale scores.

NCATS Child Score Analysis. The child's age, SES, and paternal involvement factors were entered into the NCATS Scale model. In this model, only the child's age (M=9.7 months) remained statistically significant. The model examining only the demographic variables as predictors of socio-emotional development produced an R^2 of .006. The model's R^2 remained .006 after adding the paternal involvement factors. The older the child, the better their scores were on the NCATS. Once the paternal involvement factors were added to the model, SES was no longer significantly related to NCATS scores. None of the paternal involvement factors emerged as significant.

CHAPTER IV

DISCUSSION

The current study sought to demonstrate whether higher levels of paternal involvement were associated with higher levels of child motor, cognitive and socio-emotional development. Several demographic variables were associated with child development. However, aside from One-on-one Play, the paternal involvement factors were not significant.

Significant Findings

Associations with the Bayley Mental Scale Score. Child's sex, age, and SES were positively associated with child sores on the Bayley Mental Scale. The positive correlation between the child's age and Mental Scale score was expected considering as a child develops they will be better equipped to perform the Bayley Mental Scale tasks. Finding that female infants scored higher Mental Scale is supported by previous literature on child development. Females typically score higher in speech and language domains (Hindmarsh, Callaghan, Mohay, & Rogers, 2001) and master collaborative speech, verbal turns, help-centered and self-disclosing speech more readily, compared to males (Thompson & Moore, 2000). Previous literature supports the association between household socioeconomic status and early cognitive and language development as demonstrated in the current study. Children from families with a high SES were more likely to have a high IQ, and this disparity between upper and lower levels of SES and cognitive ability emerged in infancy (Bradley & Corwyn, 2002). Several studies in the Bradley and Corwyn review found a strong relationship between language performance and SES indicators. Parents within the upper echelons of SES likely encourage preverbal

communication, problem solving, and concept attainment. None of the paternal involvement factors scores in the current study were significantly related to the Bayley Mental Scale.

Associations with the Bayley Motor Scale Score. Maternal, paternal, and child ages, as well as marital status, were positively associated with the child's Motor Scale score. Similar to the Bayley Mental Scale, a positive correlation between the Motor Scale and child's age is expected considering that as the child ages, they would be better equipped to respond to the Motor Scale items. . Magill-Evans and Harrison (2001) found parental age accounted for a third of the variance in children's motor abilities. It is also logical to assume that mothers and fathers who have children later in their late-twenties and early-thirties are better equipped to support their children's motor development. These parents are more likely to be educated, have financial and household stability, and seek out information to aide them in developing their children. In a review of the literature, Bradley and Corwyn (2002) reported that children from low SES families were more likely to experience early health problems such as growth retardation, low weight births, birth defects, dental caries, and iron deficiencies. These problems were linked to poor prenatal care, maternal substance use, inadequate nutrition and reduced access to health care (Bradley & Corwyn, 2002). It is unclear why marital status would be related to motor development aside from providing a more stable home in which the child is free to grow and develop. Goeke-Morey and Cummings (2007) reported both parents were negatively affected by marital discord which in turn negatively affected children. One study reported married fathers were encouraged by their spouses to interact with their

children (Russell & Russell, 1994). This finding relates to the final significant variable in the Motor Scale model: One-on-one Play.

Very few articles have been published concerning the link between paternal involvement and children's motor development during infancy. Therefore, finding One-on-one Play was associated with the Motor Scale helps fill this deficit in the literature. The Bayley Motor Scale is comprised of tasks that assess eye-hand coordination, sitting, pre-walking, walking, and balancing; all things cultivated by One-on-one Play activities (hold child, tickle child, play peekaboo with child, and outside to walk or play). This finding is of particular interest and value to the field as it speaks to a void in the literature between motor development and paternal involvement in the 9-month age range.

Associations with the NCATS Child Score. Child age and SES were significantly correlated with NCATS scores for child socio-emotional development, echoing findings from the previous two measures. As the child ages, he or she is more able to clearly communicate with others. Though responding to caregivers is a function of the relationship between child and caregiver, it is also due in part to the child's ability to understand the cues given. It is not surprising that SES would be associated with the NCATS, because families in the upper quintiles typically value fostering a positive connection with their children, and have more time and resources to invest in them (Dregval & Petrauskiene, 2009; McNeal, 2001). This leads to a better, more responsive relationship between parent and child. Bradley and Corwyn (2002) reported more symptoms of maladaptive social functioning in children from families with low SES than in children from more affluent families. There is evidence to suggest that low levels of SES are related to children's externalizing problems (Bradley & Corwyn, 2002). None of

the paternal involvement factors scores in the present study were significantly related to child NCATS scores.

Non-significant Findings

Among the demographic variables, only ethnicity (child, mother or father) was not a predictor variable for any measure, which may be due to the study's more homogeneous sample as compared to the overall ECLS-B dataset or general U.S. population. Though there was ethnic diversity in the study's sample, the majority of participants, just over 50%, were white. The next largest ethnic group was Asian at almost 15%, followed by 11% Hispanic. Another reason ethnicity was not significant in any model may be a result of shared variance between ethnicity and SES. LaVeist (2005) found participants' ethnicity and SES were closely related to each other making it difficult to separate the effect of one from the other. SES was significant in two models in the current study, which may have picked up some of the variance from ethnicity.

Other than One-on-one Play, the paternal involvement scores derived from the ECLS-B Resident Father Questionnaire were not significantly related to child development. Of the six factors, only two (Daily Care and Nurturing) had alphas greater than .7, meaning internal consistencies for the remaining four factors were low. These factors had five or fewer items, which may have attributed to their low alphas. These factors are based on a single self-report measure, which may not be an accurate reflection of respondents' beliefs or behaviors. The Resident Father Questionnaire was designed by researchers for the ECLS-B program who may have inadvertently excluded thoughts, behaviors, or attitudes fathers experience in parenting. It is interesting to note the items in Nurturing (stay home with ill child, soothe upset child, wake in the night) are usually

behaviors in which mothers engage. This is not to say that fathers do not nurture, but that their form of nurturing is reflected by a different set of behaviors.

The current study assessed father's direct influence on child outcomes; however, fathers may have a more indirect effect on child development, especially during infancy. Direct effects on child outcomes during infancy may be more likely for maternal behaviors, but facilitated by fathers' involvement. Fathers' indirect patterns of influence are arguably more important than their direct effects through behaviors and attitudes (Lamb & Tamis-LeMonda, 2004). Paternal involvement has been found to predict maternal psychological distress and parenting stress (Coley &Schindler, 2008). Another aspect unaccounted for was the developmental effect mothers (and for that matter siblings, other household members and caretakers) have on children. Typically in the birth to nine-month time frame, the mother is most often with the child, taking care of the infant's needs, and therefore having the most interaction with the child. Fathers participate in more playful, active interactions with their children (Coltrane, 1996; Pleck & Masciadrelli, 2004; Sayer, Bianchi, & Robinson, 2004). These types of activities are not conducive to handling young infants. The child's mother or other caretaker may be compensating in areas where the father is lacking. Another explanation for the small effect sizes may be due to children needing more time interacting with their father to benefit developmentally from these interactions. Paternal involvement during infancy may have more effect on the child later in life.

Small effect sizes may also be due to ECLS-B case children not necessarily being the family's first children. If the mother is caring for the family's newest edition, the father may be spending more time taking care of its older siblings, and performing

identified involvement activities with those children. Only children often have their parents' full attention; however children with older siblings learn and develop as results of interacting with those older siblings. Future research should take birth order into account to remove this potentially latent effect.

Overall, results of the analyses yielded small effect sizes. This may indicate a phenomenon within a population or a characteristic of a subsample that is not being explicitly assessed. For example, data collection occurred soon after 9/11 and the beginning of the wars in Iraq and Afghanistan (October 2001 to December 2002). There is a potential that families selected near the crash sites might be inherently different than those not, or military families may have experienced changes that affected their home life fundamentally altering them from non-military families.

Factor Structure

The paternal involvement factors used to create scores in this study, though not the focus of this analysis, were a substantive part of the study and therefore deserve to be addressed for their impact on the field. In spite of the factors' shortcomings, the EFA revealed a sensible factor structure describing paternal involvement. This structure lends promise to the development of a more reliably sound measure and model of paternal involvement. The factor development utilized a bottom-up approach; taking a measure designed to assess fathering and deriving from it a model of paternal involvement. This approach likely led to the factors' low internal consistencies within each factor since through the EFA process a number of the survey items were excluded leaving few items within each factor. It is especially interesting that the only statistically significant factor in hypothesis testing (One-on-one Play) had the lowest alpha. Moving forward,

researchers might interview fathers using open-ended questions regarding their experience of parenthood (behaviors, beliefs, and attitudes), then use their responses to build a model of paternal involvement.

Limitations

In the ECLS-B subsample used, the majority of participants were in the top two socio-economic status quintiles. Participants in these quintiles were more educated and wealthy. These familial characteristics are typically associated with higher scores on child development scales, as evidenced by the current study's findings in which the Bayley Mental Scale and NCATS were positively associated with SES. In addition, fathers with more secure and higher paying jobs are more likely to have parental leave benefits. Fathers who choose to take parental leave or work shorter hours were more likely to be involved with the baby (Tanaka & Waldfogel, 2007). The current study's sample had less ethnic diversity compared to the ECLS-B total sample, also limiting generalizability of the findings.

When reviewing the current sample's exclusion steps, it is evident that a considerable number of participant data sets were lost after filtering for cases with all study measures present. Whether participants opted out of the ECLS-B study after enrollment, moved, or if the case child or parent left the household is unclear. There is evidence to suggest participants who completed their involvement in a study were inherently different from those who did not (Jackson, et al., 1996; Myaing, Garrison, Rivara, & Christakis, 2011). The loss of these participants homogenizes the current study's sample resulting in a loss of diversity which ECLS-B strived to create. Specifically, there was a loss of SES and ethnic diversity. Sample homogeneity decreases

the generalizability of study's findings. This loss of participants is indicative of a greater concern for national datasets, since ECLS-B was making an effort to be broad based.

One final limitation of this study is that it investigated paternal involvement and child development at the same time point. There is no reliable way to assume a causal relationship between these two sets of variables. At best, it is an observation of correlations. There may be more of an effect when looking at father's involvement and child's development over time.

Moving forward, researchers investigating the relationship between child outcomes and paternal involvement should include a birth order component for the children being measured. This may account for the type and frequency of paternal interactions. Measuring paternal involvement and child outcomes over time would allow researchers an opportunity to explore a possible causal relationship. Instead of using self-report surveys, collecting paternal involvement data via interview would afford researchers a more complete picture of what dads do, think, and feel about parenting.

CHAPTER V

SUMMARY

Though many findings reported here were not statistically significant, the results reveal evidence in support of the relationship between paternal involvement and infant motor development. Families, researchers and educators can benefit from finding fathers are relevant in young children's lives even though most of the child's time is spent with the mother. More research is necessary to explore this relationship as children develop. In spite of shortcomings of the current study's paternal involvement factors, its sensible factor structure lends promise to the development of a more reliably sound measure and model of paternal involvement. The demographic limitations of this study require investigation before these findings can be generalized to the overall father population.

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APPENDIX A

ECLS-B NATIONAL 9-MONTH PARENT QUESTIONNAIRE

SECTION IN -INTRODUCTION

THIS INTERVIEW IS BEING CONDUCTED IN THE STATE OF (READ STATE BELOW).

PRESS ENTER TO ACCEPT STATE BELOW OR ENTER STATE ABBREVIATION.
Prefill data entry field with State abbreviation preloaded from birth certificate or tracking data.

YOU HAVE SELECTED CASE {CASEID OF CASE SELECTED} {CHILD'S FULL NAME}.

IS {CHILD'S FULL NAME} LIVING IN THIS HOUSEHOLD?
1 YES
2NO

TO CONDUCT THE INTERVIEW, {CHILD'S FULL NAME} MUST BE LIVING IN THIS HOUSEHOLD.

{CHILD'S FULL NAME}'S BIRTH CERTIFICATE LISTS {FIRST, MIDDLE, AND LAST NAME OF BIRTH MOTHER FROM THE BIRTH CERTIFICATE} AS THE CHILD'S BIRTH MOTHER.

IS {FIRST, MIDDLE, AND LAST NAME OF BIRTH MOTHER FROM THE BIRTH CERTIFICATE} THE PARENT RESPONDENT?
1YES
2NO

IF CASE FLAGGED AS PART OF TWIN SAMPLE, GO TO IN010.
OTHERWISE, GO TO IN022PRE.

{CHILD'S FULL NAME}'S BIRTH CERTIFICATE INDICATES {HE/SHE} HAS A TWIN NAMED {TWIN's FULL NAME FROM BIRTH CERTIFICATE}.

IS {TWIN'S FULL NAME} LIVING IN THIS HOUSEHOLD?
1 YES (IN022PRE)
2NO

{CHILD'S FULL NAME}'S BIRTH CERTIFICATE INDICATES {HE/SHE} HAS A TWIN NAMED {TWIN's FULL NAME FROM BIRTH CERTIFICATE}.

WHERE IS {TWIN'S FULL NAME}?

1 LIVING ELSEWHERE (IN022PRE)
2 DECEASED

WHAT WAS {TWIN FULL NAME}'S MONTH OF DEATH?
ENTER MONTH.
REFUSED
DON'T KNOW

WHAT WAS {TWIN'S FULL NAME}'S DAY OF DEATH?
ENTER DAY.
REFUSED
DON'T KNOW

WHAT WAS {TWIN FULL NAME}'S YEAR OF DEATH?
ENTER FOUR DIGIT YEAR.
REFUSED
DON'T KNOW

WHAT WAS {TWIN'S FULL NAME}'S CAUSE OF DEATH?
REFUSED
DON'T KNOW

If child's biological mother is the respondent (IN005=1), display (in the third paragraph) "you and about" and "the". Else if IN005=2, then (in the third paragraph) do not display "you and about" and display and "you and the".

If no twin in household, or not part of twin sample, then do not display the second paragraph. For the first and third paragraphs do not display "{and {TWIN}}" or {and {TWIN}'s}. Else if twin in household, then display second paragraph "I will ask...about you or your household". Also display "and {TWIN}'s" in first paragraph and "and {TWIN}" in the third paragraph.

During this interview, I will be asking questions about {CHILD}'s{and {TWIN}'s} early experiences and about you and your household.

{I will first ask questions specifically about {CHILD} and general questions about you and your household. Once these questions are finished, I will need to ask some questions specifically about {TWIN}. There will not be as many questions for {TWIN} because I will not need to repeat any questions about you or your household.}

Before we begin, I need to verify some information about {you and about} {CHILD}{and {TWIN}}. I also have a few questions about {the/you and the} other people living here.

I have recorded your full name as {BIRTH MOTHER'S FULL NAME FROM BIRTH

CERTIFICATE}. Is this correct?

1 YES
2NO
REFUSED
DON'T KNOW
(IN028BX)
(IN028BX)
(IN028BX)
IN025

If IN005=1 (YES), "MAKE CORRECTIONS...ACCEPT FIRST NAME".
Else if IN005=2 (NO), display "May I have your full name, please?" and "ENTER FIRST NAME".

{May I have your full name, please?}

If IN005=1 (YES), display "MAKE CORRECTIONS...ACCEPT MIDDLE NAME".
Else if IN005=2 (NO), display "[May I have your full name, please?]" and "ENTER MIDDLE NAME".

{[May I have your full name, please?]}

If IN005=1 (YES), "MAKE CORRECTIONS...ACCEPT LAST NAME".
Else if IN005=2 (NO), display "[May I have your full name, please?]" and "ENTER LAST NAME".

{[May I have your full name, please?]}

I have recorded your birth date as {BIRTH MOTHER'S BIRTH DATE FROM BIRTH CERTIFICATE}. Is this correct?
1 YES
2 NO
REFUSED

What is your birth date?
ENTER MONTH OF BIRTH.
REFUSED
DON'T KNOW

Display number entered at IN031 at top of screen.

[What is your birth date?]
ENTER DAY OF BIRTH.
REFUSED
DON'T KNOW

Display numbers entered at IN031 and IN032 at top of screen.

[What is your birth date?]
ENTER FOUR DIGIT YEAR OF BIRTH.
REFUSED
DON'T KNOW

How old are you?
REFUSED
DON'T KNOW

CODE IF OBVIOUS. OTHERWISE, ASK: Are you male or female?
ENTER GENDER OF RESPONDENT.
1MALE
2 FEMALE
REFUSED
DON'T KNOW

What is your relationship to {CHILD}{and {TWIN}}? HELP AVAILABLE
1 MOTHER/FEMALE GUARDIAN
2 FATHER/MALE GUARDIAN (IN045)
3 SISTER (IN050)
4 BROTHER (IN055)
5 GIRLFRIEND OR PARTNER OF CHILD'S (IN062BX) PARENT/GUARDIAN
6 BOYFRIEND OR PARTNER OF CHILD'S (IN062BX) PARENT/GUARDIAN
7 GRANDMOTHER (IN062BX)
8 GRANDFATHER (IN062BX)
9 AUNT (IN062BX)
10 UNCLE (IN062BX)
11 COUSIN (IN062BX)
12 OTHER RELATIVE (IN062BX)
13 OTHER NON-RELATIVE (IN060)

Are you {CHILD}{and {TWIN}}'s...
1 Birth mother, (IN062BX)
2 Adoptive mother, (IN062BX)
3 Stepmother, or (IN062BX)
4 Foster mother or female guardian? (IN062BX)

Are you {CHILD}{and {TWIN}}'s ...
1 Birth father,
2 Adoptive father,
3 Stepfather, or
4 Foster father or male guardian?

Are you {CHILD}{and {TWIN}}'s...
1 Full sister,
2 Half sister,
3 Stepsister,
4 Adoptive sister, or
5 Foster sister?

Are you {CHILD}{and {TWIN}}s...
1Full brother,
2Half brother,
3Stepbrother,
4Adoptive brother, or
5Foster brother?

CODE NON-RELATIVE RELATIONSHIP BELOW IF MORE DESCRIPTIVE.
GIRLFRIEND OR PARTNER OF CHILD'S PARENT/GUARDIAN
BOYFRIEND OR PARTNER OF CHILD'S PARENT/GUARDIAN
FEMALE GUARDIAN
MALE GUARDIAN
DAUGHTER/SON OF CHILD'S PARENT'S PARTNER
OTHER RELATIVE OF CHILD'S PARENT'S PARTNER
91 OTHER NON-RELATIVE

{FULL NAME OF BIRTH CERTIFICATE MOTHER} HAS NOT BEEN IDENTIFIED AS THE PARENT RESPONDENT.
WHERE IS THE CHILD'S BIRTH MOTHER LIVING?
1 LIVING ELSEWHERE
2 DECEASED
3 LIVING IN HOUSEHOLD BUT UNAVAILABLE
4 UNKNOWN
91 OTHER (SPECIFY)

SPECIFY OTHER STATUS OF CHILD'S BIRTH MOTHER.

YOU HAVE RECORDED THAT CHILD'S BIRTH MOTHER IS IN THE HOUSEHOLD, BUT UNAVAILABLE.

PLEASE CONFIRM THAT THE CHILD'S BIRTH MOTHER IS UNAVAILABLE FOR THE INTERVIEW FOR A NON-TEMPORARY REASON.

IF CHILD'S BIRTH MOTHER IS UNAVAILABLE FOR A TEMPORARY REASON, PLEASE RESCHEDULE THE INTERVIEW FOR A TIME WHEN SHE IS AVAILABLE.

Display month, day, and 4-digit year fields.

WHAT WAS {CHILD}'S BIRTH MOTHER'S DATE OF DEATH?

ENTER DATE.
REFUSED
DON'T KNOW

WHAT WAS {CHILD}'S BIRTH MOTHER'S CAUSE OF DEATH?
REFUSED
DON'T KNOW

I have recorded {CHILD'S FULL NAME/TWIN'S FULL NAME} as {CHILD/TWIN}'s full name.
Is this correct?
1 YES
2 NO
REFUSED
DON'T KNOW

[I have recorded {FIRST, MIDDLE, and LAST NAME FROM BIRTH CERTIFICATE} as {CHILD/TWIN}'s full name. Is this correct?]

[I have recorded {CHILD/TWIN}'s {FIRST, MIDDLE, and LAST NAME FROM BIRTH CERTIFICATE} as {CHILD/TWIN}'s full name. Is this correct?]

[I have recorded {FIRST, MIDDLE, and LAST NAME FROM BIRTH CERTIFICATE} as {CHILD/TWIN}'s full name. Is this correct?]

I have recorded {CHILD/TWIN}'s birth date as {MONTH, DAY, YEAR FROM BIRTH CERTIFICATE}. Is this correct?

1 YES
2 NO
REFUSED
DON'T KNOW

What is {CHILD/TWIN}'s birth date?
ENTER MONTH.
REFUSED
DON'T KNOW

[What is {CHILD/TWIN}'s birth date?]
ENTER DAY.
REFUSED
DON'T KNOW

[What is {CHILD/TWIN}'s birth date?]

ENTER FOUR DIGIT YEAR.
REFUSED
DON'T KNOW

ASK IF NOT OBVIOUS: I have {CHILD/TWIN} recorded as {male/female}. Is that correct?
1 YES, CHILD IS {BIRTH CERTIFICATE GENDER}
2 NO, CHILD IS {OTHER GENDER}
REFUSED
DON'T KNOW

CASE {CASEID}
CASE INFORMATION REVIEW SCREEN

ONCE YOU PASS THIS SCREEN, YOU WILL NOT BE ABLE TO RETURN TO SECTION IN.

CHILD: {CHILD'S FULL NAME}
CHILD'S GENDER: {CHILD'S SEX}
CHILD'S DATE OF BIRTH: {CHILD'S DOB}
RESPONDENT: {RESPONDENT'S FULL NAME}
RESPONDENT RELATION TO CHILD: {RESPONDENT'S RELATION TO CHILD}
{TWIN:} {TWIN'S FULL NAME}
{TWIN'S GENDER:} {TWIN'S SEX}
{TWIN'S DATE OF BIRTH:} {TWIN'S DOB}
{STATUS OF TWIN:} {IN010/IN012}
GO TO IN150BX.
Verify
CASE {CASEID}

CASE INFORMATION REVIEW SCREEN

YOU HAVE RE-ENTERED CASE {CASEID}

CHILD: {CHILD'S FULL NAME}
CHILD'S GENDER: {CHILD'S SEX}
CHILD'S DATE OF BIRTH: {CHILD'S DOB}

RESPONDENT: {RESPONDENT'S FULL NAME}
RESPONDENT RELATION TO CHILD: {RESPONDENT'S RELATION TO CHILD}

{TWIN:} {TWIN'S FULL NAME}
{TWIN'S GENDER:} {TWIN'S SEX}
{TWIN'S DATE OF BIRTH:} {TWIN'S DOB}
{STATUS OF TWIN:} {IN010/IN012}

SECTION FS -FAMILY STRUCTURE

If IN065 = 3 (Birth mother in household) and no twin in household, display "and {CHILD}'s mother".
Else if IN065 = 3 (Birth mother in household) and twin in household, display "and the twins' mother".

Now I have a few questions about you and your household.

We have listed that you and {CHILD}{and {TWIN}} {and {CHILD}'s mother/and the twins' mother} currently live in this household. Please tell me the names and ages of all the other people who normally live here. Please do not include anyone staying here temporarily who usually lives somewhere else.

[Please tell me the names and ages of all the other people who normally live here. Please do not include anyone staying here temporarily who usually lives somewhere else.]
PROBE: Anyone else (living in this household)?
ENTER MIDDLE NAME OF {NAME}.
ENTER LAST NAME OF {NAME}.

Display this question when cursor is positioned in age column of household matrix.
Display appropriate first name for {NAME}.
How old is {NAME}?
ENTER AGE OF {NAME}.
ENTER ZERO IF PERSON'S AGE IS LESS THAN ONE YEAR.
REFUSED
DON'T KNOW

Display this question when cursor is positioned in gender column.

Display "Is {NAME}" (display appropriate first name) when cursor is positioned in gender column for someone other than respondent's row.
CODE IF OBVIOUS. OTHERWISE, ASK: Is {NAME} male or female?
1MALE
2 FEMALE
REFUSED
DON'T KNOW

IS THE MATRIX COMPLETE?
1YES
2 NO (RETURN TO MATRIX AND COMPLETE)

Have we missed anyone who usually lives here who is temporarily away from home or living in a dorm at school, or any babies or small children?

1 YES (FS005)

2NO
REFUSED
DON'T KNOW

IF FS025 = 1 (YES MISSED SOMEONE IN HOUSEHOLD), RETURN TO MATRIX.

ELSE IF MORE THAN RESPONDENT AND CHILD (AND TWIN IF IN010=1) LISTED ON ROSTER, GO TO FS030.

ELSE IF ONLY RESPONDENT AND CHILD (AND TWIN IF IN010=1) ARE LISTED ON HOUSEHOLD ROSTER, GO TO FS037BX.

Do you have a spouse or partner who lives in this household?
1YES
2 NO
REFUSED
DON'T KNOW

Display household members 14 years or older who are not the respondent as response category choices. If age is missing treat as 14 years or older.

Display respondent's first name for "{RESPONDENT}".
{DISPLAY HH MEMBER NAME 1}
{DISPLAY HH MEMBER NAME 2}
{DISPLAY HH MEMBER NAME 3}
{DISPLAY HH MEMBER NAME 4}
{DISPLAY HH MEMBER NAME 5}
{DISPLAY HH MEMBER NAME 6}
{DISPLAY HH MEMBER NAME 7}
{DISPLAY HH MEMBER NAME 8}

Who in the household is your spouse or partner?

Display relationship matrix.

What is {NAME}'s relationship to {CHILD}{and {TWIN}}?
1 MOTHER/FEMALE GUARDIAN
2 FATHER/MALE GUARDIAN
3 SISTER
4 BROTHER
5 GIRLFRIEND OR PARTNER OF CHILD'S PARENT/GUARDIAN
6 BOYFRIEND OR PARTNER OF CHILD'S PARENT/GUARDIAN

7 GRANDMOTHER
8 GRANDFATHER
9 AUNT
10 UNCLE
11 COUSIN
12 OTHER RELATIVE
13 OTHER NON-RELATIVE
REFUSED
DON'T KNOW

Is {NAME} {CHILD}{and {TWIN}}'s ...
1 Birth mother,
2 Adoptive mother,
3 Stepmother, or
4 Foster mother or female guardian?
REFUSED
DON'T KNOW

Is {NAME} {CHILD}{and {TWIN}}'s ...
1 Birth father,
2 Adoptive father,
3 Stepfather, or
4 Foster father or male guardian?
REFUSED
DON'T KNOW

Is {NAME} {CHILD}{and {TWIN}}'s ...
1Full sister,
2Half sister,
3Stepsister,
4Adoptive sister, or
5Foster sister?
REFUSED
DON'T KNOW

Is {NAME} {CHILD}{and {TWIN}}'s ...
1Full brother,
2Half brother,
3Stepbrother,
4Adoptive brother, or
5Foster brother?
REFUSED
DON'T KNOW

CODE NON-RELATIVE RELATIONSHIP BELOW IF MORE DESCRIPTIVE.
1 GIRLFRIEND OR PARTNER OF CHILD'S PARENT/GUARDIAN

2 BOYFRIEND OR PARTNER OF CHILD'S PARENT/GUARDIAN
3 FEMALE GUARDIAN
4 MALE GUARDIAN
5 DAUGHTER/SON OF CHILD'S PARENT'S PARTNER
6 OTHER RELATIVE OF CHILD'S PARENT'S PARTNER
91 OTHER NON-RELATIVE
REFUSED
DON'T KNOW

ASK FS040 - FS065 FOR NEXT PERSON ON HOUSEHOLD ROSTER WHO IS NOT FOCAL CHILD, TWIN, OR RESPONDENT.

I have recorded that {CHILD}{and {TWIN}}'s biological father is not living in this household. Is that correct?
1YES
2 NO (RETURN TO MATRIX AND COMPLETE)
REFUSED
DON'T KNOW

Display in column 1 each person enumerated on household roster (at FS040) who is focal child, respondent, mother figure (CODE '1' at FS040), or father figure (CODE '2' at FS040) or respondent's spouse/partner (identified at FS035).

Note: If respondent is mother or father figure, only display his/her name once.

{Are you/Is {NAME}} of Spanish, Hispanic, or Latino origin?
1YES
2 NO (FS085)
REFUSED (FS085)
DON'T KNOW (FS085)

Display in column 1 each person enumerated on household roster (at FS040) who is focal child, respondent, mother figure (CODE '1' at FS040), or father figure (CODE '2' at FS040) or respondent's spouse/partner (identified at FS035).

Note: If respondent is mother or father figure, only display his/her name once.

Which one or more of these groups {are you/is {NAME}}...
CODE ALL THAT APPLY.
SHOW CARD FS1
1 Mexican, Mexican American, Chicano,
2 Puerto Rican,
3 Cuban, or
91 Another Spanish/Hispanic/Latino group (SPECIFY)?
REFUSED
DON'T KNOW

SPECIFY OTHER SPANISH/HISPANIC/LATINO GROUP.
Display in column 1 each person enumerated on household roster (at FS040) who is focal child, respondent, mother figure (CODE '1' at FS040), or father figure (CODE '2' at FS040) or respondent's spouse/partner (identified at FS035).

Note: If respondent is mother or father figure, only display his/her name once.

Please select one or more of the following categories on this card to best describe {your/{NAME}'s} race.
CODE ALL THAT APPLY.
SHOW CARD FS2
1 WHITE (FS089BX)
2 BLACK OR AFRICAN AMERICAN (FS089BX)
3 AMERICAN INDIAN OR ALASKA NATIVE (SPECIFY)
4 ASIAN INDIAN (FS089BX)
5 CHINESE (FS089BX)
6 FILIPINO (FS089BX)
7 JAPANESE (FS089BX)
8 KOREAN (FS089BX)
9 VIETNAMESE (FS089BX)
10 OTHER ASIAN (SPECIFY) (FS087)
11 NATIVE HAWAIIAN (FS089BX)
12 GUAMANIAN OR CHAMORRO (FS089BX)
13 SAMOAN (FS089BX)
14 OTHER PACIFIC ISLANDER (SPECIFY) (FS088)
91 ANOTHER RACE (SPECIFY) (FS089)
REFUSED (FS090BX)
DON'T KNOW (FS090BX)

SPECIFY THE AMERICAN INDIAN TRIBE.
SPECIFY THE OTHER ASIAN RACE.
SPECIFY THE OTHER PACIFIC ISLANDER RACE.
SPECIFY THE OTHER RACE.

CHECK HOUSEHOLD MATRIX.

IF ANOTHER PERSON IN MATRIX TO COLLECT
RACE/ETHNICITY FOR, GO TO FS075 FOR NEXT PERSON.

IF RACE/ETHNICITY COLLECTED FOR RESPONDENT, CHILD/TWIN, FATHER- AND MOTHER-FIGURES, GO TO SECTION CD (CHILD DEVELOPMENT).

SECTION CD -CHILD DEVELOPMENT

IF TWIN IN HOUSEHOLD and currently asking about TWIN, display "As I mentioned…you and your household".

Else use null display.

{As I mentioned earlier, I need to ask some questions specifically about {TWIN}. These questions will not take as long as the first round because I have already asked the general questions about you and your household.} To begin, I have some questions about feeding {CHILD/TWIN}, things that {he/she} can do, and what {he/she} is like.

IF BIOLOGICAL MOTHER IS LIVING IN HOUSEHOLD (IN040 = 1
OR ANY FS045=1),

If respondent is the biological mother (IN040=1), display "you".
Else display "{CHILD/TWIN}'s mother".

Did {you/{CHILD/TWIN}'s mother} ever breast-feed {CHILD/TWIN}?
1YES
2 NO
REFUSED
DON'T KNOW

If respondent is the biological mother (IN040=1), display "Are you." Else display "Is {CHILD/TWIN}'s mother".

{Are you/Is {CHILD/TWIN}'s mother} still breast-feeding {CHILD/TWIN} now?
1 YES (CD025)
2NO
REFUSED
DON'T KNOW

If respondent is the biological mother (IN040=1), display "you".
Else display "{CHILD/TWIN}'s mother".

For how many months did {you/{CHILD/TWIN}'s mother} breast-feed {him/her}?
ENTER 0 IF LESS THAN A MONTH.
ENTER NUMBER OF MONTHS.
REFUSED
DON'T KNOW

If CD015 = 1, display {breast-fed,} and {,} Else, use null display.

During the past 7 days, was {CHILD/TWIN}{breast-fed,} formula-fed{,} or fed regular cow's milk?
1 BREAST-FED
2 FORMULA FED
3COW'S MILK
REFUSED

DON'T KNOW
IF CD025 = 2 (FORMULA FED) OR CD025 = 3 (FED COW'S MILK),

How old was {CHILD/TWIN} in months when you began feeding {him/her} formula?
IF CHILD HAS NEVER BEEN FED FORMULA, ENTER 995.
IF CHILD WAS LESS THAN 1 MONTH OLD WHEN FIRST FED FORMULA, ENTER 0.
ENTER NUMBER OF MONTHS.
REFUSED
DON'T KNOW
IF CD025 = 3 (FED COW'S MILK), GO TO CD040.
ELSE, GO TO CD045.

How old was {CHILD/TWIN} in months when you began feeding {him/her} cow's milk?
IF CHILD WAS LESS THAN 1 MONTH OLD WHEN FIRST FED COW'S MILK, ENTER 0.
ENTER NUMBER OF MONTHS.
REFUSED
DON'T KNOW

How old was {CHILD/TWIN} in months when solid food was first introduced? Solid foods include cereal and baby food in jars, but not finger foods.
IF CHILD HAS NOT YET STARTED EATING SOLID FOOD, ENTER 995.
ENTER NUMBER OF MONTHS.
REFUSED
DON'T KNOW

How old was {CHILD/TWIN} in months when {he/she} was first given finger foods, such as Cheerios, teething biscuits, crackers, bread, noodles, rice, grits, tortillas, or potatoes?
IF CHILD NOT GIVEN FINGER FOODS, ENTER 995.
ENTER NUMBER OF MONTHS.
REFUSED
DON'T KNOW

Is {CHILD/TWIN} able to drink from a self-held cup?
1YES
2 NO
REFUSED
DON'T KNOW
(CD070)
(CD070)
(CD070)

How old was {CHILD/TWIN} in months when {he/she} began drinking from a self-held cup?
ENTER NUMBER OF MONTHS.
REFUSED
DON'T KNOW

Is {CHILD/TWIN} able to feed {him/her}self?
1YES
2 NO (CD080)
REFUSED (CD080)
DON'T KNOW (CD080)

How old was {CHILD/TWIN} in months when {he/she} started feeding {him/her}self?
REFUSED
DON'T KNOW

How old was {CHILD/TWIN} in months when {he/she} started to...
CD080 Sit alone, steady, without support?
CD190 Crawl on hands and knees?
CD100 Pull {him/her}self to a standing position?
CD110 First walk while holding on to something, such as furniture?
ENTER NUMBER OF MONTHS.
ENTER 95 IF CHILD HAS NOT DONE YET.
REFUSED
DON'T KNOW

Now I have some descriptions about what babies may be like at {CHILD/TWIN}'s age. For each description, please tell me if {CHILD/TWIN} is never like this, used to be like this, is like this sometimes, or is like this most times.
a. {CHILD/TWIN} is frequently irritable or fussy.
b. {He/She} goes easily from a whimper to an intense cry.
c. {He/She} demands your attention and company constantly.
d. {He/She} wakes up 3 or more times in the night and is unable to go back to sleep.
e. {He/She} needs a lot of help to fall asleep (e.g., rocking, long walks, stroking hair, car rides, etc.).
f. {He/She} startles or is upset by loud sounds such as a vacuum, doorbell, or barking dog.
g. {He/She} is unable to wait for food or toys without crying or whining
SHOW CARD CD1
0 NEVER
1 USED TO BE
2 SOMETIMES
3 MOST TIMES
REFUSED
DON'T KNOW

Please rate the overall degree of difficulty {CHILD/TWIN} would present for the average parent to raise.
Would you say...
1 Not at all difficult,
2 Not very difficult,
3 About average,
4 Somewhat difficult, or
5 Very difficult?
REFUSED
DON'T KNOW

SECTION HE -HOME ENVIRONMENT

The next questions are about {CHILD}{and {TWIN}}'s family life, including the language spoken in your home.

Is any language other than English regularly spoken in your home?
1YES
2 NO (HE040)
REFUSED (HE040)
DON'T KNOW (HE040)

What languages other than English are spoken in your home? HELP AVAILABLE
CODE ALL THAT APPLY.
1 ARABIC
2 CHINESE
3 FILIPINO LANGUAGE
4 FRENCH
5 GERMAN
6 GREEK
7 ITALIAN
8 JAPANESE
9 KOREAN
10 POLISH
11 PORTUGUESE
12 SPANISH
13 VIETNAMESE
14 AFRICAN
15 EAST EUROPEAN
16 NATIVE AMERICAN
17 SIGN LANGUAGE
18 MIDDLE EASTERN
19 WEST EUROPEAN
20 INDIAN SUBCONTINENT
21 SOUTHEAST ASIAN
22 PACIFIC ISLAND

91 SOME OTHER LANGUAGE (SPECIFY)
REFUSED
DON'T KNOW

[What languages other than English are spoken in your home?] HELP AVAILABLE
ENTER OTHER LANGUAGES SPOKEN.

Is English also spoken in your home?
1YES
2NO
REFUSED
DON'T KNOW

What is the primary language spoken in your home?
CODE '23' IF RESPONDENT CANNOT CHOOSE A PRIMARY LANGUAGE.
0 ENGLISH (HE023)
1 ARABIC (HE023)
2 CHINESE (HE023)
3 FILIPINO LANGUAGE (HE023)
4 FRENCH (HE023)
5 GERMAN (HE023)
6 GREEK (HE023)
7 ITALIAN (HE023)
8 JAPANESE (HE023)
9 KOREAN (HE023)
10 POLISH (HE023)
11 PORTUGUESE (HE023)
12 SPANISH (HE023)
13 VIETNAMESE (HE023)
14 AFRICAN (HE023)
15 EAST EUROPEAN (HE023)
16 NATIVE AMERICAN (HE023)
17 SIGN LANGUAGE (HE023)
18 MIDDLE EASTERN (HE023)
19 WEST EUROPEAN (HE023)
20 INDIAN SUBCONTINENT (HE023)
21 SOUTHEAST ASIAN (HE023)
22 PACIFIC ISLAND (HE023)
23 CANNOT CHOOSE (HE023)
91 SOME OTHER LANGUAGE (SPECIFY)
REFUSED (HE023)
DON'T KNOW (HE023)

[What is the primary language spoken in your home?]
ENTER OTHER PRIMARY LANGUAGE.

What is your primary language?

PROBE: What language do you speak the most?
1 ENGLISH (HE028BX)
2 SPANISH
3 OTHER LANGUAGE

How well do you...
a. Speak English?
b. Read English?
c. Write English?
d. Understand someone speaking English?
Would you say very well, pretty well, not very well, or not well at all?
1 VERY WELL
2 PRETTY WELL
3 NOT VERY WELL
4 NOT WELL AT ALL
REFUSED
DON'T KNOW

IF HE010 HAS MORE THAN ONE LANGUAGE SELECTED (1-22 OR 91), OR
HE010 HAS EXACTLY ONE LANGUAGE SELECTED AND
HE015=1 (ENGLISH ALSO SPOKEN IN THE HOUSEHOLD), OR
HE010=DK OR RF (DON'T KNOW OR REFUSED) AND HE015=1
(ENGLISH ALSO SPOKEN IN THE HOUSEHOLD), GO TO HE030

CAPI ROSTER INSTRUCTION:

Display in column 1 each person enumerated in the Introduction (IN035) or on household roster (FS040) who meets any of the following conditions:
Is the respondent,
Is a mother figure (CODE '1' at IN035/FS040),
Is a father figure (CODE '2' at IN035/FS040),
Is the partner of child's parent (CODE '5' or '6' at IN035/FS040),
Or is the respondent's spouse.

APENDIX B

RESIDENT FATHER QUESTIONNIARE

An important part of this study is to learn more about the types of things fathers do with their young children and how they feel about their children.

Q1. Are you the child's...
Mark (X) one
Birth father,
Adoptive father,
Stepfather,
Foster father or male guardian, or
Do you have some other relationship to child? *Please specify*
_____

Q2. In a typical week, how often do you do the following things with your child? Would you say not at all, once or twice, 3 to 6 times, or every day:
For each item, mark (X) one response
Not at all
Once or twice
3 to 6 times
Everyday
a. Read books to your child? .....
b. Tell stories to your child? .....
c. Sing songs with your child? .....
d. Take your child along while doing errands like going to the post office, the bank, or the store? .....

Q3. In the past month, how often did you do the following things with your child? Was it more than once a day, about once a day, a few times a week, a few times a month, rarely, or not at all?
For each item, mark (X) one response
Rarely would be once a month.
More than once a day
About once a day
A few times a week
A few a month
Rarely
Not at all
a. Change your child's diaper?.....
b. Prepare meals or bottles for your child? .....
c. Feed your child or give your child a bottle? .....
d. Play peek-a-boo with your child? .....
e. Hold him/her? .....

f. Do things like tickle your child, blow on his/her belly, or move his/her arms and legs around in a playful way? .....
g. Put your child to sleep? .....
h. Wash or bathe your child? .....
i. Take your child outside for a walk or to play in the yard, a park, or a playground?.....
j. Dress your child? .....

Q4. When the following things happen or need to be done, how often are you the one who does them? Do you always, often, sometimes, rarely, or never do them?
For each item, mark (X) one response
Always
Often
Sometimes
Rarely
Never
a. Get up with your child when he/she wakes up during the night? .....
b. Soothe your child when he/she is upset? .....
c. Take your child to the doctor? .....
d. Stay home to care for your child when he/she is ill? .....
e. Take your child to or from the sitter or day care center? .....

Q5. How often do you feel the following ways or do the following things?
For each item, mark (X) one response
All of the time
Some of the time
Rarely
Never
a. You talk a lot about your child to your friends and family .....
b. You carry pictures of your child with you wherever you go.....
c. You often find yourself thinking about your child .....
d. You think holding and cuddling your child is fun .....
e. You think it's more fun to get your child something new than to get yourself something new .....

This next set of questions asks about how you think most young children act, how they grow, and how to care for them. Please answer each of the following questions based on young children in general, not about your child and how he or she acts. Think about what you know about young children you have had contact with or anything you have read.

Q6. For each of the following statements, say whether, for most young children, you agree or disagree with the statement, or are not sure.
For each item, mark (X) one response
Agree
Disagree
Not sure

a. All infants need the same amount of sleep .....
b. A young brother or sister may start wetting the bed or thumbsucking when a new baby arrives in the family.....
c. A child thinks he or she is speaking correctly even when he or she says words and sentences in an unusual or different way, like "I goed to town" or "What the dollie have?" .....
d. Children learn all of their language by copying what they have heard adults say .....

Q7. The next statements are about the age at which young children can first do something. If you think the age is about right, say you agree. If you don't agree, please say whether you think a child is younger or older when they can first do these things. If you aren't sure, mark the not sure box.
For each item, mark (X) one response
Agree
Older
Younger
Not sure
a. A 1-year-old knows right from wrong. .....
b. A baby will begin to respond to her name at 10 months.....
c. Most infants are ready to be toilet trained by 1 year of age.....
d. A baby of 12 months can remember toys he has watched being hidden .....
e. One-year-olds often cooperate and share when they play together.....
f. A baby is about 7 months old before she can reach for and grab things .....
g. A baby usually says his first real word by 6 months of age ...

We would also like to learn more about how often parents are separated from their children either overnight or for longer periods. This may happen for many reasons. Parents may travel for job-related reasons or might need to take care of family matters away from home. It may also happen because the child is hospitalized or stays with relatives, such as grandparents, for a while.

Q8. Since your child came home after birth, have there ever been periods of one week or more when you and the child did not live together, either because you were away from home or the child was away from home?
Yes
No [*Skip to statement before Q10*]

Q9. Since your child was born, how many times have you and the child been separated for one week or more?
|__|__| TIMES

We want to learn more about how parents with young children decide about using child care for their children.

Q10. Does your child now receive child care on a regular basis from someone other than you or your spouse/partner?
Regular basis means scheduled at least once each week. Do not include occasional baby-sitting or back-up care.
Yes
No [*Skip to Q12*]

Q11. How much were you involved in making the decision about your child's current child care arrangement?
Mark (X) one
A great deal
Somewhat
Not at all
} *Skip to statement before Q13*

Q12. How much were you involved in making the decision not to use any child care?
Mark (X) one
A great deal
Somewhat
Not at all

Now we have some questions about the care you provide for your child.

Q13. In the past month, how often have you looked after your child while your spouse/partner did other things? Was it ...
Mark (X) one
Every day or almost every day,
A few times a week,
A few times a month,
Once or twice, or
Never? [*Skip to box before Q16*]

Q14. Do you look after your child on a regular basis while your spouse/partner does other things outside of the home?
Regular basis means scheduled at least once each week.
Yes
No [*Skip to box before Q16*]

Q15. About how many hours each week do you usually care for your child while your spouse/partner is not home?
|___|___| NUMBER OF HOURS

NOTE: *The next few questions are* ***ONLY*** *for the child's father (i.e. biological, step, adoptive, or foster).*
If you are NOT the child's father, please check here and skip to box before Q25.

Q16. Here are some statements that men have made about their role as fathers. For each of the following statements, please indicate whether you strongly agree, agree, disagree, or strongly disagree with the statement.

For each item, mark (X) one response

Strongly agree
Agree
Disagree
Strongly disagree

a. It is essential for the child's well being that fathers spend time playing with their children.....
b. It is difficult for men to express affectionate feelings toward babies.....
c. A father should be as heavily involved as the mother in the care of the child.....
d. The way a father treats his baby has long-term effects on the child .....
e. The activities a father does with his children don't matter. What matters more is whether he provides for them.....
f. One of the most important things a father can do for his children is to give their mother encouragement and emotional support .....
g. All things considered, fatherhood is a highly rewarding experience .....

Q17. Fathers do many things for their children. Of the list of things below, which 3 do you think are most important for you, as a father, to do?

Please rank them by entering 1 (most important), 2 (second most important), and 3 (third most important) next to the 3 things you think are the most important for you to do. ***Select only three.***

Rank your top three

|___| Showing my child love and affection
|___| Taking time to play with my child
|___| Taking care of my child financially
|___| Giving my child moral and ethical guidance
|___| Making sure my child is safe and protected
|___| Teaching my child and encouraging his or her curiosity

VITA

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Education

2004 - present M.S. Candidate in Psychology, Old Dominion University
Master's Thesis title: *Factors of paternal involvement and their association with developmental outcomes of nine-month olds*

2002 B.S. in Psychology (minor in Sociology), Old Dominion University

Employment

- 2009-present: Senior Consultant, Booz Allen Hamilton
- 2004-present: Lead Facilitator, Health Families Partnership
- 2006-2009: Research Associate, Eastern Virginia Medical School
- 2005-2006: Graduate Research Assistant, Old Dominion University
- Fall 2005: Peer Mentor Graduate Level Research Methods course, ODU
- 2004-2005: Research Participation Administrator, Old Dominion
- 2004: Residential Counselor, Barry Robinson
- 2002-2004: Research Assistant, Eastern Virginia Medical School

Awards

- 2009: Performance and Team Award, CCJO Experimentation Project, Booz Allen Hamilton
- 2006: NIAAA/NIDA Early Career Poster, American Psychological Association Convention

Publications

- Paulson, J. F., Keefe, H. A., & Leiferman, J. A. (2008). Early parental depression and language development, Journal of Child Psychology and Psychiatry.
- Kelley, M. L., French, A., Bountress, K., Keefe, H. A., Schroeder, V., Steer, K., et al. (2007). Parentification and family responsibility in the family of origin of ACOAs, *Addictive Behaviors, 32*, 675-685.

Presentations

- 2009: Keefe, H. A., Bazemore, S. D., Farr, K., & Paulson, J. F., *Fathers' actual versus ideal knowledge of early child development,* American Psychological Association Annual Conference, Toronto, Canada
- 2008: Keefe, H. A., Farr, K., & Paulson, J. F., *Preparation and education for new and expecting fathers: A needs assessment,* American Psychological Association Annual Conference, Boston, MA
  Paulson, J. F., & Keefe, H. A., *When mom is depressed: Protective effects of early father involvement,* American Psychological Association Annual Conference, Boston, MA
  Cooke, C. G., Paulson, J. F., Keefe, H. A., & Voss Horrell, S., *Who makes who depressed? Relationship quality in parental depression,* American Psychological Association Annual Conference, Boston, MA
- 2007: Keefe, H. A., Paulson, J. F., & Winstead, B. A., *Factor analysis of father involvement,* American Psychological Association Annual Conference, San Francisco, CA