

Parenting Predictors of Father-Child Attachment Security: Interactive Effects of Father Involvement and Fathering Quality

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This study examined the parenting predictors of father-child attachment security in early childhood. Results suggest that multiple dimensions of fathers' parenting quality moderated the associations between father involvement, in its original content-free sense, and father-child attachment. Specifically, father involvement was generally unrelated to attachment security when fathers engaged in high-quality parenting behavior, but associated with lower levels of attachment security when fathers' parenting was less adaptive. Findings provide further evidence for the important role of parenting quality in the father-child attachment relationship, and suggest that the consequences of involved fathering for father-child attachment security are dependent upon qualitative aspects of fathering behavior.

Keywords: father-child attachment, childhood, fathering, security

The last several decades have seen an increase in research incorporating fathers into studies of child and family development (Lamb & Tamis-LeMonda, 2004). In addition to documenting levels of paternal involvement, this research has also explored

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how fathers become involved, and the different forms that the paternal role may take. As interest in this topic grows, so too has the range of methodologies and theories used to capture the meaning of fatherhood and father-child relationships (see Marsiglio, Amato, Day, & Lamb, 2000). Although fathering has been studied from a wide variety of perspectives, a lack of consensus definitions and unifying theories within fatherhood research remains one of the greatest challenges in this area.

Attachment theory has long been the predominant framework for the study of parent-child relationships in early childhood, and may well provide a useful approach for understanding fathers and child development (Pleck, in press). A vast body of research from this perspective indicates that attachment security is an index of parent-child relationship quality that develops largely as a function of parenting behavior (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969; Sroufe, 1985). Nonetheless, despite a voluminous body of research on parenting and mother-child attachment (see Cassidy & Shaver, 1999 for a review), we still know relatively little about what particular fathering behaviors promote father-child attachment. In particular, work from an attachment theory perspective has yet to adequately integrate the ever-growing literature on fathering behavior. Likewise, researchers concerned with documenting fathering behavior have generally not examined father-child attachment security as an outcome of this behavior. This study attempts to rectify these shortcomings by examining the unique and joint contributions of both fathers' parenting quality and father involvement to father-child attachment.

Father-Child Attachment

According to Bowlby (1969), attachment security represents the child's confidence in his or her caregiver, and is evident through the child's preferential desire for contact with the caregiver and use of the caregiver as a "secure base" from which to explore the environment. The parent-child attachment relationship forms through early patterns of interaction between the caregiver and child (e.g., Ainsworth & Bell, 1974; Ainsworth et al., 1978; Bowlby, 1969; Sroufe, 1985). A vast body of work has been devoted to elucidating the nature and origins of individual differences in mother-child attachment (see Weinfield, Sroufe, Egeland, & Carlson, 1999 for a review) and the consequences of these individual differences for concurrent and later development (see Thompson, 1999). Both attachment theory and attachment research have concluded that parenting quality is a major influence on developing attachment relationships. In particular, parental sensitivity has been implicated as the predominant source of attachment security (see De Wolff & van Ijzendoorn, 1997). When parents provide care that is warm, responsive, and appropriate to their child's needs, children develop a sense of trust in the caregiver that is manifested in the exploration, proximity-seeking, and secure base behavior characteristic of attachment security (Ainsworth et al., 1978; De Wolff & van Ijzendoorn, 1997; Isabella, 1993).

Within this framework, attachment research has focused almost exclusively on mothers' parenting and the development of the mother-child attachment relationship.

Far less research exists on the antecedents and consequences of father-child attachment security. Although Bowlby (1988) suggested a hierarchy of attachment figures in children's lives (with the primary caregiver at the top), he clearly believed that children were at least capable of forming attachments to non-maternal figures. This claim was supported by early attachment work revealing that many infants are likely to be distressed upon separation from *either* parent (Field, Gewirtz, Cohen, Garcia, Greenberg, & Collins, 1984; Kotelchuck, 1976) and direct attachment-related behavior toward both mothers and fathers upon reunion (Lamb, 1976, 1977). This should be especially true for modern fathers, given increases in levels of father involvement over the last 30 years (Pleck & Masciadrelli, 2004).

Research on attachment has generally assessed "security" using either 1) the Strange Situation Procedure (Ainsworth et al., 1978), which categorizes approximately 60-65% of children as being "securely attached" to their mothers across studies; or 2) The Attachment Q-Sort (Waters, 1987), which assigns each child a continuous score for attachment security with a theoretical range of -1 to +1. Although relatively little research has directly compared mother-child vs. father-child attachment security, comparative rates for fathers generally seem to be similar to those found with mothers (Belsky, 1996; Cox, Owen, Henderson, & Margand, 1992; Main & Weston, 1981; Owen & Cox, 1997; Volling & Belsky, 1992; see also reviews by Fox, Kimmerly, & Schaffer, 1991 and van Ijzendoorn & DeWolff, 1997). Whereas some work notes modest concordance between mother-child and father-child attachment (e.g., Fox et al., 1991; Steele, Steele, & Fonagy, 1996), most attachment researchers have generally concluded that these relationships develop independently of one another (Braungart-Rieker, Garwood, Powers, & Wang, 2001; Schoppe-Sullivan et al., 2006; Sroufe, 1985; van Ijzendoorn & De Wolff, 1997). Thus, it seems 1) children form attachments to fathers at rates comparable to their attachments to mothers, and 2) these attachments are largely independent of mother-child attachment.

Furthermore, secure father-child attachment in and of itself has been implicated in the subsequent development of fewer behavior problems (Verschueren & Marcoen, 1999), greater sociability (Lamb, Hwang, Frodi, & Frodi, 1982; Sagi, Lamb, & Gardner, 1986), and higher quality peer interactions (Parke, 2002). In general, the relatively small body of research on father-child attachment suggests that the strength of association between attachment and developmental outcomes seems to be similar to that found with mothers (see Greenberg, 1999, and Thompson, 1999 for reviews). Although fathers remain understudied in the domain of attachment, the evidence available indicates that infants do form attachments to fathers, and that these attachments are important for development.

Attachment and Fathers' Parenting

Increased understanding of the parenting behaviors that drive father-child attachment formation seems an essential next step for conceptualizing the father-child attachment relationship. However, this task presents some unique challenges associated

with the nature of fathering research. Firstly, the qualitative aspects of parenting that have been the focus of attachment theory and research with mothers have not been studied as much in fathers. Although detailed observational measurements of fathers' parenting quality are becoming more frequent (e.g., Cox et al., 1992; Grossmann & Grossmann, 1992; Volling & Belsky, 1992), they are still less common than similar studies of mothers. A second barrier to understanding which fathering behaviors contribute to father-child attachment is that fathering research has been dominated by the construct of father involvement. Although this focus on father involvement has greatly aided our understanding of fathers and families (see Pleck & Masciadrelli, 2004), there is little theoretical or empirical work linking father involvement to the development of attachment relationships. Clearly, fatherhood researchers should be examining both fathers' parenting quality and father involvement (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Palkovitz, 1997; Parke, 1996). Thus, both aspects of fathering behavior—and their possible contributions to father-child attachment security—will be considered in turn.

Fathers' parenting quality and father-child attachment. Much research with fathers has continued to focus on sensitivity (or responsiveness) as a key dimension of parenting quality (Lamb, 1997). Sensitivity generally refers to parents' abilities to respond warmly and consistently to the cues of their children (particularly in infancy and early childhood). An emphasis on fathering sensitivity is in part due to numerous studies linking sensitive and responsive fathering to children's higher levels of cognitive (Fagan & Iglesias, 1999; Ninio & Rinott, 1988) and socio-emotional competencies (Carson & Parke, 1996; Franz, McClelland, & Weinberger, 1991; Koestner, Franz, & Weinberger, 1990) in later childhood and adolescence. One general conclusion from this work is that fathers are capable of providing sensitive care for their children (Lamb, 1997, 2002; Parke, 2002). Furthermore, sensitivity is likely an important aspect of fathering behavior given that maternal and paternal sensitivity predict similar outcomes for children (Easterbrooks & Goldberg, 1984).

Importantly, sensitivity has been explored as a prominent predictor of father-child attachment security in early childhood. Still, the relatively few studies examining the relationship between parenting quality and attachment with fathers are somewhat less conclusive than those with mothers. Some studies have in fact found no significant associations between fathering sensitivity and father-child attachment security (Volling & Belsky, 1992; Braungart-Rieker et al., 2001). Nonetheless, other studies do report associations between high paternal sensitivity and father-child attachment security (Chibucos & Kail, 1981; Cox et al., 1992; Easterbrooks & Goldberg, 1984; Goossens & van Ijzendoorn, 1990). Moreover, a meta-analysis indicates that paternal sensitivity is significantly associated with father-child attachment security, although this relation is weaker than it is for mothers (van Ijzendoorn & De Wolff, 1997).

Additionally, observational assessments are beginning to examine multiple dimensions of parenting quality to determine what qualitative aspects of fathers' parenting behaviors might be most beneficial for children. Numerous studies have assessed a wide

variety of fathering behaviors, including power assertion (Kochanska, Aksan, & Joy, 2007), role reversal (Macfie, McElwain, Houts, & Cox, 2005), and style of play (Power & Parke, 1983) to name several. More commonly, this observational work has examined specific derivatives of sensitivity that typically include positive and/or negative affect (Carson & Parke, 1996; Isley, O'Neil, Clatfelter, & Parke, 1999), intrusiveness or over-control (Kochanska, Aksan, Penney, & Boldt, 2007; McDowell & Parke, 2005; Shannon, Tamis-LeMonda, & Cabrera, 2006; Shannon, Tamis-LeMonda, London, & Cabrera, 2002), or physical/cognitive stimulation (Beitel & Parke, 1998; Belsky, Jaffee, Sligo, Woodward, & Silva, 2005). The scope of these assessments is impressive, and results suggest that qualitative aspects of fathering behavior may be tied to a broad range of child outcomes. However, many of these dimensions have not yet been linked to father-child attachment security. Such work is necessary for identifying which aspects of fathering quality are important for the development of father-child attachment relationships (Lamb, 2002). Despite the dearth of evidence on this topic, attachment theory (e.g., Bowlby, 1969; Ainsworth et al., 1978), past research with mothers (De Wolff & van Ijzendoorn, 1997), and the limited number of studies with fathers (van Ijzendoorn & De Wolff, 1997) suggest that parenting quality should be among the most robust predictors of father-child attachment security.

Father involvement and father-child attachment. Whereas parenting quality has received increasing attention, fatherhood research has long been concerned with the levels and correlates of father involvement in the lives of their children (e.g., Pleck & Masciadrelli, 2004). This research has examined father involvement from a multitude of perspectives, resulting in a wide variety of operational definitions for the construct (e.g., Marsiglio et al., 2000; Palkovitz, 1997). Perhaps the most influential framework of father involvement comes from Lamb, Pleck, Charnov, & Levine (1985, 1987), who proposed a three-part model of paternal involvement that encompasses the various forms of participation that fathers may take in their children's lives. These categories consist of: 1) interaction (or engagement)—interacting directly with the child; 2) accessibility—being physically and/or psychologically available to the child; and 3) responsibility—assuming responsibility for the child's welfare and care. This model has been influential in guiding fatherhood research, and has emerged as among the most generally accepted definitions of father involvement (Pleck, 1997; Radin, 1994).

It should be noted that more recent reviews have argued for re-conceptualizing father involvement as “*positive paternal involvement*” (Pleck, 1997; Pleck & Masciadrelli, 2004; Cabrera et al., 2000). Indeed, recent research has increasingly incorporated the quality (rather than simply the amount) of paternal care into operational definitions of father involvement (see Amato & Rivera, 1999; Marsiglio et al., 2000; Lamb, Chuang, & Cabrera, 2003). Although this re-conceptualization is undoubtedly valuable for fatherhood researchers, it remains to be seen whether father involvement (in its original content-free sense) and fathering quality independently and/or interactively contribute to child outcomes. As it relates to father-child attachment security, this was the primary goal of the present work. Thus, the original tripartite model

was used to guide the conceptualization and measurement of father involvement in this study.

Recent advances in the study of father involvement and child outcomes have noted that several key shortcomings must be addressed in this domain of research. These include the need to control for maternal involvement (Amato & Rivera, 1999; Pleck, 1997), as well the need to avoid same-source bias in providing reports of father involvement and child outcomes (Amato & Rivera, 1999; Marsiglio et al., 2000). Studies that have met these criteria provide evidence that positive paternal engagement is associated with positive child outcomes (see Marsiglio et al., 2000; Pleck & Masciadrelli, 2004 for reviews). Based on these studies, the consequences of positive father involvement include greater mental health as adults (Wenk, Hardesty, Morgan, & Blair, 1994), fewer behavior problems in later childhood (Aldous & Mulligan, 2002), more positive school attitudes in adolescence (Flouri, Buchanan, & Bream, 2002), and increased economic-educational achievement in adulthood (Harris, Furstenberg, & Marmer, 1998). Thus, recent advances in the study of father involvement suggest that positive involvement has some predictive validity for child outcomes across the lifespan.

This study, however, focuses on the potential role of involvement in the original content-free sense, in interaction with qualitative aspects of fathering, on attachment. Although the measures used in past investigations linking father involvement to father-child attachment may have had some qualitative component, they were all largely concerned with assessing the *amount* of parental involvement in which fathers engaged. Whereas some of Lamb's work with Swedish families (Lamb, Frodi, Hwang, & Frodi, 1983) found no significant associations between father involvement and father-child attachment security, some investigations with American samples suggest otherwise. Fathers who report higher levels of involvement are more likely to have infants classified as securely attached (Cox et al., 1992), and describe their children as being more secure (Caldera, 2004) than less involved fathers. Furthermore, early work on attachment-related behaviors found that fathers who were more involved in caretaking had children who gave more enthusiastic greetings (Pedersen & Robson, 1969) and showed more proximity seeking (Kotelchuck, 1976; Spelke, Zelazo, Kagan, & Kotelchuck, 1973) upon reunion with them. Thus, although Cabrera et al. (2000) noted that there is no theoretical basis for expecting father involvement in its original content-free sense to be related to attachment security, there is some limited empirical evidence suggesting that higher levels of content-free father involvement may influence father-child attachment security.

The Present Study

The present study intends to advance research on the father-child attachment relationship by investigating how father involvement in its original content-free sense and fathering quality contribute to father-child attachment security. This work intends to explore how each aspect of fathering independently and/or interactively predicts the quality of the father-child attachment relationship.

Furthermore, the inclusion of father involvement and qualitative aspects of fathers' parenting in this study allows us to go beyond prior research to examine potential mediational or moderational effects. Given the prominence of parenting quality (but not parental involvement) in the attachment literature, it seems plausible that fathers' parenting quality might mediate the influence of paternal involvement on father-child attachment. This mediational hypothesis suggests that any relation between involvement and attachment would become non-significant after accounting for fathers' parenting quality. The exploration of this hypothesis is supported on the theoretical grounds of attachment theory (e.g., Ainsworth & Bell, 1974; Bowlby, 1968), which posits that parenting quality is the primary predictor of attachment security while making no predictions regarding the relation between involvement and attachment. As such, parenting quality might account for any existing link between father involvement and father-child attachment security.

An alternative hypothesis could argue that fathers' parenting quality *moderates* the relation between father involvement and attachment security. According to Baron and Kenny (1986), moderation occurs when the relationship between two variables differs at varying levels of a third (moderator) variable. The proposition that parenting quality may be a moderator is in line with recent conceptualizations in the father involvement literature arguing that *positive* (i.e., high quality) involvement is responsible for positive developmental outcomes (e.g., Cabrera et al., 2000; Pleck & Masciadrelli, 2004). That is, high-quality involvement may contribute to attachment security, whereas increased levels of low-quality involvement may not be beneficial (or may even be harmful) for the father-child attachment relationship. This moderational model was tested in the present study. By contrast, there is little theoretical basis (in the attachment or father involvement literatures) for the obverse idea that involvement would moderate the relation between parenting quality and attachment.

This work was guided by three primary research questions. Firstly, are father involvement and/or fathers' parenting quality directly related to father-child attachment security? Secondly, does fathers' parenting quality mediate the association between father involvement and father-child attachment? Finally, does fathers' parenting quality moderate the association between father involvement and father-child attachment?

Method

Participants

This study consisted of 46 children (21 girls and 25 boys) between the ages of 2 and 3 years old and their fathers. Data for this study are being drawn from the first year of a longitudinal project focused on examining the impact of parent-child relationships on children's development. Families were recruited primarily through local day care centers, but also via fliers placed in local community agencies, newspapers, and grocery stores. Criteria for inclusion in the study consisted of the child being 2 years old, both parents living in the home with the child, and the child being enrolled in some

daycare/preschool program. All families consisted of both biological parents, except for one family that consisted of both adoptive parents, and one family that consisted of a biological mother and a stepfather.

Seventy-one percent of fathers, 69% of mothers, and 58% of children were Caucasian. For fathers, mothers, and children, the next most common ethnicity was Asian, followed by Hispanic, African-American, and South American. Mean ages for the fathers, mothers, and children at the time of data collection were 38.03 ($SD = 6.45$) years, 34.07 ($SD = 4.79$) years, and 32.00 ($SD = 5.99$) months, respectively. Forty-nine percent of the families had one child, 35% had two children, 14% had three children, and 2% had more than three children. Families with combined incomes less than \$20,000 comprised 5.2% of the sample, 23.7% had incomes between \$20,000 and \$40,000, 14.2% had incomes between \$40,000 and \$60,000, and 57.9% had incomes greater than \$60,000. Overall, according to U.S. Census Bureau statistics (2005), the population by race in the county was 75% European American, 11% African American, 8% Asian, 4% Latino, and 2% mixed race, and the median household income was \$39,227.

Eighty-seven percent of the fathers and 87.9% of the mothers had a bachelors degree or beyond. All fathers and all but 2 of the mothers were employed outside the home, with both groups working an average of 43.39 and 31.25 hours per week, respectively.

Procedures

A combination of self-report, interview, and observational data were collected for this study. Upon agreeing to participate, families were scheduled for a home visit by a research assistant. During this visit, a time diary interview protocol was used to measure interaction and accessibility forms of father involvement. Fathers were interviewed by a male research assistant in all cases. A series of questionnaires was left with the family to be completed and turned in at the next phase of data collection (usually several weeks later). Mothers and fathers completed a measure designed to assess parental responsibility together, as well as a demographics questionnaire.

Father-child dyads were scheduled for a second visit to the laboratory that usually occurred within several weeks of the initial visit. This visit included a teaching task that was used for assessing various dimensions of fathers' parenting quality. A third visit was scheduled that also took place in the home of participating families. During this visit, two research assistants conducted naturalistic observations of father-child interaction as a means of assessing attachment quality.

Measures

Involvement variables. The Interaction/Accessibility Time Diary interview protocol (McBride & Mills, 1993) was used to measure interaction and accessibility forms of involvement. Data were collected during these interviews using a forced-recall technique. Data were collected for the most recent workday and non-workday prior to

the interview. For the target days, each father was asked to recount their activities in great detail (15 minute intervals) from the time they woke up in the morning until the time they went to sleep at night. Prompts and cues from the interviewer allowed fathers to elaborate upon the exact length and nature of activities, as well as specify who was engaged in these activities with them, or otherwise present at the time.

All interviews were audiotaped and later analyzed. Responses were categorized as (a) interaction, (b) accessibility, or (c) no involvement at all. Interaction consisted of activities in which both the father and child were directly engaged. The accessibility category additionally encompassed activities in which fathers were available to the target child, even though not necessarily engaged with them. By definition, interaction forms of involvement were coded as accessibility as well (i.e., you must be accessible to your child to interact with them). The final interaction score ($M = 628.1$; $SD = 170.6$) was the combined total number of minutes the father interacted with his child on the workday ($M = 193.9$; $SD = 94.7$) and non-workday ($M = 434.2$; $SD = 138.6$). Likewise, the final accessibility score ($M = 799.6$; $SD = 230.5$) was the combined total number of minutes the father was accessible to his child on the workday ($M = 248.9$; $SD = 127.6$) and nonworkday ($M = 550.7$; $SD = 185.0$).

An adapted version of the Parental Responsibility Scale (PRS; McBride & Mills, 1993) was used to measure responsibility forms of parental involvement. This scale lists 14 common child care tasks in which parents of 2-year-olds typically participate (e.g., supervising the child's hygiene, making baby-sitting arrangements, selecting appropriate clothes for the child to wear, etc.). Responsibility was defined for the parents as remembering, planning, and scheduling the task. Mothers and fathers completed this instrument together ($\alpha = .74$), and responded by designating who had primary responsibility for each task using a 5-point scale ranging from (1) *mother always responsible* to (5) *father always responsible* ($M = 2.50$; $SD = .36$). Because mothers and fathers tend to over-report their own parental involvement (while downplaying their partners') on questionnaire measures (Coley & Morris, 2002; Deutsch, Lozy, & Saxon, 1993), this strategy was used to obtain the most accurate assessment of parenting responsibility.

Z-scores were computed on the time diary interview data and the parental responsibility scale for fathers so that each component of father involvement would be equally weighted. These z-scores were then summed to provide a composite measure of total father involvement for participant families ($M = -.02$; $SD = .83$), and then used in subsequent analyses.

Fathers' parenting quality assessment. Each father interacted with his child in the laboratory during a semi-structured play session. Dyads were each given a set of building blocks and a puzzle, and were told to play with the toys in that order for approximately 15 minutes. Both tasks were too difficult for the child to complete independently, and were thus designed to elicit instructional behavior from the fathers. Using coding scales adapted (for task and age-appropriateness) from Egeland and Sroufe (1983) and Sroufe, Jacobvitz, Mangelsdorf, DeAngelo, and Ward (1985), research assistants subsequently coded the father-child episodes for a variety of dimen-

sions of fathering behavior. Parent behavior during the building block and puzzle tasks were coded separately. However, due to a pattern of high intercorrelations, scores from the two episodes were combined by calculating the mean of each scale across both interaction episodes. The following dimensions were coded: supportive presence (warmth and provision of emotional support), structure and limit setting (ability to convey expectations for the child's behavior), hostility, quality of instruction (giving instructions that are effective and appropriate for the child's ability level), intrusiveness (behavior that denies the child autonomy in the interaction), positive regard for the child (demonstrations of positive affect directed at the child), detachment/disengagement (physically or psychologically distancing oneself from the child), fun/enjoyment (taking pleasure in the interaction episode), and cooperation (working toward a common goal). Averaging across the two intervals created a final score for each dimension.

All of the scales for coding parent-child interaction used 7 points (1 = low, 7 = high). Coding was done independently by two trained research assistants. Interrater reliability was computed on a randomly selected sample of the episodes. Gamma coefficients were used because, like Cohen's kappa, chance agreement is taken into account, yet gamma is more appropriate for use with ordinal rating scale data (Hays, 1981; Liebetrau, 1983). Gamma coefficients ranged from .57 to .93 ($M = .78$) for the puzzle task, and from .54 to 1.00 ($M = .77$) for the block task. Coders conferred to resolve discrepancies.

For the purpose of data reduction among the parenting quality variables, principal components analysis (PCA) was conducted using varimax rotation. This analysis yielded a 3-factor solution, each with eigenvalues greater than 1 (factor loadings, as well as means and standard deviations, follow in parentheses). For each factor, the mean of the component sub-scales was computed. The first factor, labeled *Positive Affect* ($M = 3.61$; $SD = .75$), explained 33.8% of the variance, and consisted of supportive presence (.78; $M = 3.98$; $SD = .77$), positive regard for the child (.95; $M = 3.25$; $SD = .91$), fun/enjoyment (.86; $M = 2.78$; $SD = 1.04$), and reverse-scored detachment/disengagement (-.77; $M = 4.43$; $SD = .70$). The second factor, labeled *Task Orientation* ($M = 3.72$; $SD = .74$), accounted for 26.3% of the variance, and consisted of structure and limit setting (.87; $M = 3.85$; $SD = .87$), quality of instruction (.85; $M = 3.61$; $SD = .74$), and cooperation (.77; $M = 3.68$; $SD = .91$). The third factor, labeled *Intrusiveness* ($M = 1.73$; $SD = .49$), accounted for 18.5% of the variance and was comprised of hostility (.78; $M = 1.21$; $SD = .37$) and intrusiveness (.90; $M = 2.25$; $SD = .74$). These three parenting quality factors were used in all subsequent analyses.

Attachment security assessment. The Attachment Behavior Q-set (AQS; Waters, 1987; Waters, Vaughn, Posada, & Kondo-Ikemura, 1995) was used to measure attachment security for father-child pairs in this sample. The AQS has been used in a wide variety of contexts and across a range of age groups (e.g., van Ijzendoorn, Vereijken, Bakermans-Kranenburg & Riksen-Walraven, 2004; Waters et al., 1995) and has been shown to be a valid measure of attachment security as indexed by the child's secure-base behavior organized around a specific caregiver. The AQS item set contains 90

statements about a child's behavior in the context of interaction with a specific caregiver. The items were developed to provide a comprehensive characterization of the child's use of the caregiver as a secure base for exploration and as a haven of safety when threatened or otherwise distressed, which constitute the criteria for determining the security of an attachment relationship during childhood (e.g., Ainsworth & Marvin, 1995).

The AQS was completed by two trained observers after a home visit lasting approximately 2 hours. Prior to initiating observations with the test sample, observers were trained to a criterion of .70 (Q-correlations between observers). Two observers were present on all home visits, and each observer independently described the child using the AQS. After the home visit, the observer's task was to sort the items from the AQS along a continuum ranging from those items "least descriptive" (1) of the child during the observation period to those "most descriptive" (9) of the child during the observation period. Observers specifically asked the fathers about items that were not observed during the session. The items were sorted according to a nine-category fixed rectangular distribution (i.e., 10 items in each of 9 categories), with the "score" for a particular item being the category (i.e., 1 to 9) in which it was placed. To generate an attachment security score for each child, the Q-sort description of the child was correlated with the description of the hypothetical "very securely attached" child provided by Waters et al. (1995). Independent sorts for two observers were averaged before calculating scores for attachment security. Thus, total scores could range from -1 to 1, with a higher score reflecting greater attachment security ($M = .39$; $SD = .16$).

Results

Analyses were conducted in two steps. First, bivariate correlations and regression analyses were conducted to determine the extent to which father involvement and fathers' parenting quality were directly related to father-child attachment security. A second series of regression analyses was then used to conduct moderational analyses examining whether the interaction between father involvement and fathers' parenting quality predicted attachment security. Preliminary analyses revealed no significant differences in attachment security as a function of fathers' ethnicity ($F = .20$, n.s.) or child gender ($F = 1.16$, n.s.). Furthermore, attachment security was unrelated to child age, fathers' age, fathers' education, or income (r s ranged from .00 to -.09, n.s.). Thus, these demographic variables were not entered as covariates in regression analyses. In addition, although maternal involvement and/or parenting quality are often controlled for in recent studies of the influence of father involvement on developmental outcomes (Marsiglio et al., 2000; Pleck & Masciadrelli, 2004), they were not controlled for here on the grounds that attachment theory and research suggests that attachments with a particular caregiver (e.g., father) are relationship-specific, developing via a history of interactions with that caregiver, and not influenced by interaction with other caregivers (e.g., Cox et al., 1992; Sroufe, 1985; van Ijzendoorn & De Wolff, 1997).

Table 1
Correlations among Fathering Variables

Variables	1	2	3	4	5
1. Father Involvement	-				
2. Positive Affect	.25	-			
3. Task Orientation	.27	.50**	-		
4. Intrusiveness	-.22	-.20	-.20	-	
5. Father-Child Attachment Security	-.27	.13	.29	-.02	-
<i>M</i>	-.02	3.61	3.72	1.73	.39
<i>SD</i>	.83	.75	.74	.49	.16

** $p < .01$.

Main Effect Analyses

Bivariate correlations generally revealed few significant associations among the fathering variables used in this study. Correlational results are presented in their entirety in Table 1, indicating the only significant correlation was between positive affect and task orientation ($r = .50, p < .05$). There was no significant association between father involvement in its original content-free sense and the AQS attachment security score. Likewise, attachment security was also unrelated to any of the 3 parenting quality factors. Since neither father involvement nor fathers' parenting quality was significantly associated with attachment security, plans for mediational analyses were dropped.

Next, a regression analysis was conducted to compare the unique effects of father involvement and each parenting quality factor. Father involvement and all 3 aspects of fathers' parenting quality were entered on a single block of a regression equation with father-child attachment security as the dependent variable (see Table 2, step1). The equation as a whole did not explain a significant portion of the variance in attachment security. Father involvement was the only significant individual predictor ($\beta = -.43, p < .05$), although task orientation was marginally significant ($\beta = .40, p < .10$). These results suggested that father involvement was associated with lower levels of attachment security.

Moderational Analyses

A series of hierarchical regression analyses were conducted to examine the interactive effects of father involvement and parenting quality on father-child attachment security. These analyses were designed to examine whether the links between father involvement and father-child attachment security were moderated by qualitative aspects of fathers' parenting. Regression equations were created using the father involvement composite and each of the parenting quality dimensions as independent variables, and attachment security as the dependent variable. Three interaction terms were created by

Table 2

Predicting Attachment Security from the Interaction between Father Involvement and Fathers' Positive Affect

Independent Variable	<i>B</i>	<i>SE B</i>	β	Adj. <i>R</i> ²	<i>F</i> Change
Father-Child Attachment Security					
Step 1					
Father involvement	-.11	.05	-.43*		
Positive affect	.01	.05	.04		
Task orientation	.09	.05	.41†		
Intrusiveness	.01	.07	.02	.13	2.05
Step 2A					
Father involvement	-.10	.04	-.39*		
Positive affect	.02	.04	.11		
Task orientation	.07	.04	.35†		
Intrusiveness	.02	.06	.04		
Father involvement X positive affect	.13	.05	.40*	.28	5.96*
Step 2B					
Father involvement	-.11	.05	-.41*		
Positive affect	-.01	.04	.11		
Task orientation	.10	.04	.44*		
Intrusiveness	-.03	.07	-.08		
Father involvement X task orientation	.12	.06	.35†	.23	4.07†
Step 2C					
Father involvement	-.11	.04	-.44*		
Positive affect	-.03	.05	-.14		
Task orientation	.10	.04	.48*		
Intrusiveness	-.12	.08	-.36		
Father involvement X intrusiveness	-.23	.10	-.52*	.26	5.34*

†*p* < .10. **p* < .05.

centering each of the independent variables (using deviation scores) to reduce multicollinearity, and computing the products of the father involvement dimension and each parenting quality dimension. Each interaction term was examined in a separate model. Father involvement and all dimensions of fathers' parenting quality were entered on the first step of each equation, and the interaction term was added on the second step. Thus,

a significant increment in variance from step 1 to step 2 indicates that the interaction term is a significant predictor of attachment security. Since the step 1 results are identical for each model, they are not repeated. Thus, in Table 2 the first model is reported in steps 1 and 2A, the second model in steps 1 and 2B, and the third model in steps 1 and 2C. Plotting and post-hoc probing were conducted based on procedures outlined in Aiken & West (1991).

Results revealed that the composite father involvement score interacted with each of the three parenting dimensions to predict father-child attachment security. The first moderational analyses examined the interaction between father involvement and positive affect. Results are presented in Table 2, step 2A and indicated that the interaction between involvement and positive affect was significant ($\beta = .40$; F change = 5.96, $p < .05$). This interaction effect is plotted in Figure 1, and reveals that father involvement was associated with lower attachment security when fathers showed low levels of positive affect. When fathers showed high levels of positive affect during parent-child interactions, involvement was unrelated to attachment security.

The next regression equation contained the father involvement x fathers' task orientation interaction term. As seen in Table 2, step 2B, the addition of the interaction between involvement and task orientation explained a marginally significant portion of the variance in attachment security ($\beta = .35$; F change = 4.07, $p = .055$). This result is

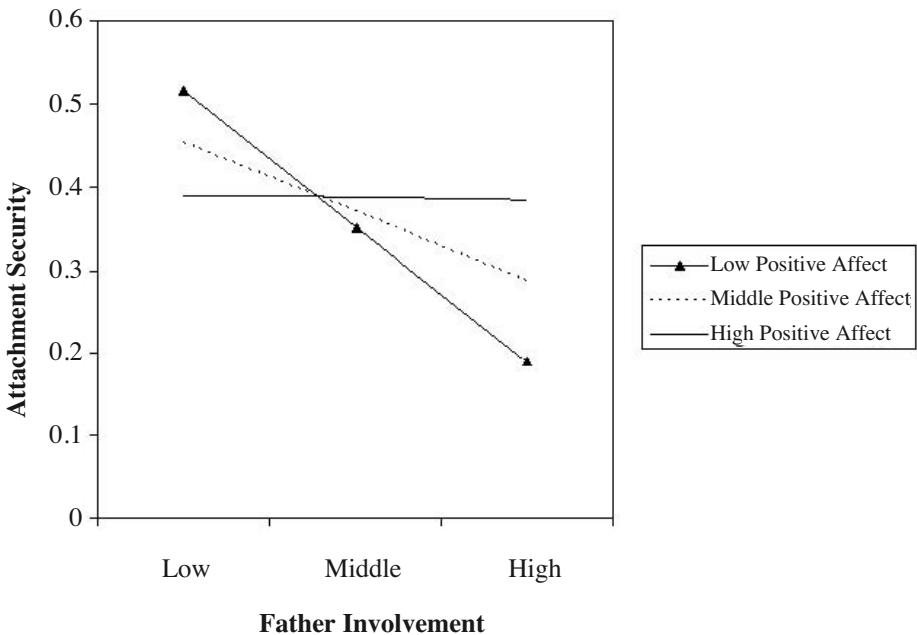


Figure 1. Associations between father involvement and father-child attachment security as a function of fathers' positive affect.

plotted in Figure 2, and reveals that father involvement was associated with lower attachment security only when fathers were low on task orientation. There was no association between involvement and attachment when fathers demonstrated high task orientation.

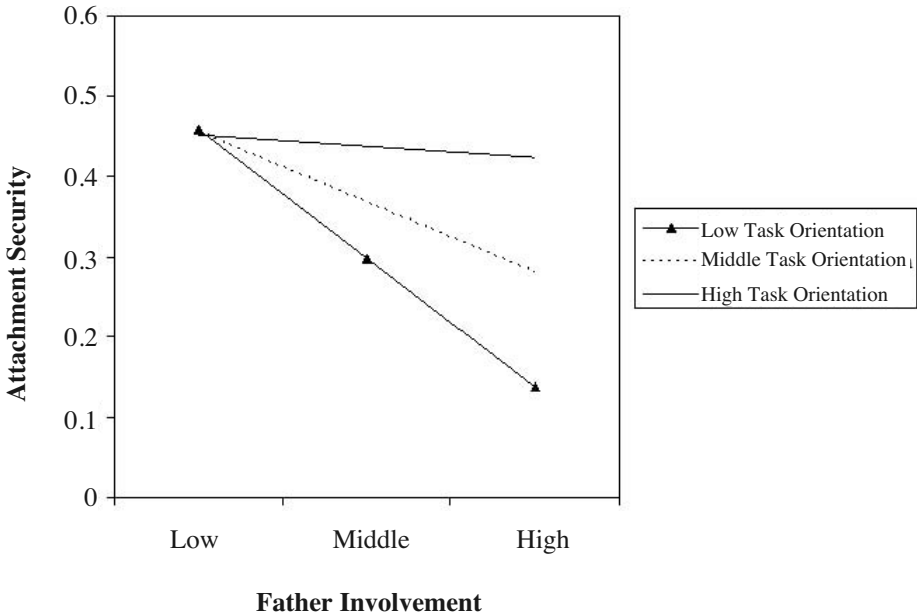


Figure 2. Associations between father involvement and father-child attachment security as a function of fathers' task orientation.

The final equation contained the interaction between father involvement and fathers' intrusiveness. As with the other parenting quality factors, Table 2, step 2C shows that the interaction between involvement and intrusiveness was a significant predictor of attachment security ($\beta = -.52$; F change = 5.34, $p < .05$). This interaction is plotted in Figure 3, and indicates that father involvement was negatively associated with attachment security when fathers were highly intrusive. There was no association between composite involvement and father-child attachment security when fathers showed low intrusiveness.

Taken as a whole, there was relatively little support for a "main effects" model in which father involvement and parenting quality predict attachment security. On the contrary, these results consistently supported a moderational model in which the associations between overall father involvement and father-child attachment security were moderated by fathers' parenting quality.

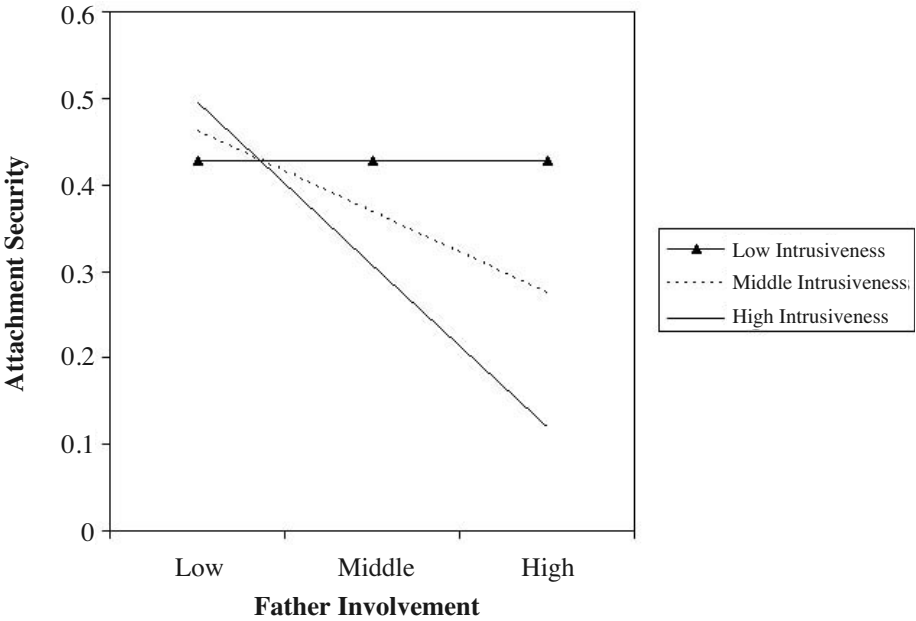


Figure 3. Associations between father involvement and father-child attachment security as a function of fathers' intrusiveness.

Discussion

Results highlight the importance of multiple aspects of fathers' parenting for the father-child attachment relationship. In particular, these findings indicate that fathers' parenting quality and father involvement in its original content-free sense may have interactive effects on the early father-child relationship. Parenting quality showed no direct associations with attachment security. Father involvement had a significant negative main effect in the first regression model. However, since the addition of interactions with parenting quality in later steps accounted for significantly more variance, the interpretation that parenting quality moderates the influence of involvement takes precedence over the main effect interpretation of involvement's influence on attachment. Thus, in the present data, the degree to which father involvement accrues benefits for father-child attachment is dependent upon fathers' parenting quality.

Interestingly, these effects are driven by the cumulative *negative* impact that low-quality fathering and high father involvement can have on the attachment relationship. When fathers engaged in positive parenting behaviors, father involvement seemed to have no impact on father-child attachment security. That is, children formed relatively secure attachment relationships regardless of whether or not their fathers were highly

involved. On the contrary, when fathers engaged in less desirable parenting, increased father involvement was actually related to a less secure father-child relationship. If fathers demonstrate little positive emotion, insufficient task structure, or excessive over-control, then father involvement may actually be detrimental to father-child attachment security. Indeed, prolonged exposure to an unskilled father could impede children's ability to use that father as a source of trust and support from which to explore the world.

Other researchers have also noted that it is difficult to implicate father involvement in its original content-free sense in the development of father-child attachment relationships (e.g., Lamb & Tamis-LeMonda, 2004). Our results provide further empirical support for this view that "the amount of time that fathers and children spend together is probably much less important than what they do with that time" (Lamb & Tamis-LeMonda, 2004, p. 10). These results provide support for recent suggestions that qualitative aspects of fathers' parenting should be incorporated into the conceptualization and measurement of father involvement (e.g., Lamb & Tamis-LeMonda, 2004; Pleck & Masciadrelli, 2004).

Our pattern of results was generally consistent across all three parenting dimensions. That is, father involvement was only (negatively) associated with attachment when fathers were low on positive affect or task orientation, or high on intrusiveness. Each dimension of parenting behavior seemed to play a substantial role in regulating the effects of increased involvement on father-child attachment security. Although we did not find direct relationships between parenting quality and attachment, all aspects of fathering behavior seemed to play a similar, moderating role in father-child attachment formation. Despite the fact that positive affect, task orientation, and intrusiveness tap into different dimensions of parenting behavior, each could be essential in determining the effect of father involvement on father-child attachment security.

It should be noted that the higher-order parenting quality factors derived in this study differed slightly from factors that have been found in past research with the same (or similar) scales. The positive affect factor maps closely onto prior work in which positive affect, warmth, and/or emotional support load onto the same dimension (Cox et al., 1992; Frosch, Cox, & Goldman, 2001; Volling, McElwain, Notaro, & Herrera, 2002; Woodworth, Belsky, & Crnic, 1996). Likewise, much of this same research has also identified a dimension consisting of hostile and/or intrusive parenting that is similar to the intrusiveness factor used in the present study (Frosch et al., 2001; Volling et al., 2002; Woodworth et al., 1996). The task orientation factor seems to be less well-represented in past research. However, the fact that this factor produced moderational results approaching significance suggests that it may also be an important variable to be considered in subsequent research examining qualitative aspects of fathers' parenting. Future work would be well-served by continuing to explore other aspects of fathering behavior that might contribute to the developing father-child relationship in early childhood.

The present study is intended to be a step toward rectifying shortcomings in both the attachment and fathering literatures by adding to recent efforts to understand how

modern fathers may serve as attachment figures (e.g., Bretherton, Lambert, & Golby, 2005). Nonetheless, an exclusive reliance on attachment theory runs the risk of overlooking certain elements of parent-child relationships, particularly when examining fathers and children beyond infancy (e.g., Lamb, 2005; Pleck, in press). Some have suggested that other theoretical frameworks may capture different aspects of the father-child relationship (see Paquette, 2004). In short, attachment security is one indicator of father-child relationship quality, but it may not be the only appropriate framework for understanding the nature of fathers and children.

These results should be interpreted with caution for several reasons. Notably, this was a relatively small sample that may not be generalizable to other populations. The limited number of father-child dyads in this study limits the statistical power to detect significant results. Additionally, although results did not differ as a function of demographic characteristics in this sample, one must exercise caution in generalizing the results to other populations. These effects may well differ in other samples as a function of child/parent age, SES, race/ethnicity, education, or other unique sample characteristics. Although this study does benefit from the use of detailed interview and observational assessments of fathers and father-child interaction, it still awaits replication in other samples.

Another potential limitation is that the assessment of parenting quality in this study provides a context-specific snapshot that may or may not characterize fathers' behavior over the course of a typical day. Although this study's consistent findings suggest that the moderator effects are fairly robust, parenting quality was coded during a 15-minute observation, whereas other studies have coded longer intervals (De Wolff & van Ijzendoorn, 1997). We cannot be certain that these parenting behaviors were reflective of fathers' parenting during all the times in which they are involved with their children. Finally, the concurrent nature of these data makes it difficult to determine the direction of causality. Future work would benefit from longitudinal designs that allow for the evaluation of father involvement, fathers' parenting quality, and father-child attachment security across time. Despite these limitations, this study adds to research and theory-building in the fatherhood and attachment literatures by bringing together the father involvement, fathering quality, and father-child attachment domains of inquiry.

This study's finding that the combination of poor parenting and high levels of father involvement produced deficits in attachment security may have implications for parenting programs aimed at fathers, as well as the societal messages that modern fathers are receiving. Overarching calls for fathers to invest more time in the lives of their children could be misguided if targeted at the subset of fathers who are not yet equipped with the knowledge and skills to interact with their children in supportive ways. This could have the unintended effect of furthering a cycle of maladaptive parenting behavior that seemingly has negative consequences for father-child relationship functioning. For these fathers, efforts from educators and practitioners should be aimed at increasing the quality of parenting behaviors—such as encouraging displays of positive emotional expression, developing strategies for maintaining children's focus, and raising awareness of unnecessarily intrusive interactions. Early intervention may be essential, as these efforts should be made *before* encouraging these fathers to become more involved with their children.

In summary, this study is among the first to examine the unique and cumulative effects of father involvement in its original content-free sense and fathering quality on the father-child attachment relationship. Results speak to the importance of considering qualitative dimensions of fathers' parenting—in addition to father involvement—in research on fathering and child outcomes in general, and father-child attachment security in particular. We view this work as a step toward better understanding the development of the early father-child attachment relationship, and the parenting behaviors that determine the quality of this relationship. As Parke (2002) elegantly states, “to understand the nature of father-child relationships within families, a multilevel and dynamic approach is required” (p. 28). This study is one attempt to develop such an approach by integrating various domains of fatherhood research. In following this approach, we hope that this and future research may continue toward a more complete understanding of fathering behavior, and what this behavior means for the father-child relationship.

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The effects of father involvement on child outcomes are discussed within each phase of a child's development. Particular emphasis is placed on (1) fathers' involvement across childhood ages and (2) the influence of fathers' physical and mental health on their children. Children in a blended family may have both a biological nonresident father and a stepfather. Some gay men and lesbians have created families in which children have 3 or 4 adults in a parenting role, with 1 or 2 of them being fathers. Some children do not have a male figure involved in raising them (eg, those whose parent is a single mother, by choice or circumstance, and those whose parents are a lesbian couple). In sum, a secure father-child attachment relationship (a) was related to both quantity and quality of fathering behavior, (b) remained relatively stable across early childhood, and (c) predicted increased paternal sensitivity over time. These findings further our understanding of the correlates of early father-child attachment, and underscore the need to consider multiple domains of fathers' parenting and reciprocal relations between fathering behavior and father-child attachment security. PsychINFO Database Record (c) 2012 APA, all rights reserved. Path Diagram with All Standardized Path Coefficients Included Note: Statistically significant paths are highlighted in bold type * $p < .05$ ** $p < .01$.