

WHAT ABOUT DAD? ADJUSTING TO PARENTING AND FACILITATING  
CHILDREN'S DEVELOPMENT

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The present study used latent growth curve modeling to examine trajectories of parenting attitudes among fathers with young children. Eighty-seven men were recruited to participate in a longitudinal study of fatherhood. Information was obtained regarding their personal demographic factors, histories of child maltreatment, socioemotional functioning, and parenting attitudes and beliefs over the first 24 months of their children's lives. Results showed that fathers who had experienced abuse or neglect as children had less positive attitudes about parenting. In addition, at each time of measurement, fathers' socioemotional functioning was related to their parenting attitudes. Life stress and externalizing behaviors were associated with less optimal parenting attitudes, whereas fathers with higher-self efficacy were more likely to have more positive attitudes toward parenting. Finally, fathers who had more positive parenting beliefs had children with greater levels of sustained attention at 24 months. These findings have implications for developing theories of fatherhood that take into account multiple factors that influence both fathers and their children's development.

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## INTRODUCTION

Since the early 1980's, there has been a growing interest in the role of fathers in child development (Lamb, 2000; Marsiglio, 1993; Parke, 1981). Early researchers such as Michael Lamb and William Marsiglio laid the foundation for conducting research with fathers. Others played key roles in describing measurement strategies appropriate for assessing father involvement (Hawkins & Palkovitz, 1999; Lamb, Pleck, Charnov, & Levine, 1987; Palkovitz, 1997). In an important review article, Marsiglio, Amato, Day, and Lamb (2000) summarized the growth of the field throughout the 1990's. During this time, father research focused on four key areas: (1) identifying the cultural expressions of fatherhood, (2) defining diverse forms of father involvement, (3) understanding developmental processes by which fathers influence their children, and (4) exploring the formation of fatherhood identity among men. This research has been defined in a sociopolitical landscape in which gender roles have undergone significant changes, with increased participation in the workforce by women accompanied by a growing number of fathers who are the primary caregivers for their children (Marsiglio et al., 2000).

In the last decade, researchers examining the influence of fathers on child development have begun to focus more attention on fathers in high-risk families, exploring relationships between fathers' personal characteristics and their involvement in childcare, and subsequent developmental outcomes for children (Tamis-LeMonda & Cabrera, 2002). A number of nationally representative studies (e.g., Fragile Families and Child Well-Being, Early Childhood Longitudinal Study, and Early Head Start) have

included fathers in their design in order to systematically collect information regarding fathers and their children.

Understanding the ways that fathers influence their children's development is particularly important given the evidence suggesting that father absence is associated with negative consequences for children. For instance, Lykken (2001) demonstrated that children who did not live with their fathers were at a significantly elevated risk to experience incarceration. Other studies have linked father absence to teenage pregnancy (Ellis et al., 2003), school dropout (McLanahan & Sandefur, 1994), and mental health problems (Flouri & Buchanan, 2003).

In addition to identifying outcomes associated with father absence, other researchers have shown that fathers are influential in their children's development, even when they do not reside with their children. Howard, Lefever, Borkowski, & Whitman (in press) found that in a sample of adolescent mothers and their children, father presence over the first 8 years of life was associated with lower levels of aggression and hyperactivity, as well as higher achievement in reading and math. The results of this study remained significant after controlling for maternal intelligence and problem behaviors. Father involvement also provided a buffer against high levels of maternal risk, with children who had father involvement continuing to have positive outcomes, regardless of maternal risk (Howard et al., in press). Fathers' involvement with their sons has also been shown to buffer children from extreme victimization. In a study of bullying and life satisfaction in the UK, children reported higher levels of life satisfaction irrespective of whether or not they were bullied when their fathers were highly involved in their lives (Flouri & Buchanan, 2002b). Furthermore, positive maternal characteristics

such as quality parenting and high levels of personal resources have been shown to buffer children from the negative effects of father absence (Ricciuti, 2004). Conversely, if fathers engage in a high degree of antisocial behaviors, then their children are at a greater risk for conduct problems if they reside with their fathers than if they are raised by a single mother (Jaffee, Moffitt, Caspi, & Taylor, 2003).

Even among fathers who live with their children and are involved in their daily lives, there are important distinctions regarding their levels of involvement with children, or with the family in general. A recent study of first time parents revealed that married fathers were associated with higher quality home environments and more responsive maternal parenting practices than any other group of fathers (cohabiting, non-resident partners, contact only, or no contact; Howard, Borkowski, & the Centers for the Prevention of Child Neglect, under review). In addition, father involvement mediated the relationship between father status and parenting outcomes such that fathers with a higher level of relationship status (e.g., married fathers) had higher levels of involvement with their children, which in turn predicted higher quality of both home environments and maternal parenting. The extant literature suggests that family structure may also influence children's outcomes directly. For example, Flouri and Buchanan (2002a) have demonstrated that adolescent delinquency marked by trouble with the police was predicted from having a nonresident father during childhood.

The present study moves beyond simply defining outcomes associated with father presence or absence. Instead, it identifies predictors of parenting attitudes and children's development. Using latent growth curve modeling, trajectories of fathers' parenting beliefs over an 18 month period were used to predict their children's outcomes at 24

months. The current study utilized a unique data set on a diverse group of fathers of young children; its primary contributions were in assessing fathers over time, using their trajectories to predict child outcomes, and in advancing a theoretical framework for understanding father involvement. Although a number of other studies have examined transitions to parenting or adjustments to parenting, few have examined relationships between paternal characteristics and child outcomes using more than two waves of data.

The next sections contain reviews of major studies of fathers, making the distinction between transitions to parenting and adjustments to parenting. Studies that explore the transition to parenting identify a group of men before they have children, typically in childhood or adolescence, and follow them prospectively through the time that they become parents. Studies of this nature elucidate predictors of early parenting and the processes associated with becoming a father among young men. In contrast, studies of the adjustment to parenting examine characteristics of fathers beginning at some point after the birth of their child(ren), examining factors related to father involvement with children and relating paternal characteristics to children's outcomes. The majority of the studies presented here are part of the Developing a Daddy Survey Initiative (DADS; Cabrera, Moore et al., 2004). The DADS Initiative represents a coalition of researchers examining both predictors and outcomes of fatherhood in a number of large-scale surveys. The goal of the initiative is to coordinate measurement across fatherhood research projects in order to ensure comparability between studies of fathers.

*Transitions to Parenting: Becoming a Father*

Studies that explore the processes of becoming a father employ samples of men and adolescent boys who have yet to have children at the start of the study. By following these individuals over a number of years, many become fathers and it is possible to identify characteristics of those who become fathers as adolescents versus those who delay parenting until adulthood. Three studies that are included in the DADS Initiative (Cabreera, Moore et al., 2004) contain the type of data that would allow for such prospective analyses of transitions to parenting (The National Longitudinal Survey of Youth, the National Survey of Family Growth, and the National Longitudinal Study of Adolescent Health); however, few such investigations have been conducted to date. In addition to the studies in the DADS Initiative, the Oregon Youth Study (Capaldi & Patterson, 1987) and the Dunedin Multidisciplinary Health and Development Study (Silva & Stanton, 1996) also provide insights into the process of becoming a father.

*DADS Initiative Studies.* The National Longitudinal Survey of Youth, 1997 Cohort (NLSY-97), was the third in a series of longitudinal surveys sponsored by the Bureau of Labor Statistics. The primary goal of the project was to study transitions to the work force, but since the sample was made up of youth between the ages of 12 and 16, family formation could also be examined (cf. Michael & Pergamit, 2001). Although few studies have begun to explore these transitions among young men, research conducted on earlier NLSY cohorts has identified marital status and being raised by foster parents as predictors of childbearing in adulthood. More specifically, individuals who were raised by foster parents had high rates of births per year early in adulthood that quickly decelerated by their mid-20's – suggesting that these individuals had their children early

in adulthood (Schmitz, 2005). In another NLSY study, adolescents' self-esteem after becoming fathers was predicted by their mothers' level of education (Thompson, Osteen, & Youngker, 2001). Finally, the NLSY also has been used to examine the transition to parenting among young women. Using hazard models to predict the likelihood of nonmarital childbirth, Powers (2001) showed that a non-Hispanic White woman who had a sister who was unmarried when she gave birth to her first child had a 50% increased chance of also having a nonmarital first birth. Among Black women, this chance increased by only 14% (Powers, 2001).

The second DADS initiative study with appropriate data for examining the processes of becoming a father was the National Survey of Family Growth (NSFG). The 2002 sample was the sixth cycle of NSFG data collection on household populations in the United States (individuals aged 18-24). It was sponsored by the National Center for Health Statistics. The primary goal of the study was to understand the composition of households in the U.S. A number of sociologists and demographers have regularly used the NSFG data sets to explore patterns of marriage and cohabitation (Manning, 2004; Manning & Smock, 2002; Teachman, 2003). Findings from the NSFG have shown that females do not typically engage in sexual activity with men who are significantly older than they are. Relatedly, the number of children born to teen mothers who are fathered by adult men has declined in the last several decades with corresponding increases in the number of children fathered by teens (Elo, King, & Furstenberg, 1999).

Finally, the National Longitudinal Study of Adolescent Health (Add Health) also has the potential to study young men as they transition to parenting. It is the largest and most comprehensive study of adolescent health and development to date. The original

sample, recruited in 1994, consisted of 20,745 adolescents ranging from grades 7-12 (Bearman, Jones, & Udry, n.d.). Although questions concerning becoming a father were asked systematically within the study, there have been no empirical examinations of the transition to parenthood in this dataset. The Add Health data has, however, been used to identify characteristics of early initiation of sexual intercourse among adolescents.

Among males, being Black, having been involved in a romantic relationship, and having experience with kissing or necking predicted initiation of intercourse by the age of 15 (Mcneely, Shew, Beuhring, Sieving, Miller, & Blum, 2005)

*Oregon Youth Study.* The Oregon Youth Study (OYS), in contrast to the national surveys previously described, was designed for the specific purpose of identifying correlates of delinquency among adolescent males, particularly as it related to early entry to parenthood. The sample was made up primarily of White men who were assessed annually from age 9 to 26. These men were at-risk for early deviance because of the high-risk neighborhoods in which they lived (cf. Leventhal & Brooks-Gunn (2000) for an explanation of risks associated with poor neighborhood quality). It was anticipated that the elevated risk for antisocial and delinquent behaviors would impact the timing of fatherhood for these young men (Capaldi & Patterson, 1987; Pears, Pierce, Kim, Capaldi, & Owen, 2005).

Results from the OYS concerning the transition to parenting have shown that 17% (n=35) of the sample had become fathers before the age of 20 (Fagot, Pears, Capaldi, Crosby, & Leve, 1998). The 35 men who became fathers during adolescence had poorer academic performance and lower family incomes than the men who did not have children. Further, the teen fathers displayed higher rates of antisocial behavior including

more arrests and substance use, and lower rates of high school completion than other participants who did not become fathers (Fagot et al., 1998). Early entry into fatherhood was also predicted by having a mother who was young when she had her first child (Pears et al., 2005). A large percentage (40%) of these young fathers did not actively engage in their children's lives and did not have contact with their children by 2 years of age. Children of adolescent fathers in the OYS had more health risks, and experienced more negative parenting from their mothers and fathers, than children in a control sample (Fagot et al., 1998).

*Dunedin Multidisciplinary Health and Development Study.* The Dunedin Multidisciplinary Health and Development Study is a birth cohort study of individuals born in New Zealand in the early 1970's and followed from age 3 to 32. The study has had minimal rates of attrition with 97.3% completing the 21 year assessment (Silva & Stanton, 1996). A paper by Jaffee, Caspi, Moffitt, Taylor, and Dixon (2001) examined the characteristics of the 94 men (19%) who had fathered a child by the time of the 26 year assessment. Men ranged in age from 14 to 26 when they became fathers, but all were considered to have entered parenting early as the mean age for men to become fathers in New Zealand was 29. Similar to the findings of Pears et al. (2005), having a mother who was a teen when she gave birth to her first child significantly predicted early fatherhood. In addition, living with a single parent, early initiation of sexual activity, conduct disorder, and plans to leave school before age 16 were all significant predictors of early fatherhood (Jaffee et al., 2001). After identifying those individuals who made early transitions to fatherhood in the Dunedin sample, further analyses were conducted to explore differences between those fathers who lived with their children and those who

did not. The likelihood of co-residence decreased if fathers had a history of a poor relationship with their parents, or if they had conduct disorders. Fathers who lived with their children only some of the time or not at all were more likely to have low SES, high levels of negative emotionality and anxiety, problems with substance use, domestic violence, trouble with the law, and financial problems, than fathers who lived with their children full time (Jaffee et al., 2001). In a separate study using the Dunedin sample, it was found that although the quality of maternal parenting was predicted by her child-rearing experiences, this was not the case for fathers. These results suggest that for young fathers who are involved with their children, negative childhood experiences with their parents do not necessarily negatively impact their parenting behaviors with their own children (Belsky, Jaffee, Sligo, Woodward, & Silva, 2005).

#### *Adjustments to Parenting: Being a Father*

Research projects that examine the processes associated with being a father allow researchers to specifically examine the impact of fathers on their children's development. Although a number of studies of middle class families have included perspectives from both mothers and fathers (e.g., Crouter, Bumpas, Davis, & McHale, 2005; Galambos, Barker, & Almeida, 2003), fewer studies have examined the roles and importance of fathers in higher-risk families, though they have formed the foundation for a growing body of literature on the impact of fathers in high-risk families on their children's development.

*Fragile Families and Child Well-Being.* The Fragile Families and Child Well-Being Study (FF) was a population based longitudinal study of families of young

children, directed by Sara McLanahan and Irwin Garfinkel that began in 1998. The Fragile Families data included mother and father interviews from birth to 9 years and was a nationally representative sample of unmarried parents living in cities with populations greater than 200,000. These families were considered fragile because of the many risk factors associated with nonmarital childbearing and the instability of the parental relationship (Carlson & McLanahan, 2004). Baseline data were collected for 4700 families in hospitals at the time of the birth of the target child. Families were recruited in 20 large cities throughout the country that were selected because of the diversity in their social policy implementation regarding welfare generosity, child support enforcement, and the strength of the labor market (Reichman, Teitler, Garfinkel & McLanahan, 2001). In addition to telephone interviews conducted with mothers and fathers, in home assessments were conducted to assess target children when they were 3 and 5 years old.

The primary focus of fatherhood research in the Fragile Families study has been to understand which fathers are most likely to remain involved in their children's lives, despite the fragility of the father-mother relationship. Among unmarried fathers in the project, most claim to value marriage very highly (Waller & McLanahan, 2005), but one year after the birth of their child, only 10% were married. By two years after the child's birth, 20% of fathers no longer had any contact with their children (McLanahan & Carlson, 2004). Fathers who were involved with their children did have some degree of investment, even if they were not married. Those who provided child support (formal and informal) and visitation were significantly more likely to have formally established paternity (Mincy, Garfinkel, & Nepomnyaschy, 2005).

Another important set of findings from the Fragile Families study involved the conditions under which unmarried parents chose to marry. Different predictors have been identified for cohabiting couples and those who do not live together: Among cohabiters, maternal education level predicted marriage, whereas for nonresident fathers, maternal income was more strongly related to marriage than education (Osborne, 2005). Regardless of residential status, Mexican American and White couples were significantly more likely to marry soon after the birth of a child than African American couples, largely due to the undersupply of employed African American men (Harknett & McLanahan, 2004). Finally, welfare conditions have also been shown to impact marriage practices among these families. The likelihood of marriage among unmarried parents was higher in regions that employed generous welfare benefits and had strict enforcement of child support regulations. Additionally, the strength of the labor market was potentially related to family formation, as fathers who were employed were more likely to marry (Mincy & Dupree, 2001).

*Early Childhood Longitudinal Study—Birth Cohort.* The Early Childhood Longitudinal Study—Birth Cohort (ECLS-B) was the first study in the United States to track a nationally representative sample of children from birth to school entry. It was conducted by the National Center for Education Statistics' Early Childhood Longitudinal Studies Program. The ECLS-B data included mother interviews, direct child assessments, and father self reports when children were 9, 18, 30, and 48 months and at the start of both kindergarten and first grade. Baseline data were collected for 13,500 families of infants born in 2001. Families were recruited in 100 primary sampling units throughout the United States using a two-stage, stratified design. Resident fathers completed a 20

minute self-administered questionnaire covering a range of topics from paternal demographics to parenting beliefs and his marital/partner relationships. Each non-resident father responded to a separate survey that took about 10 minutes to complete and included questions concerning child support, amount of time spent with his child and the quality of the relationship with his child's mother (cf. Cabrera et al., 2002; Cabrera, Moore et al., 2004).

Data collection for the ECLS-B is ongoing, and the available results concerning fathers are limited. However, reports based on baseline data of children born in 2001 identified a number of descriptive features of father involvement in the sample. When the infants were 9 months old, 20% did not live with their fathers. Living apart from their biological fathers was significantly more common among infants who were Black (58%), or living at or below the poverty line (45%). Among the 20% of infants who did not live with their fathers, 13% had never seen their fathers. Interestingly, although Black infants were less likely than other groups to live with their fathers, they were significantly more likely to have regular contact with their nonresident fathers (Flanagan & West, 2004). Results specific to Native American families in the sample found that 24% of infants did not reside with their fathers (47% who were at or below the poverty line). Of those infants who did not live with their fathers, 8% had never had any contact (Flanagan & Park, 2005).

*Early Head Start Research and Evaluation Project Father Studies.* The Early Head Start Research and Evaluation Project was a national evaluation of Early Head Start programs conducted at 17 sites around the country. At 12 of the sites, various father studies were also included, examining both biological and social fathers whose children

participated in the Early Head Start Research and Evaluation Project and/or received Early Head Start services. The overall goals were to illustrate the characteristics of the biological and social fathers of Early Head Start children, to examine their involvement with their children, and to describe the ways in which Early Head Start programs facilitated this involvement (Cabrera, Moore et al., 2004). The EHS Father Study was among the first to investigate involvement of low-income fathers in children's lives, suggesting strategies and services for facilitating this involvement. The father studies consist of four strands of research: (1) Father involvement with Toddlers Study (EHS-FITS); (2) Father and Child Interactions during Toddlerhood Study (EHS-FACITS); (3) Father and Newborn Study (EHS-FANS); and (4) Fatherhood Program Participation and Service Use Study (EHS-F-PASS). The EHS-FITS study is the largest father study of the four strands and was conducted in 12 of the 17 sites when children were 24 and 36 months old. Fathers were recruited through mothers who were already enrolled in the project. Approximately 60% of mothers identified fathers, and 60% of fathers who were contacted agreed to participate, resulting in 820 father assessments. For the EHS-FACITS study, approximately 320 FITS fathers at 7 sites participated in video-taped father-child interactions at 24 and 36 months. For the EHS-FANS study, 200 fathers were interviewed at 1, 3, 6, 14, and 24 months. Father-child interactions were also conducted when children were 6, 14, and 24 months. The EHS-F-PASS study examined father participation in EHS services, but fathers were not interviewed directly (cf. Cabrera et al., 2002).

A number of empirical papers have emerged from the Early Head Start Father Studies. In fact, an entire issue of the journal *Fatherhood* was devoted to these findings

(cf. Cabrera, 2004). Results from the EHS studies tend to focus on the specific relationships between fathers and their children, utilizing observational data on parenting. These papers provide rich interpretations of the role of fathers in children's development, based on actual observations of paternal parenting. Because the EHS father studies were comprised of several different data sets, each of the published articles have been based on slightly different subsamples of fathers.

Early studies using the EHS father data examined ways in which fathers who participated in the studies were different than those who did not. Because participants for studies of fathering are generally recruited through their children's mothers, samples of fathers tend to be biased toward more involved dads, either because mothers refuse to give contact information for uninvolved fathers, or because fathers with minimal or no involvement with their children are not likely to participate in a series of interviews regarding their relationships with their children. The EHS studies were no exception: Mothers who reported living with their child's father were more likely to be married, older, more educated, and more likely to be White or Latina than mothers who reported that their child's biological father was nonresident (Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). The final sample of fathers who consented to participate in the research had higher levels of educational attainment, and were more likely to be married than fathers who did not participate. However, maternal age and educational level, paternal age and employment, and children's cognitive development were unrelated to paternal participation (Tamis-LeMonda et al., 2004). Fathers who participated in the research were also more highly involved with their children and with Early Head Start programs and services than fathers who did not participate, with resident fathers being more

involved with their children than nonresident fathers (Cabrera, Shannon et al., 2004; Roggman, Boyce, Cook, & Cook, 2002; Shannon, Tamis-LeMonda, London, & Cabrera, 2002).

In a recent study, Shannon, Tamis-LeMonda, and Margolin (2005) examined father-child relationships among 60 fathers whose 6-11 month old children were enrolled in Early Head Start in New York City. Interviews with fathers included a videotaped father-child interaction which was later coded for responsiveness and overbearing behaviors utilizing the Caregiver-Child Affect, Responsiveness, and Engagement Scale (C-Cares; Tamis-LeMonda, Rodriguez, Ahuja, Shannon, & Hannibal (2002). Results revealed that fathers engaged in more responsive than overbearing behaviors, and that a combination of paternal protective factors predicted responsive interactions. Fathers who lived with their infants, were married, had completed high school, had income above the sample median, and had accepting childhood relationships with their own fathers were significantly more likely to engage in warm and responsive interactions with their infants than fathers who lacked these protective factors (Shannon et al., 2005). In another study of 64 fathers, 24-month-old children were assessed using the same procedure described above. Again, results indicated that fathers used high levels of responsiveness and low levels of overbearing behaviors when interacting with their children. Positive father-child interactions, marked by high responsiveness were strongly related to children's normal cognitive development, whereas fathers whose interactions lacked responsiveness were more likely to have infants whose cognitive development was below the normal range at 24 months (Shannon et al., 2002). A third study of 74 fathers and their 24 month old children also confirmed relationships between the complexity of toy play in father-child

interactions and better cognitive and social development outcomes for children. Further, the quality of father-child interactions was generally higher among fathers who received EHS services as compared to a control group (Roggman, Boyce, Cook, Christiansen, & Jones, 2004). Taken together, these findings indicate relationships between fathers' demographic characteristics and childhood experiences, the quality of interaction that they engage in with their children, and children's developmental outcomes.

Unfortunately, these three studies have examined predictors and outcomes at the same point in time, thus limiting the ability to make statements concerning the processes involved in these relationships.

In contrast to the studies conducted by Shannon et al. (2002; 2005) and Roggman et al. (2004), other studies utilizing EHS data have examined paternal predictive factors that chronologically preceded the child outcomes of interest. For example, Tamis-LeMonda and colleagues (2004) studied a sample of 290 families from 9 of the 17 EHS research sites (111 had complete data). Both mothers and fathers were videotaped interacting with their children at 24 and 36 months. Children's cognitive development was also assessed at 24 and 36 months. They found a consistent relationship between paternal demographics and the quality of mother-child engagements, suggesting that fathers also have an indirect impact on children's development. Between 24 and 36 months, quality interactions between both mothers and fathers predicted child outcomes. In addition, fathers' education and income uniquely predicted children's outcomes at 36 months (Tamis-LeMonda et al., 2004).

### *Models of Parenting*

The extant literature on fatherhood has identified a number of demographic factors (e.g., low SES, being raised by a single parent, and race) as predictors of early entry into fatherhood as well as paternal residence in the first months after the birth of a child (Harknett & McLanahan, 2004; Jaffee et al., 2001; Mcneely et al., 2005).

Additionally, qualities of fathers' interactions with their children, such as warmth and responsiveness, as well as the absence of negative behaviors have been related to positive child development (Shannon et al., 2005; Tamis-LeMonda et al., 2004). Despite the fact that the body of literature on fathers is growing, there is a lack of strong theory in the field concerning the processes of fathering over time and how they affect children's developmental outcomes.

Past theorizing regarding fathers has focused on ways to define father involvement in order to more clearly understand paternal roles and their consequences. Lamb, Pleck, Charnov, and Levine (1987) suggested that father involvement consisted of three components: interactions, availability, and responsibility. Interaction refers to those aspects of the father-child relationship that involved direct contact, whereas availability deals more with father presence or the idea that the father could be accessible for interaction with the child if needed. Finally, responsibility addresses aspects of father involvement that are more indirect, but also important, such as providing financially and arranging for appropriate childcare. Although this conceptualization has been helpful in terms of identifying different domains of involvement, additional theories are needed to understand how interactions, accessibility, and responsibility interact to result in a dynamic and productive father-child relationship. Parke (2000) suggested the importance

of a systems view for obtaining a developmental understanding of fatherhood. Such a perspective would of necessity take into account individual, familial, and cultural influences effecting fathers and their subsequent relationships with their children, recognizing the complex interaction of influences from multiple aspects of life that impact human development.

Other researchers have suggested specific theories of fatherhood that apply uniquely to fathers in an attempt to differentiate fatherhood theories from those relevant to mothers. For example, Paquette (2004) introduced the term *father-child activation relationship* to represent the unique role of fathers in preparing children to be open to new life experiences. With comparisons to attachment theory, he posited that the physical father-child relationship, as evidenced by rough and tumble play, was in sharp contrast to the more typically nurturing interactions between mothers and children and that paternal interaction styles uniquely prepare children for different aspects of daily functioning. Whereas mothers tend to provide comfort in stressful situations, fathers encourage children to take risks and attempt to ensure their safety.

Although useful in stimulating dialogue and additional thoughts on theories of fatherhood, several prominent researchers have criticized the activation-relationship theory as being narrow and focusing too strongly on the role of play while neglecting the many other roles that fathers play in children's development (Roggman, 2004; Tamis-LeMonda, 2004). In a commentary on Paquette's (2004) article, Tamis-LeMonda (2004) suggested the need for dynamical systems theories that take into account multiple influences on child development from both mothers and fathers.

Another reasonable place to look for good models of fathering is to adapt them from earlier theories about the nature of parenting in general. Theoretical perspectives, such as Belsky's (1984) and Whitman, Borkowski, Keogh, and Weed's (2001) model of parenting, have been developed to help understand parenting processes among mothers, but also demonstrate important contributions that fathers can make to children's development. According to Whitman et al's (2001) model, parenting is directly influenced by several different factors. Specifically, they noted that individual characteristics of the parent, such as learning ability, socioemotional adjustment, social supports, and cognitive readiness to parent are important predictors of parenting. Further, characteristics of an individual child also strongly influence the manner in which individuals provide care and nurturing for their children (Whitman et al., 2001). Such a model is also important for describing ways in which fathers' personal characteristics contribute to their readiness to parent and their children's development.

In addition, a model of fathering, particularly among high-risk families, needs to take into account the developmental psychopathology perspective, which emphasizes the importance of process models for understanding both normal and abnormal socioemotional development (Cummings, Davies, & Campbell, 2000). Fatherhood researchers need to begin to examine process models of paternal influence on children's development, building upon the strong foundation of empirical work that has been laid in previous decades with mothers, and setting the stage for important theoretical, methodological and substantive contributions to the broader field of developmental psychology.

### *Present Study*

The present study represents a new direction in the field, using longitudinal data and sophisticated analytic methods to develop a model of fatherhood and to advance our knowledge of the processes related to fathers' multiple influences in their children's lives. The theoretical model that guides this project can be found in Figure 1. This model draws heavily on Whitman et al.'s (2001) model of parenting by including interrelationships between socioemotional adjustment, cognitive readiness (or parenting attitudes and beliefs), and children's development. Specifically, the model illustrates proposed relationships among paternal maltreatment history, socioemotional functioning, and trajectories of parenting beliefs from 6 to 24 months and children's development at age 2. Briefly stated, trajectories of parenting beliefs, consisting of both initial status and rate of change over time (Curran & Willoughby, 2003), were predicted by paternal maltreatment history and time-varying levels of socioemotional functioning, and in turn were expected to predict children's socioemotional, cognitive, and language development. Furthermore, it was hypothesized that changes in socioemotional functioning would effect the quality of paternal parenting attitudes, which would in turn influence children's development.

As previously discussed, the vast majority of studies of fathers have used cross-sectional, rather than longitudinal, designs. Additionally, most longitudinal studies have employed only two time-points. In contrast, the present study assessed fathers at four time points between 6 and 24 months after the birth of a child, thus allowing for an exploration of paternal changes that took place over a longer time span, beginning shortly

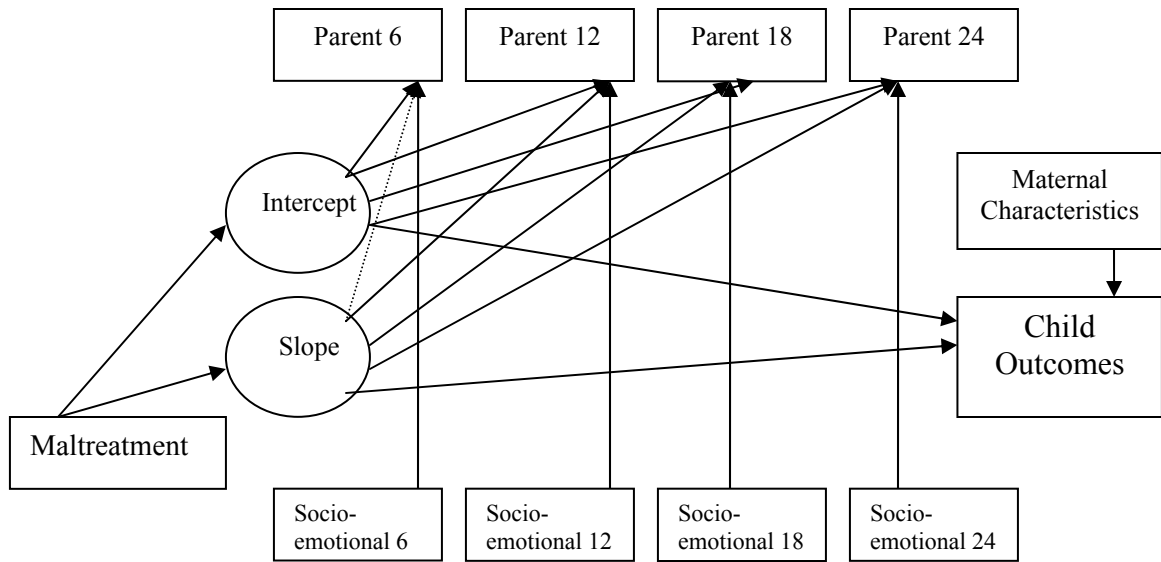


Figure 1. Theoretical Model

after birth. Paternal maltreatment history and age were used as separate predictors of developmental trajectories in paternal parenting beliefs since both factors have previously been identified as important for determining parenting and child outcomes (Gavin et al., 2002; Shannon et al., 2005). Additional indicators of socioemotional well-being and stressful life events over time were used to help explain the process of change in paternal parenting. The parenting domain consisted of parenting styles, parenting stress, knowledge of infant development, and child abuse potential. Socioemotional covariates included self-efficacy, aggression, and the occurrence of stressful life events. Fathers' initial status and rate of change in parenting attitudes were then used to predict children's cognitive, language, and socioemotional development outcomes at 24 months. Children's

outcomes were analyzed with and without maternal covariates in order to isolate the unique contributions of paternal parenting on children's development.

*The Notre Dame Fathers' Project.* Data from the Notre Dame Fathers' Project (NDFP) was used to address the goals of the present study. The NDFP is an in-depth, longitudinal study employing an ethnically and socioeconomically diverse sample of fathers. It provides opportunities to examine a number of developmental processes in a diverse sample of fathers and their children, a group that remains understudied to date. The data set also contains information regarding children's development and key variables about mothers in order to account for maternal factors that impact child development in addition to fathers' influence.

*Goals of the proposed study.* The proposed study had four specific objectives. These objectives are illustrated by the various paths of the theoretical model in Figure 1. The first was to examine patterns of paternal parenting attitudes in a diverse sample of fathers between 6 and 24 months after the birth of a child. By looking at paternal characteristics over time, it was possible to uncover information regarding the nature of stability and/or change, including rates and directions of intra-individual changes. The second goal was to identify early predictors of fathers' parenting attitudes based on their age and history of abuse and neglect during childhood. It was expected that fathers with different childhood experiences, and fathers of different ages, would have different patterns of change over time. Thirdly, the role of fathers' socioemotional functioning in predicting time-specific parenting was examined. It was hypothesized that considering paternal socioemotional functioning at any given point in time would help to explain differences in parenting at that time, beyond differences expected due to an underlying

process of growth in parenting attitudes. The final goal was to understand how both initial level and change over time in parenting attitudes impacted children's cognitive, language, and socioemotional development at 24 months of age. Maternal intelligence and depression were also examined as covariates in order to account for maternal influences on their children's development. The overarching goal was to identify pathways through which fathers influenced their children's development, highlighting both demographic and socioemotional factors that predicted optimal trajectories of parenting attitudes and subsequent child development.

## METHOD

### *Participants*

The present study was drawn from an ongoing longitudinal study of fathers of young children between the ages of 6 and 24 months. A total of 87 fathers and their children were recruited through mothers participating in research projects at the University of Notre Dame, and from community events such as soccer leagues, churches, and parenting festivals. In order to recruit the sample, mothers were asked to give contact information for their child's father. Fathers were subsequently contacted by the research staff and asked to schedule an interview. Of the approximately 122 fathers whose contact information was obtained, 21 were unable to be reached because of disconnected or non-current phone numbers, domestic abuse situations, military service, or lack of contact with the child. Among the potential sample of 101 fathers, 14 refused to participate, in some cases citing paternity disputes (2) or a lack of time (3), resulting in a final sample of 87 fathers.

The sample of fathers was diverse in age, education, ethnicity, and other demographic characteristics. Approximately 21% were African American, 60% European American, 8% Latino, and 11% were Multi-racial. In terms of educational attainment, nearly a quarter of the sample had not completed high school, 32% had obtained a high school degree or equivalent, and 45% continued, or were in the process of continuing their education beyond high school. Fathers also had varied employment status: 28% were unemployed at the time of the initial assessment, but of those who had jobs, 90%

worked 30 hours or more per week. Of the total sample, 87% were living with their children, and the remaining 13% had varying levels of contact with their nonresident children. At the time of their child's birth, 20% of the fathers were teens, but age varied greatly, ranging from 14 to 56, with a mean of 26.7 (8.4) and a median of 25.8. In addition to biological fathers, one father was an adoptive father, and 14% of participants were social fathers or "father figures". These men were either grandfathers (4), uncles (2), or boyfriends (6).

The average age of mothers at childbirth was 22.6 (5.2), and 48% were teens at the time of birth. The ethnic make-up of the sample of mothers was 19% African American, 65% European American, 8% Latina, 6% Multiracial, and the remaining 2% were Native American. Mothers were generally of average intelligence ( $M=103.3$ ;  $SD = 13.8$ ) based on scores from the Wechsler Abbreviated Scales of Intelligence (WASI; Wechsler, 1999). Most mothers exhibited at least some signs of depression at 6 months, with 87% classified as minimal, 10% as moderate, and 3% as severely depressed. Children in the sample were 15% African American, 46% European American, 4% Latina, and 35% Multiracial. Just over half (52%) of the children were boys.

Of the 87 fathers in the NDFP sample, only 18 had complete data at all four time points, 25 completed 3 of the four assessments, 26 completed two assessments, and the remaining 18 fathers were only assessed once. Nearly a quarter of fathers who were only assessed at one time point were assessed at 24 months because there was delay in receiving their contact information. Almost all of the fathers who were assessed at 6 months were interviewed at least a second time (94%). Additionally, 26% of fathers had incomplete data because the study was ongoing and their children had not yet reached 24

months. Very little attrition was due to father's refusing to return to the study. However, some fathers were did not complete the study because they could not be located. Additionally, some fathers discontinued participation in the study because they had discontinued contact with their child. This was most often true among unrelated social fathers (e.g. mothers' boyfriends).

### *Design and Procedures*

As can be seen in Table 1, fathers were interviewed when their children were 6, 12, 18, and 24 months of age. The 6, 12, and 24 month interviews took place in a research lab setting, and the 18 month interview was conducted in the father's home. Each of the assessments were very similar and included a demographic questionnaire, a number of measures about parenting beliefs and fathers' socioemotional functioning, as well as additional measures that were specific to each assessment. Overall, The Notre Dame Fathers' Project gathered information from fathers in seven domains: (1) intelligence and language; (2) socioemotional development (e.g., externalizing behaviors, self efficacy, and attachment); (3) life history and medical information; (4) history of substance use; (5) cognitive readiness for parenting; (6) parenting beliefs and practices, and (7) social support for fathering. Fathers were compensated with a \$25 gift certificate at the completion of each assessment. Child developmental assessments occurred at 24 months.

For the present study, paternal demographic and personal history information was based on the 6 month assessment session. A life history interview was administered to collect information regarding fathers' age, ethnicity, employment status, residential and

TABLE 1

## NOTRE DAME FATHERS' PROJECT: ASSESSMENTS FROM 6 TO 24 MONTHS

<b>FATHER</b>	<b>6 months</b>	<b>12 months</b>	<b>18 months</b>	<b>24 months</b>
<b>Paternal Demographics and Life History</b>	Demographics Educational attainment Employment CTQ History of Neglect			
<b>Parenting Attitudes and Beliefs</b>	Parenting Styles Parenting Stress KIDI CAPI	Parenting Styles Parenting Stress KIDI CAPI	Parenting Styles Parenting Stress KIDI CAPI	Parenting Styles Parenting Stress KIDI CAPI
<b>Socioemotional Functioning</b>	YASR/YSR DLC Pearlin	YASR/YSR DLC Pearlin	YASR/YSR DLC Pearlin	YASR/YSR DLC Pearlin
<b>Maternal Covariates</b>	WASI BDI			
<b>Child Outcomes</b>				Bayley Mental ITSEA PLS-4

Note: KIDI= Knowledge of Infant Development, CAPI= Child Abuse Potential Inventory, YASR/YSR= Young Adult Self Report/ Youth Self Report, DLC= Difficult Life Circumstances, WASI= Wechsler Abbreviated Scales of Intelligence, BDI= Beck Depression Inventory, ITSEA= Infant Toddler Social and Emotional Assessment, PLS-4= Preschool Language Scale-4

marital status, and educational attainment. An additional two measures, the Childhood Trauma Questionnaire (CTQ), and the History of Neglect, assessed fathers' reported experiences of abuse and neglect during their childhoods. Fathers who were not assessed at 6 months were asked to complete a supplementary packet containing these measures. The CTQ and History of Neglect were obtained for 81 of the 87 fathers in the study and were used to predict parenting trajectories. Each of the parenting and socioemotional measures were collected in all four assessments. Fathers also filled out self report measures of their parenting styles, parenting stress, knowledge of infant development, and child abuse potential. These measures were used to examine parenting trajectories. Additional self-reports about self-efficacy, aggression, and stressful life events were administered at each time point and used to examine trajectories for socioemotional functioning. For all self-report measures, fathers were given the option to complete them by interview if they did not feel comfortable or did not want to read the questionnaires on their own. Finally, child outcomes were assessed in the research lab when children were 24 months of age. Children's cognitive, language, and socioemotional development were assessed using a combination of child developmental testing and parent reports.

#### *Measures of Paternal Demographics and Personal History*

At the beginning of each assessment, fathers were administered a *Life History Questionnaire*, an interview designed to facilitate a conversation-like experience. The purpose of this interview was to gain information regarding the father's marital, educational, medical, and vocational history, as well as his past use of social services, and personal activities. This measure yielded basic demographic information such as age,

ethnicity, marital and residential status, and whether the father was a biological or social father. In addition, the life history provided information regarding fathers' employment status and highest level of educational attainment. Further information regarding fathers' histories of childhood abuse or neglect was gathered using the Childhood Trauma Questionnaire (CTQ), and the History of Neglect.

*Childhood Trauma.* The Childhood Trauma Questionnaire (CTQ; Bernstein, Fink, Handelsman, Foote, Lovejoy, et al., 1994) is a retrospective measure of childhood abuse and neglect. The full measure consists of 70 questions that begin with the phrase, "When I was growing up..." and end with a query about different types of abuse and neglect. Each item is rated for frequency on a 5-point Likert scale with responses ranging from 'never true' to 'very often true'. Internal consistency coefficients for the four factors range from .79 to .94. The instrument also has a high test-retest reliability over a period of months (intraclass correlation=.88). In the present study, a 28-item version of the instrument was used. This version has similar reliability and validity as the full scale and yields five subscales: physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect.

*History of Neglect.* Fathers' history of neglect was assessed at the initial interview using an 8-item self report measure about neglectful experiences with parents. The scale is a short form of the Neglect Scale (NS) developed by Strauss, Kinard & Williams (1995). In the NS, fathers were asked to report about the behaviors of their parents toward them as children. Responses were given on a four point Likert-type scale, ranging from *strongly agree* to *strongly disagree*. The short form has an internal consistency reliability of .89 and has been shown to correlate highly with the full scale (.95; Strauss et

al., 1995). Total scores range from 8 to 32, with higher scores indicating greater levels of neglect during childhood.

### *Measures of Paternal Parenting Attitudes*

*Cognitive Readiness.* Fathers' cognitive readiness for parenting was assessed at each assessment using the Parenting Styles and Expectations Questionnaire (PSE), and the Knowledge of Infant Development Instrument (KIDI). The PSE consisted of items from the Adult-Adolescent Parenting Inventory (Bavolek, 1985), and asked fathers to rate how strongly they agreed (1) or disagreed (5) with various statements regarding child rearing. The scale contained 32 items regarding parenting practices, discipline, and appropriateness of child interactions, and four subscales: Empathic awareness, physical punishment, abuse/neglect, and authoritarianism. All item ratings were summed to provide the total Parenting Style score. Higher scores were reflective of more authoritative parenting styles. The internal consistency of this scale was .89 and the test-retest reliability was .87.

The KIDI is a 14-item self-reported measure of fathers' knowledge of infant development. This measure was originally developed by MacPhee (1981). Items asked about specific domains of knowledge of developmental processes and infant norms. The scale was a 5-point likert scale ranging from *strongly disagree* to *strongly agree*, and included questions such as, "All infants need the same amount of sleep," "A good way to train children not to hit is to hit them," and "One-year-olds often cooperate and share when they play together." Reliability was estimated for the functioning scale using

Chronbach's alpha. The scale has been demonstrated to have high test-retest reliability (.92) and internal consistency (.82).

*Parenting Stress.* The short form of the Parenting Stress Inventory (PSI-SF; Abidin, 1995) was also administered at each assessment. It is a 36-item self-report questionnaire that is comprised of a series of multiple choice and Likert type items used to identify areas of parental stress as a function of scores obtained on three subscales: (1) parental distress; (2) parent-child dysfunctional interaction; and (3) difficult child (Abidin, 1995). The PSI-SF also yields a total stress score (ranging from 36 to 180), which indicates the overall amount of parenting stress experienced in the parenting role as a function of the above three scales. High scores are considered to be those at or above the 90th percentile and may be indicative of clinically significant levels of stress associated with the parent-child relationship. These elevated levels of stress may put a parent at risk for developing dysfunctional parenting behaviors, with individuals who have scores at or above the 90th percentile potentially requiring professional evaluation and intervention (Abidin, 1995). In the present study, the total score was reverse coded so that a higher score indicated lower levels of stress related to parenting. The full scale has been shown to have both high test-retest reliability ( $\alpha = 0.84$ ), and internal reliability ( $\alpha = 0.91$ ; Abidin, 1995).

*Abuse Potential.* The Child Abuse Potential Inventory (CAPI) is a self-report questionnaire initially developed to screen individuals suspected of abuse (Milner, 1986). The short form used in this project included the rigidity and unhappiness scales; these two factors contributed most to the prediction of child abuse. The short form has excellent reliability and validity (cf. Dukewich, Borkowski, & Whitman, 1999). It was

administered at each of the four assessments and was reverse-scored so that a higher score indicated a lower potential for abuse.

### *Measures of Paternal Socioemotional Functioning*

Fathers' socioemotional functioning was assessed using a number of instruments designed to collect information about externalizing behaviors, self-efficacy, self-esteem, and stressful life events that the father had experienced recently.

*Young Adult Self-Report (YASR).* The Young Adult Self-Report is a 112-item measure of a young adult's own behavioral and social adjustment, including risk-taking behaviors (Achenbach, 1997). In the NDFP, only 28 items from the externalizing subscale were administered. The YASR yields a measure of social competence as well as ratings of behavioral problems including withdrawal, somatic complaints, anxiety/depression, social problems, attention problems, delinquency, and aggressive behavior. Higher scores indicate more behavioral difficulties, with a  $t \geq 60$  indicating a potential clinical problem.

*Self-Efficacy Scale.* At each of the assessments, a 7-point Likert-type scale was used to assess self-mastery. The Pearlin self-mastery scale is a 7-item measure designed to assess participant's sense of control and responsibility for events (Pearlin & Schooler, 1978). The items composing this scale were factor analyzed and demonstrated to load onto the same central construct (Pearlin & Schooler, 1978). The Pearlin Mastery Scale has an internal consistency of .71-.81 (Perrin & McDermott, 1997). An additional 6 items were created for use in the present study to reflect parenting self-efficacy. Higher scores reflected greater self-mastery and parenting self-efficacy, respectively.

*Difficult Life Circumstances* was also administered at each assessment in order to gather information about stressful life events that fathers had recently experienced. This instrument was developed for the University of Washington NCAST studies by Barnard (1989). It is a 28-item questionnaire with yes/no responses to assess chronic stressors, including violence and substance abuse. The DLC has high test-retest reliability; concurrent and predictive validity; and correlations with higher depression, low income and education, fewer life skills, low infant development scores, and more infant illnesses and accidents (Barnard et al., 1988). Reliability for the DLC cannot be assessed using internal consistency, because there is no reason to expect that different stressors are conceptually related.

#### *Maternal Covariates.*

*Intelligence.* The Wechsler Abbreviated Scales of Intelligence (WASI; Wechsler, 1999) were used to assess maternal intelligence at 6 months. Only the vocabulary and matrix reasoning subscales were used in order to obtain a brief and accurate measure of intelligence. These subscales were combined to yield an overall intelligence score. The vocabulary subscale was made up of 42 items and the matrix subscale contained 35 items. Both subscales were similar to those found in the other Wechsler scales. Reliability coefficients for individuals in the age range represented by the sample were .90 - .93 for vocabulary and .88 - .92 for matrix reasoning.

*Depression.* The Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) was administered to mothers at 6 months post-partum. It is a 21 item measure that assesses maternal reports of depressive symptomatology that has occurred within the past

two weeks. The scores are summed to yield a total score. Clinical cut-points can also be implemented in order to assess mild, moderate, or severe depressive symptoms.

### *Child Outcome Measures*

*Language Development.* The Preschool Language Scale (PLS-4) was used to assess children's language development at 24 months. It was standardized for use with children age birth to 7 years of age and takes between 20 and 30 minutes to administer. The PLS-4 provides standard scores and language age equivalents for auditory comprehension and expressive communication as well as a total language score. The internal consistency for 1-5 year olds ranges from .72 to .97. The test-retest stability in the relevant developmental periods ranges from .82 to .97. The PLS-4 has also been identified as a conservative estimator of language delay (Zimmerman, Steiner, & Pond, 2002).

*Cognitive Development.* The Mental Development Index of the Bayley Scales of Infant Development-II (BSID-II) was administered when children were 24 months of age. The Mental Development Index includes items measuring sustained attention, purposeful manipulation of objects, imitation, comprehension, expressive language, and problem solving; delays in these basic skills should reveal early developmental problems. Coefficient alphas ranged from .78 to .92, and test-retest reliability for the mental scale was .83 (Bayley, 1993).

*Socioemotional Development.* Children's socioemotional development at 24 months was assessed using the Infant-Toddler Social and Emotional Assessment (ITSEA; Carter & Briggs-Gowan, 2001). The ITSEA was completed by parent-report. It was

developed to assess social-emotional problems and competencies in 12- to 36-month olds. The current version of the ITSEA assesses four broad domains of behavior (i.e., externalizing, internalizing, dysregulation, and competencies). Two additional indices, Social Relatedness and Atypical Behavior were included to assess behaviors that may be indicative of the presence of PDD/Autism. The complete ITSEA measure includes 166 items. Items are rated on a 3-point scale ranging from *not true/rarely* to *very true/often*. Test-retest reliability ranged from 0.82 to 0.90 for domains and from 0.69 to 0.85 for scales (Carter, Briggs-Gowan, Jones, & Little, 2003). For the present study, the ITSEA attention scale was used. It consisted of 5 items addressing a child's ability to sustain attention in a variety of tasks including playing with toys, looking at books, and doing both independent and joint activities. The attention scale had an alpha of .70 (Carter et al., 2003).

## RESULTS

The present study examined antecedents and consequences of changes in paternal parenting attitudes during infancy and early childhood. Latent growth curve modeling (LGM) with Maximum Likelihood (ML) estimation to accommodate missing data was used to fit models predicting parenting trajectories, using both time invariant and time variant predictors. Parameter estimates for initial status and rates of change in paternal parenting attitudes were then used to predict children's developmental outcomes, controlling for maternal intelligence and depression.

### *Descriptive Information*

The means, standard deviations, and ranges for all of the variables that were used in the analyses can be found in Table 2. Both the parenting and socioemotional variables were assessed at each of the four assessments. Paternal maltreatment history and maternal covariates (depression and intelligence) were only assessed at the initial assessment, and children's developmental outcomes were only assessed at 24 months. None of the repeated measures displayed significant mean changes over time. Children in this sample appeared to have expressive and receptive language skills and cognitive development that were, on average, well below that of the general population. For instance, the mean score for the Bayley Mental Development Index was more than a standard deviation below the population mean. Similarly, the mean score for the Preschool Language Scale-4 was nearly a standard deviation below the population mean.

TABLE 2

DESCRIPTIVE INFORMATION FOR ALL VARIABLES IN THE ANALYSES.

Measure	6 Month			12 Month			18 Month			24 Month		
	N	Mean (sd)	Range	n	Mean (sd)	Range	n	Mean (sd)	Range	n	Mean (sd)	range
KIDI	47	51.3 (6.4)	41-65	59	51.1 (6.3)	36-65	53	51.8 (5.8)	38-63	50	52.7 (6.0)	41-67
CAPI	48	17.7 (4.1)	5-23.5	59	18.6 (3.8)	11-25	53	18.3 (3.7)	8-24	50	18.9 (3.5)	7.5-24
PSI	49	148.1 (16.7)	107-179	54	150.1 (16.6)	114-178	43	144.5 (16.8)	107-179	50	148.5 (17.4)	105-178
PSE	49	105.0 (14.7)	77-136	59	109.1 (14.1)	82-140	53	110.9 (15.4)	76-140	50	111.6 (14.3)	80-140
Parent	48	.003 (2.4)	-5.4-3.8	54	.611 (2.3)	-4.4-5.0	43	.213 (2.4)	-5.7-4.7	50	.77 (2.4)	-6.2-5.4
CTQ	81	39.7 (15.8)	25-94									
Neglect	81	11.0 (3.9)	8-27									
DLC	50	1.6 (1.5)	0-6	59	1.5 (1.6)	0-7	52	1.4 (1.4)	0-5	50	1.4 (1.5)	0-5
Pearlin	49	80.2 (7.6)	59-91	60	78.7 (8.8)	45-91	52	78.4 (10.0)	46-91	49	79.1 (9.5)	56-91
YASR	48	49.8 (11.0)	30-93	59	47.3 (10.5)	30-77	51	46.5 (11.6)	30-72	50	48.3 (11.6)	56-91
Bayley										46	82.2 (14.3)	53-104
PLS-4										48	87.7 (14.1)	55-117
ITSEA										45	1.4 (.41)	.20-2.0
Depression	41	7.6 (6.0)	0-29									
WASI	36	102.9 (13.9)	73-125									

Note: KIDI= Knowledge of Infant Development, CAPI= Child Abuse Potential Inventory, PSI=Parenting Stress Index, PSE=Parenting Styles and Expectations, Parent=Parenting Composite, CTQ=Childhood Trauma Questionnaire, DLC= Difficult Life Circumstances, YASR= Externalizing, PLS-4= Preschool Language Scale-4, ITSEA= Infant Toddler Social and Emotional Assessment: Attention Subscale, WASI= Wechsler Abbreviated Scales of Intelligence

Correlations among the composite parenting variables and covariates used in all of the growth models are presented Table 3. There were significant interrelationships among measures of parenting, paternal maltreatment history, and socioemotional adjustment. Table 4 shows relationships among composite parenting, children's cognitive, language, and social development, and the maternal covariates. Parenting was significantly related to children's attention at 24 months and also to language skills and cognitive development. Somewhat surprisingly, neither maternal intelligence nor depression was significantly related to any of the child outcomes. There was also an interesting relationship between paternal parenting and maternal depression at 6 months such that mothers who were less depressed were associated with fathers who had more positive parenting attitudes ( $r = -.42, p < .05$ ).

#### *Creation of the Parenting Composite*

Prior to fitting the overall model (i.e., Figure 1), a series of measurement models were examined. Due to the relatively small sample size and the complexity of the proposed model, there was not sufficient power to include multiple indicators of each construct at the four time points. Instead, a composite parenting score was developed for each time point based on the results of the measurement models for the parenting variables. These composite variables were then used in subsequent trajectory analyses.

In order to create a composite score for parenting beliefs at each time point, four parenting measures (KIDI, CAPI, PSI, and PSE) were entered into a confirmatory factor model that examined the factor structure of the latent parenting variable. Each of the four variables was an indicator of a latent variable representing each assessment point.

TABLE 3

INTERCORRELATIONS AMONG PREDICTORS, PARENTING VARIABLES, AND COVARIATES

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. Neglect	1 (81)																	
2. CTQ	.70** (81)	1 (81)																
3. Parent 6	-.26 (47)	-.50** (47)	1 (48)															
4. Parent 12	-.24 (52)	-.39** (52)	.80** (30)	1 (54)														
5. Parent 18	-.51** (39)	-.50** (39)	.81** (23)	.89** (27)	1 (43)													
6. Parent 24	-.09 (48)	-.20 (48)	.77** (27)	.82** (25)	.90** (29)	1 (50)												
7. DLC 6	-.11 (49)	.21 (49)	-.44** (48)	-.50** (31)	-.55** (23)	-.40* (28)	1 (50)											
8. DLC 12	.48** (57)	.63** (57)	-.27 (35)	-.47** (54)	-.57** (30)	-.42** (30)	.50** (36)	1 (59)										
9. DLC 18	.23 (49)	.26 (49)	-.23 (31)	-.44* (31)	-.55** (42)	-.30 (38)	.46** (31)	.64** (36)	1 (52)									
10. DLC 24	.18 (48)	.24 (48)	-.33 (27)	-.24 (25)	-.44* (28)	-.28* (49)	.62** (28)	.55** (30)	.74** (37)	1 (50)								
11. Pearlin 6	-.15 (48)	-.12 (48)	.21 (48)	.28 (31)	.25 (23)	.32 (27)	.01 (49)	-.01 (36)	-.17 (31)	-.16 (27)	1 (49)							
12. Pearlin 12	-.01 (58)	-.20 (58)	.19 (36)	.38** (54)	.38* (31)	.31 (31)	.14 (37)	-.20 (59)	-.36* (37)	-.22 (31)	.62** (37)	1 (60)						
13. Pearlin 18	-.09 (48)	-.22 (48)	.30 (30)	.44* (31)	.57** (42)	.58** (37)	-.07 (30)	-.35* (36)	-.40** (51)	-.23 (36)	.68** (30)	.66** (37)	1 (52)					
14. Pearlin 24	.02 (48)	-.06 (48)	.23 (27)	.30 (25)	.67** (27)	.49** (48)	.07 (28)	-.22 (30)	-.49** (49)	-.22 (27)	.64** (31)	.61** (35)	.83** (49)	1 (49)				
15. YASR 6	.18 (47)	.31* (47)	-.48** (48)	-.47* (30)	-.46* (23)	-.32 (27)	.30* (48)	.07 (35)	.36* (31)	.29 (27)	-.29* (48)	-.22 (36)	-.27 (30)	-.24 (27)	1 (48)			
16. YASR 12	.25 (57)	.46** (57)	-.38* (35)	-.36** (54)	-.41 (30)	-.24 (30)	.26 (36)	.43** (59)	.47** (36)	.43* (30)	-.11 (36)	-.21 (59)	-.19 (36)	-.04 (30)	.77** (35)	1 (59)		
17. YASR 18	.12 (47)	.22 (47)	-.50** (29)	-.36 (29)	-.50** (41)	-.44** (38)	.37 (29)	.27 (34)	.47** (50)	.44** (37)	-.37* (29)	-.27 (35)	-.38** (50)	-.43** (36)	.71** (29)	.80** (34)	1 (51)	
18. YASR 24	.25 (48)	.32* (48)	-.48* (27)	-.33 (25)	-.60** (28)	-.38** (49)	.25 (28)	.44 (30)	.38* (37)	.46** (50)	-.57** (27)	-.31 (31)	-.46** (36)	-.35* (49)	.66** (27)	.90** (30)	.84** (37)	1 (50)

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

CTQ=Childhood Trauma Questionnaire; DLC=Difficult Life Circumstances; YASR=Young Adult Self Report, Externalizing

TABLE 4  
CORRELATIONS AMONG PARENTING COMPOSITES, CHILD OUTCOMES,  
AND MATERNAL COVARIATES

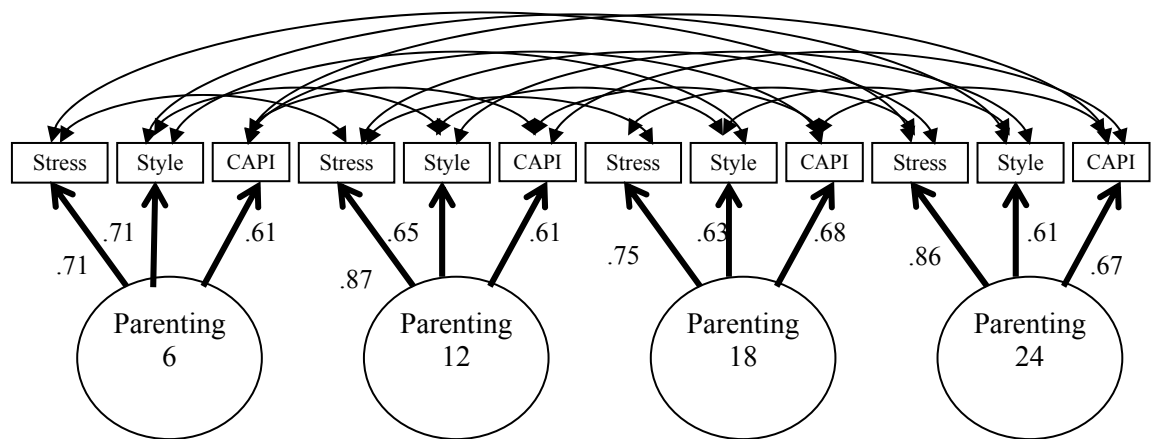
	5.	6.	7.	8.	9.
1. Parent 6	.156 (25)	.05 (24)	.47* (26)	-.42* (26)	.28 (21)
2. Parent 12	.40* (27)	.46* (26)	.46* (23)	-.34 (20)	.35 (20)
3. Parent 18	.18 (28)	.07 (27)	.48* (23)	-.55** (23)	.26 (18)
4. Parent 24	.18 (40)	.21 (39)	.38* (37)	-.16 (35)	.49** (29)
5. PLS-4	1 (48)	.79** (46)	.42** (43)	-.12 (37)	.23 (32)
6. Bayley		1 (46)	.28 (41)	.13 (35)	.10 (30)
7. ITSEA Attention			1 (45)	-.24 (37)	.13 (32)
8. BDI				1 (41)	.17 (33)
9. WASI					1 (36)

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

Note: PLS-4=Preschool Language Scale-4; ITSEA=Infant-Toddler Social and Emotional Assessment, Attention Scale; BDI=Beck Depression Inventory; WASI=Wechsler Abbreviated Scales of Intelligence.

Intercorrelations among these variables at each time of measurement are presented in Table 5. In the measurement model, each measure was allowed to correlate with itself over time. The model with four indicators of parenting did not fit particularly well, CFI=.801; RMSEA=.152. Since KIDI had the lowest factor loading and was largely uncorrelated with the other parenting variables (see Table 5), a second model was tested

using the remaining three parenting measures. This model provided a good fit to the data, CFI=.980; RMSEA=.061. Figure 2 presents the final measurement model with factor loadings for each variable. Since CAPI, PSI, and PSE were found to have similar loadings on their respective factors over time, the three measures were combined to form an overall parenting composite. The composite was a weighted average, obtained by converting each of the scaled scores to z-scores, which were then added together. Descriptive information for the resulting parenting composite can be found in Table 2.



CFI=.980  
RMSEA=.061

Figure 2. Measurement Model of Parenting Indicators over Time

TABLE 5

## INTERCORRELATIONS AMONG MANIFEST PARENTING VARIABLES

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. CAPI 6	1															
	(48)															
2. KIDI 6	.28	1														
	(47)	(47)														
3. PSI 6	.29*	.33*	1													
	(48)	(47)	(49)													
4. PSE 6	.49**	.41**	.52**	1												
	(48)	(47)	(49)	(49)												
5. CAPI 12	.70**	.28	.23	.46**	1											
	(35)	(34)	(36)	(36)	(59)											
6. KIDI 12	.21	.70**	.04	.33*	.02	1										
	(35)	(34)	(36)	(36)	(59)	(59)										
7. PSI 12	.112	.245	.73**	.50**	.48**	.17	1									
	(30)	(29)	(31)	(31)	(54)	(54)	(54)									
8. PSE 12	.48**	.46**	.55**	.89**	.47**	.33*	.59**	1								
	(35)	(34)	(36)	(36)	(59)	(59)	(54)	(59)								
9. CAPI 18	.75**	.34	.33	.43*	.92**	.04	.56**	.40*	1							
	(31)	(31)	(31)	(31)	(36)	(36)	(31)	(36)	(53)							
10. KIDI 18	.30	.61**	.38*	.57**	.34*	.62**	.29	.63**	.32*	1						
	(31)	(31)	(31)	(31)	(36)	(36)	(31)	(36)	(53)	(53)						
11. PSI 18	.29	.25	.64**	.42*	.37*	.29	.79**	.35	.49**	.23	1					
	(23)	(23)	(23)	(23)	(30)	(30)	(27)	(30)	(43)	(43)	(43)					
12. PSE 18	.54**	.31	.71**	.88**	.51**	.26	.69**	.91**	.45**	.60**	.48**	1				
	(31)	(31)	(31)	(31)	(36)	(36)	(31)	(36)	(53)	(53)	(43)	(53)				
13. CAPI 24	.76**	.53**	.45*	.48*	.81**	.30	.41*	.40*	.87**	.43**	.67**	.50**	1			
	(27)	(27)	(27)	(27)	(30)	(30)	(25)	(30)	(38)	(38)	(29)	(38)	(50)			
14. KIDI 24	.34	.81**	.58**	.47*	.32	.65**	.40	.65**	.38*	.80**	.44*	.53**	.48**	1		
	(27)	(27)	(27)	(27)	(30)	(30)	(25)	(30)	(38)	(38)	(29)	(38)	(50)	(50)		
15. PSI 24	.45*	.50**	.62**	.40*	.57**	.31	.71**	.49**	.72**	.49**	.88**	.63**	.62**	.47	1	
	(27)	(27)	(27)	(27)	(30)	(30)	(25)	(30)	(38)	(38)	(29)	(38)	(50)	(50)	(50)	
16. PSE 24	.57**	.27	.55**	.79**	.46*	.31	.55**	.85**	.53**	.46**	.60**	.85**	.49**	.44**	.54**	1
	(27)	(27)	(27)	(27)	(30)	(30)	(25)	(30)	(38)	(38)	(29)	(38)	(50)	(50)	(50)	(50)

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

CAPI=Child Abuse Potential Inventory; KIDI=Knowledge of Infant Development; PSI=Parenting Stress Index; PSE=Parenting Styles and Expectations

### *Latent Growth Curve Modelling*

The primary set of analyses involved the use of Latent Growth Curve Modeling (LGM) to model the trajectories of paternal parenting beliefs from 6 to 24 months as predicted by early experiences of maltreatment and their levels of socioemotional functioning at each assessment. The study also examined relationships between paternal trajectories and children's development at 24 months, controlling for maternal depression and intelligence. Once the composite parenting variables were created for each time point, an unconditional model, with no predictors was fit to the data in order to examine the variability in parenting trajectories. Without predictors, this model basically examined the patterns in the data, searching for changes in the overall means of the parenting construct over time, as well as the variability of individuals around the mean. This model can be written as follows:

$$\text{Within-Subjects Model: } y_{it} = \alpha_i + \lambda_t \beta_i + e_{it}$$

$$\text{Between Subjects Model: } \alpha_i = \mu_\alpha + \zeta_{\alpha i}$$

$$\beta_i = \mu_\beta + \zeta_{\beta i}$$

In these equations,  $y$  is the estimated score for each individual ( $i$ ) at each time point ( $t$ ),  $\alpha_i$  is the random intercept, indicating that it is allowed to be unique for each individual ( $i$ ),  $\beta_i$  is the random slope, which is also allowed to have unique values across individuals ( $i$ ),  $\lambda_t$  is the coding of time, indicating whether a linear or non-linear trajectory will be fit to the data, and  $e_{it}$  is the measurement error for each individual at each time point. The between-subjects model specifies that for each individual ( $i$ ), their slope and intercept are determined by the group mean ( $\mu$ ), plus some disturbance ( $\zeta$ ) that varies across individuals. The reduced form of these equations is:

$$y_{it} = (\mu_{\alpha} + \lambda_t \mu_{\beta}) + (\zeta_{\alpha i} + \lambda_t \zeta_{\beta i} + e_{it})$$

in which the first part of the equation represents the fixed effects of the model (the parameters that are constant across all individuals) and the second part of the equation represents the random effects (parameters that are estimated separately for each individual).

A significant amount of variability around the average values of the slope and intercept in the unconditional model supported the idea that there were individual differences in growth trajectories. Once individual differences were identified, the next step was to examine predictors that would differentiate between individuals in a conditional model. The within-subjects model remained the same as for the unconditional model, but the between-subjects model was modified to indicate that individual differences were predicted by specific variables. This model can be written using the following notation:

$$\alpha_i = \mu_{\alpha} + \gamma_{\alpha 1}(\text{maltreatment history})_i + \zeta_{\alpha i}$$

$$\beta_i = \mu_{\beta} + \gamma_{\beta 1}(\text{maltreatment history})_i + \zeta_{\beta i}$$

where  $\gamma$  represents the coefficient of the predictor variables and  $\zeta$  represents disturbance.

Another way to explain individual differences in parenting trajectories was to assess the role of time-varying covariates (TVC's) in predicting the growth process. Rather than being measured at only a single point in time, TVC's were assessed at each time point in order to capture fluctuation that occurred in life stresses, externalizing behaviors, and self-mastery. Including TVC's in the growth model helped to identify factors that would modify the underlying growth trajectory for paternal parenting.

The final step of the analysis was to examine children's developmental outcomes and whether they could be predicted by the parameters associated with the paternal parenting trajectories. This analysis represented a new direction in multi-level modeling, and a distinct benefit of the Structural Equations approach (Curran & Willoughby, 2003; Duncan, Duncan, Strycker, Li, & Alpert, 1999). Predicting children's outcomes was straightforward and accomplished by including additional paths in the model from the latent slope and intercept factors to the desired outcome.

#### *Unconditional Models: Examining Parenting Trajectories*

Once the parenting composite was created for each assessment point, the first step was to plot the raw data for the parenting composite at each assessment in order to better understand the patterns of change over time in the data. Figure 3 illustrates a plot of raw data for a random half of the sample. Visual inspection of all the data suggested individual differences in intercept and some differences in patterns of change over time. After examining the raw data, an unconditional growth model was tested that specified linear growth over time. Two versions of this model were examined: a covariance structure model and an individual time-scores model. For the covariance structure model, time was scaled from 0-3 for everyone in the sample. The six month assessment represented the 0 time point, with the 12, 18, and 24 month assessments being represented by 1, 2, and 3, respectively. This model fit the data well fairly well (CFI=.998; RMSEA=.024, sample-size adjusted BIC=748.11). Parameter estimates for the slope and intercept indicated that on average, neither were significantly different from

zero, however, significant residual variances suggested the presence of individual differences in the sample for both slope and intercept.

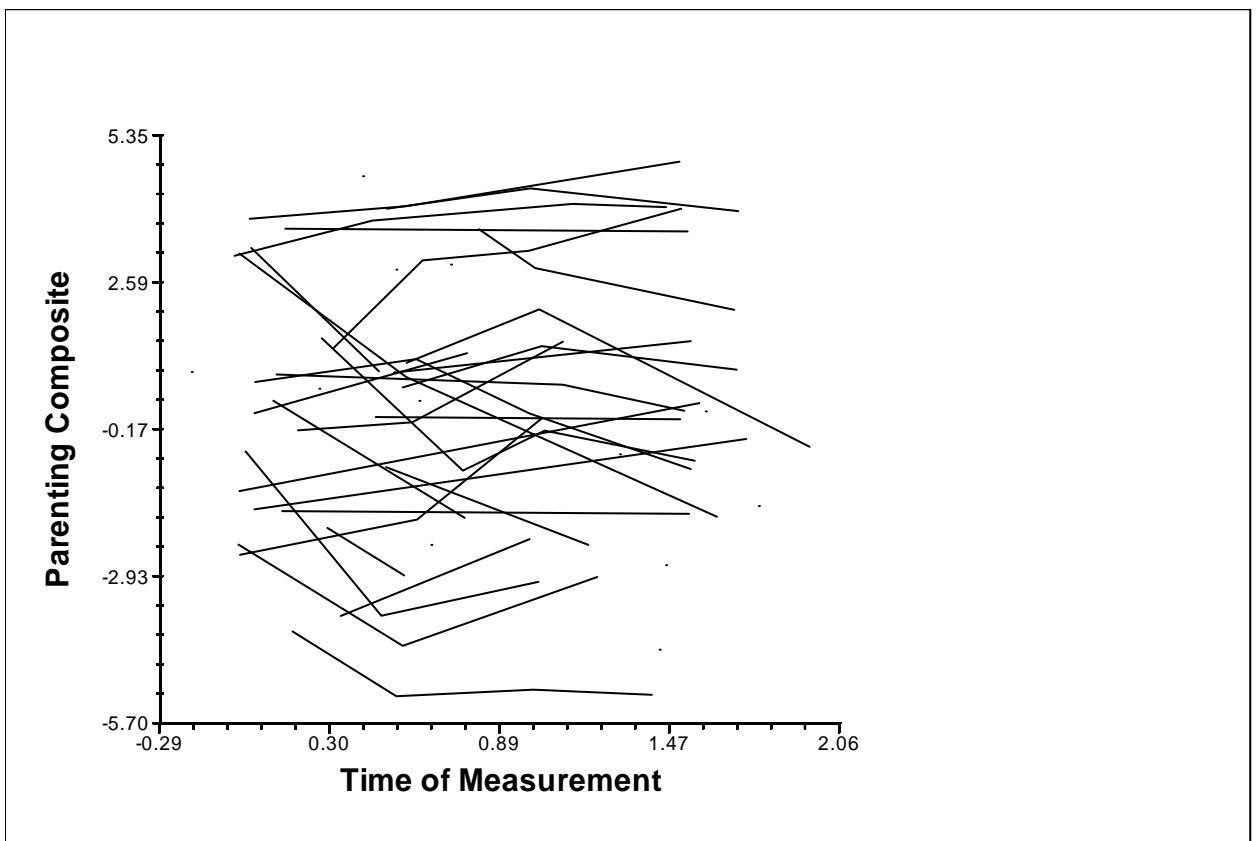


Figure 3. Raw Parenting Data for a Random Half of the Sample

An alternative model was also examined that utilized a different approach to growth modeling. Rather than assuming that each individual was measured at precisely the same time point, the model allowed each individual's trajectory to be estimated over their exact times of measurement, taking into consideration that individual assessments did not occur at exactly six month intervals. The same growth model was examined with an additional parameter allowing each individual to have their own set of times for each data point. The sample-size adjusted BIC for this model was 747.10, suggesting a slightly better fit using individually varying times of measurement. Although the two models did not vary greatly in their overall fit, previous researchers have suggested that models using individually varying times of measurement yield more accurate parameter estimates than models that assume equal intervals between each assessment (Mehta & West, 2000); thus, the latter model was used as the framework for the next set of models.

#### *Conditional Models: Static Predictors of Parenting Trajectories*

Since the unconditional models suggested the presence of sizable individual differences, a series of conditional models were tested in order to identify predictors of inter-individual differences in paternal parenting beliefs over time. Since the unconditional model with individually varying times of measurement provided a better fit to the data, these models were also used for the conditional models. Three separate models were examined using different predictors to help explain differences in parenting trajectories: history of neglect, childhood trauma, and paternal age. The models were tested separately for each predictor because sample size limitations restricted the use of multivariate predictors.

*History of abuse and neglect.* Models examining paternal history of neglect and overall childhood trauma (consisting of both abuse and neglect) both provided adequate fit to the data; furthermore, they were useful in predicting differences in fathers' initial status and rate of change on the parenting composite. Histories of neglect were marginally related to the rate of change in the parenting composite,  $B=.07$ ,  $S.E.=.046$ ,  $p<.10$  such that fathers who reported experiences of neglect in childhood improved more over time in their parenting beliefs than fathers who did not report neglect. However, the trend between neglect history and initial status of parenting was negative,  $B= -.16$ ,  $S.E.=.09$ ,  $p<.10$ . The sample size adjusted BIC for this model was 710.05, a notable improvement over the unconditional model. Taken together, the results of this model suggested that fathers who experienced neglect were more likely to improve in their parenting beliefs over time, but that they also had lower levels of positive parenting attitudes initially than fathers who did not report neglect during childhood.

The model using childhood trauma as a predictor of paternal trajectories had a sample size adjusted BIC of 702.58. Again, parameter estimates suggested that fathers who had more experiences of abuse and neglect during childhood had less positive parenting beliefs at six months (intercept:  $B= -.06$ ,  $S.E.=.02$ ,  $p<.05$ ). In this model, however, there was no significant relationship between childhood trauma and rate of change in parenting attitudes.

*Paternal age.* The final conditional model examined age as a predictor of parenting trajectories. Although the overall model fit was not as good as it had been for the previous two models, (adjusted BIC=739.08), age predicted both rate of change,  $B= -.05$ ,  $S.E.=.02$ ,  $p<.01$ , and initial status,  $B= .12$ ,  $S.E.=.04$ ,  $p<.01$ , of parenting attitudes.

Figure 4 illustrates the average predicted trajectory for fathers of different ages. There was a positive relationship between paternal age and initial status, but an inverse relationship between paternal age and rate of change such that older fathers initially had high scores on parenting beliefs that declined over time, whereas younger fathers began low and improved gradually. According to these estimated trajectories, there were fewer differences in positive parenting beliefs between fathers of different ages by the 24 month assessment.

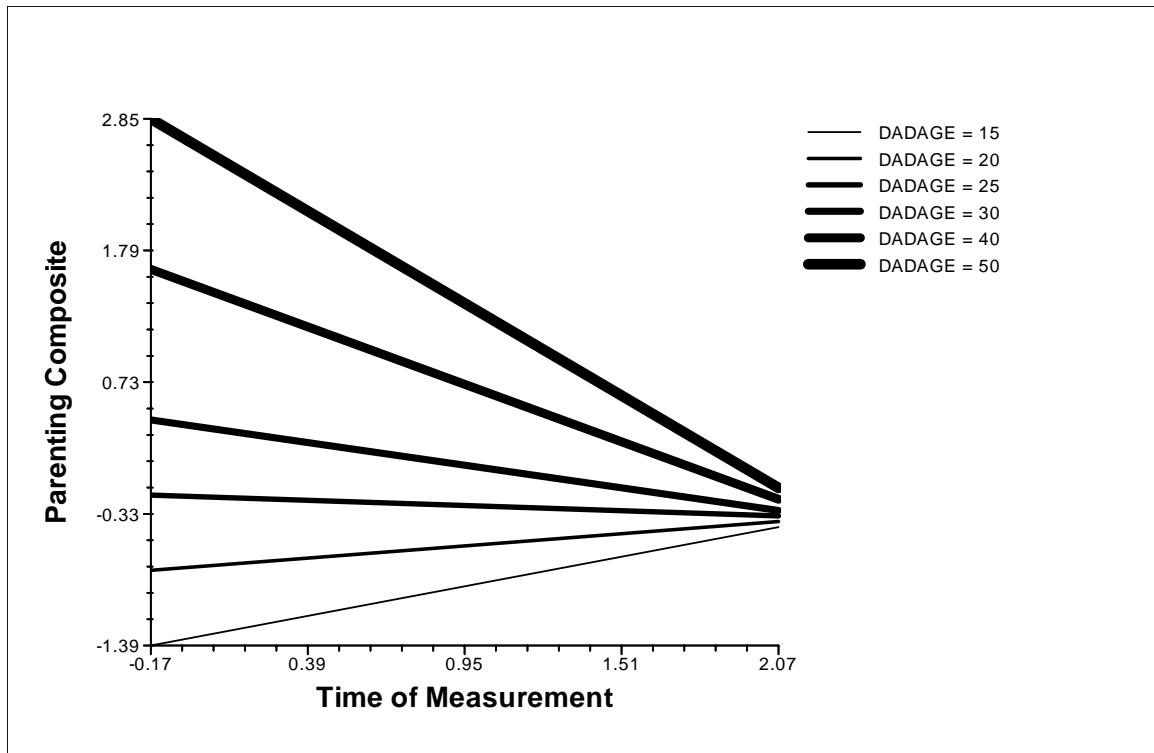


Figure 4. Estimated trajectories of parenting as a function of fathers' age

### *Time Varying Covariates of Parenting Trajectories*

The incorporation of time-varying covariates in the model was used for the purpose of identifying additional predictors of changes in parenting over time. Since the individually-varying times of assessment model required that there was no missing data on the covariate variables, a covariance structure model was more ideally suited to testing these relationships. The following results were based on all 87 fathers in the study; missing data was accounted for with the Maximum Likelihood (ML) procedure in M-Plus (Muthen & Muthen, 2005).

The conditional models with paternal childhood trauma and histories of neglect as the predictors of initial status and rate of change in parenting attitudes were used as the base models for the analysis of time varying covariates. Unlike experiences of childhood maltreatment, which did not change over time, other variables, such as those assessing difficult life circumstances, self efficacy, and externalizing behaviors, were thought to change over time. As such, it would be inappropriate to choose a single measure of these variables as a static predictor of paternal trajectories; rather, indicators of socioemotional functioning and life stress were included in the model at each time of measurement in order to show how the value of the covariates at any given assessment point could predict the concurrent value of the parenting composite. Further, the presence of time-varying covariates in the model altered the interpretation of the static predictors (history of neglect and childhood trauma), such that the overall model represented the changes in parenting trajectories, controlling for the effects of time specific measurements of difficult life circumstances, self-mastery, and externalizing behaviors. Often, after taking these variables into account, the initial relationships between maltreatment history and

parenting diminished, suggesting that part of the relationship between history of maltreatment and parenting attitudes was explained by socioemotional functioning at each time point.

A set of six models were examined with time-varying covariates, one for each of the three socioemotional covariates with both history of neglect and childhood trauma as separate predictors. Each of the six models had acceptable fit and significantly predicted the parenting composite over time. Table 6 presents fit indices and estimates for important parameters in the models. For each of the covariates, the pattern was the same: fathers' personal environment and socioemotional well-being predicted his parenting attitudes at each point in time. Fathers who experienced a greater number of difficult life experiences had poorer parenting attitudes than fathers without stressful life events. Similarly, parenting attitudes were poorer among fathers who exhibited higher levels of externalizing behaviors. In contrast, positive factors such as high self-mastery and self-efficacy were associated with more positive parenting at each time point.

The interpretation of the time-invariant covariates changed as well. Whereas in the conditional model with history of neglect predicting paternal parenting trajectories, neglect was positively related to parenting slope, once the role of time varying socioemotional factors was considered, this effect diminished. The only relationship that remained was that neglect was inversely related to intercept, even after considering the positive impact of self-mastery and self-efficacy on parenting attitudes over time. In contrast, childhood trauma remained an important predictor of the initial status of parenting attitudes such that those who had more traumatic experiences during childhood had lower positive parenting attitudes at six months. After accounting for time varying

TABLE 6  
COMPARISONS OF MODELS WITH TIME-VARYING COVARIATES  
PREDICTING PARENTING

Time-Varying Covariate	Fit Indices		Coefficients with Standard Errors				TIC Parameter	
	CFI	RMSEA	B(S.E.) <sub>6</sub>	B(S.E.) <sub>12</sub>	B(S.E.) <sub>18</sub>	B(S.E.) <sub>24</sub>	Intercept	Slope
Time-Invariant Covariate (TIC): History of Neglect								
DLC	.95	.08	-.33 (.12)*	-.40 (.11)*	-.49 (.11)*	-.48 (.13)*	-.10 (.07)	.03 (.03)
Pearlin	.93	.09	.04 (.03)	.05 (.02)*	.08 (.02)*	.08 (.02)*	-.14 (.07)*	.03 (.02)
Externalizing	.93	.09	-.05 (.02)*	-.07 (.02)*	-.05 (.02)*	-.05 (.02)*	-.10 (.07)	.03 (.02)
Time-Invariant Covariate (TIC): Childhood Trauma								
DLC	.93	.09	-.31 (.12)*	-.34 (.12)*	-.45 (.11)*	-.44 (.14)*	-.05 (.02)*	.01 (.01)
Pearlin	.94	.08	.04 (.03)	.05 (.02)*	.08 (.02)*	.07 (.02)*	-.06 (.02)*	.01 (.01)
Externalizing	.93	.09	-.04 (.02)*	-.06 (.02)*	-.04 (.02)*	-.04 (.02)*	-.04 (.02)*	.01 (.01)

\*  $p < .05$

socioemotional variables, this relationship became more pronounced. Although each of the models had at least an adequate fit, the model with difficult life circumstances and history of neglect had the best overall fit because each of the time-varying covariate paths were significant predictors of parenting. Since this was the case, this model was used for the next step of the analyses, an examination of parenting attitudes and children's outcomes.

### *Paternal Parenting Attitudes and Children's Outcomes*

After exploring a number of models to understand both static and time varying factors that influenced paternal parenting attitudes over time, an additional set of models was tested that included pathways from fathers' latent intercept and slope parameters to children's outcomes in order to identify domains of child development that were influenced by both initial status and rate of change in paternal parenting beliefs. Three separate models were tested examining the role of parenting trajectories on children's language, cognitive, and socioemotional development. Overall, the model predicting children's scores on the ITSEA attention subscale proved to have the best overall fit. In addition to having acceptable indices of fit, CFI=.90, RMSEA=.09, fathers' initial status in parenting beliefs significantly predicted children's attention at 24 months: More positive parenting attitudes were associated with higher levels of sustained attention in children. In fact, 18.9% of the variance in children's attention was accounted for by the overall model including history of neglect and difficult life circumstances as covariates for paternal parenting attitudes. The full model in which paternal parenting was predicted by both history of neglect and changes in stressful life events and parenting also predicted children's attention, is depicted in Figure 5.

Two other models examined the role of paternal parenting in influencing children's cognitive (Bayley scores) and language (PLS-4) development. Both models provided a fairly good fit to the data, but paths from paternal parenting to children's development were not statistically significant in either model. For the cognitive development model, the CFI was .93 with a corresponding RMSEA of .08. Although

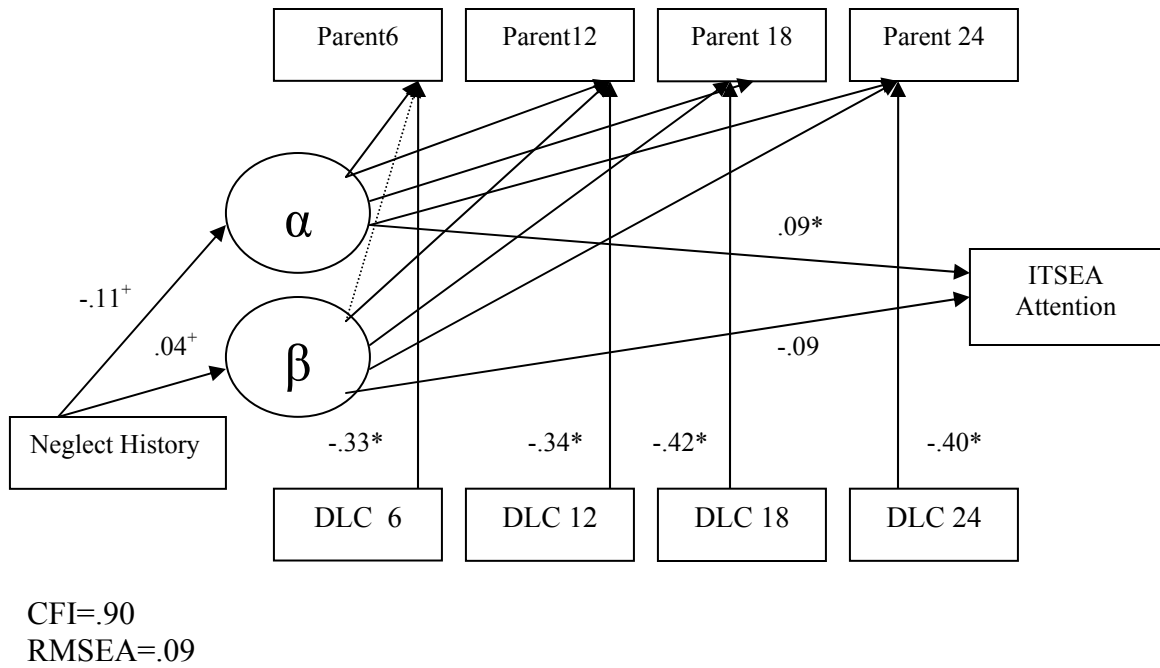


Figure 5. Full Model: Paternal Parenting and Children’s Development

non-significant, the model accounted for 5.5% of the variance in children’s Bayley scores. The language development model showed a similar pattern, CFI=.95, RMSEA=.06, accounting for 5.9% of the variance in auditory comprehension and expressive communication.

*Maternal covariates.* The final step of the analyses was to examine the potential influence of maternal depression and intelligence on children’s development. For each of the three child outcome models previously discussed, the addition of maternal covariates resulted in a very poorly fitting model. Although patterns of paternal influence remained the same, there were no significant relationships between maternal variables and

children's development in any of the three domains. This was not entirely unexpected as Table 4 did not indicate any significant correlations between maternal depression and intelligence for any of the child outcomes that were examined. Since the model with maternal covariates provided such a poor fit to the data and did not suggest any changes in the interpretation of the results, it was decided to reject this model and retain the previous model with children's outcomes as the most appropriate full model for the data.

### *Summary of Results*

Overall, it was found that fathers varied in their initial status and rate of change in regards to parenting attitudes; however, on average, there were no significant changes in parenting attitudes over time. History of abuse, neglect, and paternal age were all significant predictors of inter-individual variations in parenting trajectories. Most notably, a history of maltreatment was associated with lower levels of initial positive parenting attitudes and beliefs. Although older fathers tended to begin more positively than younger fathers, they also were more likely to decline in their positive parenting attitudes over time; in contrast, younger fathers tended to show increasingly warmer and more responsive parenting attitudes.

The addition of time varying covariates highlighted the fact that fathers' parenting attitudes could be predicted by stressful life events, self-mastery and self-efficacy, and externalizing behaviors, suggesting that paternal attitudes about parenting may fluctuate based on aspects of personal psychological functioning and life stress. Finally, parenting trajectories significantly predicted children's attention at 24 months; there were also trends suggesting possible relationships between paternal parenting and children's

cognitive and language development. Considering the role of maternal depression and intelligence did not add significantly to the model, resulting in poor fit and non-significant paths. Instead, fathers' attitudes about parenting were positively related to their children's development, and their own life experiences, both past and present, influenced their attitudes and beliefs regarding parenting.

## DISCUSSION

Although the last several decades have seen important contributions to the study of fathers and understanding their roles in the family, research on fatherhood remains in its infancy. Most research has been correlational, identifying single factors that either predict, or are predicted by, father presence or involvement assessed at a single, or rarely, at two points in time. Relatedly, theories of fatherhood have been confined to questions about how to best measure father involvement (Hawkins & Palkovitz, 1999; Lamb et al., 1987). Attempts to identify broader theories that differentiate maternal and paternal roles and functions have been criticized by the field as focusing on narrow aspects of fatherhood and not taking into account multiple determinants of both paternal behaviors and children's development. For example, Paquette (2004) suggested that the father's role is located more in the realm of active play and that father-child interactions carry a different weight and have a different purpose than mother-child interactions. In a series of responses to this article (Roggman, 2004; Tamis-LeMonda, 2004), prominent researchers suggested the limitations of this theory, such as confining fathers to the role of playmate, though they maintained the need for continued theorizing on the role of fathers in children's development. While the issue of how to best define a theory of fatherhood remains under debate, there is a great deal of consensus that theoretical contributions to the fatherhood literature are needed (Cabrera, 2006; Parke, 2000; Tamis-LeMonda, 2004).

The present study adds to literature on the adjustment to fatherhood by establishing a working model of paternal influence based on the Whitman et al. (2001) theory of parenting. According to this model, parental cognitive readiness is central in predicting parenting and children's development, with socioemotional adjustment and intelligence also acting as important predictors of both cognitive readiness and children's development (Whitman et al., 2001). The present study conceptualized cognitive readiness broadly as attitudes and beliefs regarding parenting, which were important predictors of children's development. Theoretically, this relationship is assumed to be mediated by actual parenting behaviors, that is, parenting attitudes should influence parenting behaviors which in turn impact children's development. Furthermore, in keeping with the Whitman et al. (2001) model, the present study took into account the role of the social environment and personal life histories in predicting fathers' parenting attitudes and beliefs. This type of modeling represents a first step in developing a theory of fatherhood by identifying paths through which fathers develop and in turn influence their children.

#### *Understanding Parenting Attitudes over Time*

The longitudinal design of the present study, spanning 18 months, was useful in examining the development of parenting beliefs in fathers of infants. Rather than finding a great deal of intra-individual variability in parenting beliefs, fathers were on average, quite stable in their parenting beliefs over time. Although there were marked differences in initial parenting beliefs, there were few changes over time. It is quite possible that changes in parenting beliefs would take longer periods of time to be displayed or that

underlying beliefs are generally stable. Perhaps actual parenting observations would have demonstrated more change, whereas parenting attitudes may be more stable or change more gradually. Despite the fact that there was no change over time in mean scores on parenting attitudes, inter-individual differences in change over time were observed, and two notable predictors emerged.

The first predictor of change in parenting attitudes over time was history of neglect. Those fathers who reported experiences of neglect during childhood were more likely than fathers who did not report neglect to improve in their parenting beliefs over time. However, these fathers were also most likely to have the lowest levels of positive parenting attitudes initially, suggesting that they may have had the most room for improvement. A related predictor, maltreatment history, was found to be associated with initial status, but not change over time. Fathers who were maltreated had lower levels of initial positive parenting, but there was no evidence that abuse history predicted changes over time in parenting attitudes. These findings—that fathers' childhood experiences influence their parenting attitudes—are consistent with previous research. For example, Shannon and colleagues (2005) recently identified that fathers who reported accepting relationships with their own fathers during childhood engaged in more responsive parenting behaviors than men who did not report accepting relationships with their fathers. Other researchers have identified attachment security as a predictor of positive parenting in both fathers and mothers (Cowan, Cohn, Cowan, & Pearson, 1996). For adolescent mothers, maltreatment history has been related to lower levels of parenting sensitivity (Milan, Ethier, Kershaw, & Ickovics, 2004).

The other significant predictor of changes in parenting attitudes over time was paternal age. Fathers who were older had higher levels of initial positive parenting; but they also tended to decrease over time whereas younger fathers' parenting beliefs improved with time. Fathers who were from 25-30 showed the most stability in their attitudes over time. Since the median age for men to become fathers in the U.S. is 29.7 years, those fathers who displayed the most stability in parenting attitudes had become fathers in a more normative age range for U.S. men (Martin et al., 2003). Fathers who entered parenthood at younger ages may have had difficulty identifying what type of parent they wanted to be since they were still developing themselves (Whitman et al., 2001). Conversely, older fathers and grandfathers may already have had experience with parenting, allowing them to confidently state their positive parenting attitudes early on. However, the demands of parenting a young child may prove especially difficult for a man who has already raised children and for whom raising an infant is a non-normative experience. Researchers have suggested that non-normative life transitions, such as adolescent parenting, or the loss of a child, are more difficult to adjust to and more salient than those transitions that occur on time and that such transitions have stronger impacts when they occur later in the lifespan (Baltes, Reese, & Lipsitt, 1980). As found in the Oregon Youth Study, early entry to fatherhood was associated with poor academic performance and antisocial behaviors (Fagot et al., 1998). The present study suggests that late entry (or re-entry) to parenthood could also be associated with parenting difficulties.

### *Fathers' Socioemotional Functioning and Life Stress*

Another interesting finding in the present study was that time-specific assessments of socioemotional functioning and life stress predicted fathers' parenting attitudes. Specifically, externalizing behaviors were related to more harsh and punitive beliefs about parenting. Jaffee and colleagues (Jaffee et al., 2003) have studied young men who are fathers and also engage in delinquent behaviors and have found that delinquency in fathers is associated with negative outcomes for children. Life stress was also shown to have a similar negative effect on parenting beliefs such that fathers who reported higher rates of stressful life events were less likely to report warm and responsive parenting beliefs. An abundance of research has demonstrated links between life stress and parenting. Certain stressors, such as persistent poverty, have been linked with harsh parenting and negative outcomes for children (McLloyd & Wilson, 1991), but even general life stresses and daily hassles have been found to predict decreases in maternal parenting sensitivity (Crnic, Gaze, & Hoffman, 2005).

Finally, self-efficacy was identified as a positive predictor of parenting attitudes. Fathers with greater self-esteem and self-confidence were also more likely to recognize and endorse appropriate parenting practices. This is in keeping with recent research finding that fathers who have higher levels of self-efficacy are more likely to be involved with their children (Jacobs & Kelley, 2006) and that confidence in parenting skills is related to more parenting engagement among men (Sanderson & Thompson, 2002). Parenting self-efficacy may be particularly important for fathers who may be more likely than mothers to experience low self-efficacy during the transition to parenting (Ferketich & Mercer, 1995), especially given that fathers with low parenting self-efficacy are less

likely to actively engage in parenting tasks (Reece & Harkless, 1998). In addition, parenting self-efficacy has been positively related to parenting satisfaction among new fathers (Hudson, Campbell-Grossman, Fleck, Elek, & Shipman, 2003).

### *The Role of Fathers and Children's Development*

The present study utilized latent growth curve modeling (LGM) to predict outcomes from initial status and rates of change in parenting attitudes. This represents a new direction in LGM, and opens a new set of opportunities for researchers to explore not only factors that set certain individuals on a developmental trajectory, but also to relate trajectories to exogenous outcomes. This approach is especially important for parenting research in which trajectories of parenting attitudes or behaviors are more salient in the context of children's development.

Although stability was evident in parenting attitudes in this sample of fathers, their initial status predicted children's sustained attention. An important role of fathers may be to teach their children how to engage with others (Paquette, 2004). There was also limited evidence of a relationship between paternal parenting attitudes and children's cognitive and language development. A number of researchers have shown relationships between the qualities of father-child interactions and advances in children's cognitive and linguistic development (Shannon et al., 2002; Tamis-LeMonda et al., 2004). Furthermore, among older children, father involvement was shown to be related to higher achievement in reading and math (Howard et al., in press). In the present study, even with a small sample of fathers and children, there was evidence of relationships between parenting attitudes and children's sustained attention. It is expected that a larger sample would have

yielded even clearer findings concerning the ways that fathers influence children's development.

Maternal intelligence and depression at 6 months were not related to children's outcomes at 24 months in the present study. Both factors have been found to be important determinants of parenting and children's outcomes (McLloyd & Wilson, 1991; Whitman et al., 2001). However, the results of this study suggested that maternal influence was not stronger than that of fathers. Such findings suggest that it is acceptable to study fathers in their own right, without necessarily including the role of mothers. Even so, it is important to examine the joint influences of mothers and fathers on their children's development, including aspects of the mother-father relationship which may significantly impact the context of child development. Research has already demonstrated that parenting attitudes influence marital intimacy, particularly for women. For example, agreement in parenting attitudes has been linked to increases in perceived intimacy over time for wives (O'Brien & Peyton, 2002). It follows that both shared parenting views and higher levels of parenting intimacy would positively impact children. Furthermore, multiple researchers have suggested that fathers may influence children through their influence on the mother-child relationship (Howard et al., under review; Tamis-LeMonda et al., 2004).

#### *Future Directions and Implications*

Both the Fragile Families Project (Reichman et al., 2001) and Early Head Start Father Studies (Cabrera, Moore et al., 2004) would provide excellent samples in which to examine trajectories of parenting attitudes and their subsequent effects on children's development, providing further evidence of these relationships among men who are

adjusting to parenting. Another interesting direction for future research would be to examine trajectories of observed parenting behaviors rather than parenting attitudes. Although there are strong theoretical reasons to believe that parenting behaviors actually mediate the relationships between parenting attitudes and children's development (Whitman et al., 2001), the link to child development may be clearer if actual parenting behaviors are observed. It is also important to consider the joint influences of mothers and fathers. An interesting extension to the present study would be to consider the paired trajectories of mothers and fathers in order to understand how they relate to children's development.

Several recent advances in analytical strategies will prove useful for advancing research and testing complex theories of fatherhood. For example, latent class analysis (Bauer & Curran, 2004) could be used to identify different types of fathers who have similar trajectories, which would prove helpful in understanding why fathers engage in different types of parenting and have differential impacts on their families and children. Another helpful method would be to use Multilevel LGM (Bollen & Curran, 2006) to examine paired trajectories of mothers and fathers and their relative influences on children's development. This would be a straightforward extension of the current study, and would allow for interpretations of the ways that mothers and fathers affect one another in addition to their children. With enough repeated measures, this approach could be extended to dynamical systems analysis (Boker & Laurenceau, in press) to examine the extent to which mothers' and fathers' parenting attitudes or behaviors are synchronized with other another, whether or not they oscillate over time, and how these factors relate to developmental outcomes in children.

Overall, the present study provides the foundation for developing a new theory of fatherhood based on an existing model for adolescent parents (Whitman et al., 2001). Although further work is needed to identify the uniqueness of this theory as it applies to fathers, as well as how both fathers and mothers fit into a more comprehensive model of child development, it does provide a helpful basis for future work. It was found that paternal attitudes towards parenting were stable over time and predicted by aspects of fathers' childhood and current life experiences. Furthermore, paternal parenting attitudes at 6 months significantly predicted children's sustained attention at 24 months. These findings are consistent with the extant literature and build upon it by offering a more complex methodology for assessing fathers' influence on their children, using sophisticated analytic strategies and longitudinal methodologies. Further research on longitudinal adjustments to fathering will help researchers to identify important ways to support men and their families after the birth of a child.

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