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Running head: FATHERS' FRIGHTENING BEHAVIORS

Fathers' frightening behaviors and sensitivity with infants:  
Relations with fathers' attachment representations, father-infant attachment, and  
children's later outcomes

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Abstract

This longitudinal study of 125 families investigated whether negative child outcomes related to fathers' frightening (FR) behaviors with infants would be mitigated if fathers were also sensitive. Results indicated that children whose fathers were FR and insensitive with them during infancy showed the highest emotional under-regulation at 24 months and highest teacher ratings of attention problems at age 7, whereas those whose fathers were FR and sensitive did not differ from children whose fathers were sensitive but not FR. Sensitive caregiving mitigated the negative impact of FR behaviors on child outcomes for fathers, but not mothers. Perhaps fathers who can be sensitive but also engage in stimulating, albeit frightening, interactions with their infants may actually be scaffolding their ability to regulate their affect in intensely emotional situations. Frightening behaviors by mothers may be more problematic for child outcomes since these behaviors conflict with the primary caregiver's role of providing comfort.

Fathers' frightening behaviors and sensitivity with infants:

Relations with fathers' attachment representations, father-infant attachment, and children's later outcomes

Since the early seventies, research on fathers and their role in children's development has steadily increased. Studies have shown that infants become attached to fathers as well as mothers (Lamb, 1977), and that fathers make important contributions to their children's developmental outcomes (Lamb, 2002). Still, research on father-infant attachment and its relation to paternal caregiving and child outcomes has lagged far behind research on mother-infant attachment, primarily because attachment theory characterizes fathers as secondary attachment figures, and there has been relatively little discussion of what the role of a "secondary" attachment figure is. As the secondary attachment figure, do fathers have the same function as mothers, but to a lesser degree, or do they serve qualitatively different functions?

Most of the research on father-infant attachment and caregiving has assumed the latter and thus has focused on replicating findings from the mother-infant attachment literature with fathers, using the same assessments and hypotheses. Specifically, recent research has indicated that both fathers and mothers who have secure-autonomous representations of attachment, i.e., who value attachment relationships and are able to openly and objectively discuss and evaluate both negative and positive aspects of their childhood experiences with their own parents, are more likely than parents who have insecure representations of attachment to be sensitive in interactions with their infants (van IJzendoorn, 1995; Grossman, Grossmann, Fremmer-Bombik, Kindler, Scheuerer-Englisch, & Zimmermann, 2002). Moreover, sensitive caregiving has been found to mediate the relationship between the parent's secure-autonomous

representation of attachment and the development of a secure parent-infant attachment relationship for fathers as well as mothers (van IJzendoorn & De Wolff, 1997).

In a longitudinal study of 125 couples followed from before the birth of their first child until the child was 7 years old, we replicated the finding that sensitive caregiving mediates the relationship between fathers' secure-autonomous representations of attachment and secure attachment with their infants (McFarland, Hazen, Jacobvitz, & Boyd-Soisson, under review). However, we also found striking differences in the caregiving behaviors of fathers versus mothers who were classified as unresolved/disorganized (U/d) on the Adult Attachment Interview (AAI) (George, Kaplan, & Main, 1984/1985/1996).

As part of the AAI, subjects are asked to describe and evaluate a number of attachment-related experiences, including loss of attachment figures through death and traumatic experiences such as abuse. Subjects are considered to be unresolved with respect to loss or trauma (U/d) if they show lapses in the monitoring of reasoning or discourse during discussions of traumatic experiences, such as death of loved ones, or physical or sexual abuse. For example, U/d subjects may speak as though the person who died many years ago is still alive, or may exhibit prolonged silences or incoherent speech while discussing the trauma, suggesting that the speaker has retreated to an altered state. Parents' unresolved loss or trauma is believed to spontaneously give rise to fears related to the loss or trauma that induce the parents to behave for brief moments in ways that frighten their infants. In turn, infants who continually experience frightened and/or frightening, or FR, behavior from their primary caregiver are caught in an irresolvable paradox, in which they fear the very person from whom they want to seek comfort when they are afraid. In turn, infants who continually experience frightening care from their

primary caregiver are caught in an irresolvable paradox, in which they fear the very person from whom they want to seek comfort when they are afraid. The likely result is theorized to be a pattern of disorganized parent-infant attachment, in which the infant shows conflicted, anomalous approach-avoidance behaviors in attachment-relevant situations with the caregiver (Main & Hesse, 1990; Lyons-Ruth & Jacobvitz, 2008).

To examine parents' frightening behavior, Main and Hesse (1995) developed a system for coding frightening (FR) parental behaviors that traumatized parents might display during interactions with their infants. These behaviors include physical threatening behaviors (e.g., sudden invasions of vulnerable areas of the infant's body, attack postures, pursuit movements), facial/verbal threatening behaviors (e.g., baring ones' teeth, widening and rolling back one's eyes so the whites show, suddenly roaring at the baby), frightened behaviors (e.g., frightened facial expressions, backing away from the infant as the infant approaches), dissociative behaviors (e.g., freezing or stilling for several seconds, handling the baby like an inanimate object), and role-reversed behaviors (e.g., deferential or sexualized behaviors such as sensual stroking). These behaviors are inexplicable in the context of the interaction and are presumed to occur when the parent is in an altered, dissociated state of consciousness.

Empirical support for links between mothers' U/d classification and FR behavior has been found in an increasing number of studies (Schuengel, Bakermans-Kranenburg, & van IJzendoorn, 1999; Abrams, Rifkin, & Hesse, 2006; Madigan, Moran, & Pederson, 2006), as well as in our own longitudinal sample (Jacobvitz, Leon, & Hazen, 2006). Even more studies have found strong support for links between mothers' U/d attachment classification and disorganized mother-infant attachment in the Strange

Situation (Lyons-Ruth & Jacobvitz, 2008), and at least one study found that maternal frightening behavior mediates the link between mothers' U/d attachment representations and mother-infant disorganized attachment (Schuengel et. al., 1999).

In our research, however, we did not find evidence for relations among U/d attachment, FR behavior, and disorganized attachment for fathers (McFarland et al., under review). Compared to other fathers, even other insecure fathers, our fathers classified as U/d were less sensitive, more emotionally disengaged, and more hostile with their infants, but not more likely to show FR behavior. Interestingly, our mothers classified as U/d had similar levels of FR behavior as the U/d fathers (Jacobvitz et al., 2006). However, unlike mothers, fathers who were not U/d were just as likely as U/d fathers to engage in FR behavior, so that fathers as a group had significantly higher mean levels of FR behavior than did mothers. Further, we found that disorganized father-infant attachment was predicted only by fathers' low sensitivity, not by their FR behavior.

Only one other study (Abrams et al., 2006) has investigated links between U/d attachment representations, FR behavior, and parent-infant attachment disorganization in fathers. This study reported no significant differences among these measures for mothers and fathers, and therefore the mother and father data (50 mothers and 25 fathers) was combined for analysis. However, only 6 of the 75 subjects were classified as U/d, and it was not clear how many of these 6 were fathers. Considering both the relatively high levels of father FR behavior that we observed and the paucity of research on this topic, further research is needed on father's FR behavior, its relation to father-infant attachment, its meaning in father-infant interaction, and its implications for children's later outcomes.

Our findings suggest that FR caregiving is much more frequent in fathers than mothers. In fact, over 40% of the fathers in our study were observed to engage in FR behaviors with their infants. For example, one father grabbed his 8-month-old baby from behind by the legs, pulled him backwards and said, "I'm gonna get you" in a low, growling voice, then suddenly pulled the baby up by the legs and dangled him upside down. Another father snuck up behind the baby while he was playing quietly and suddenly loomed his face right up to the baby's face, roaring with bared teeth and widened eyes. But when each of these babies became frightened and cried, these fathers cuddled them and spoke soothingly. Other fathers, in contrast, engaged in similar behaviors but rather than respond with comfort when their babies became frightened, they often withdrew or reprimanded the baby. Thus, some fathers who show high levels of frightening behavior with their infants may be sensitive at the same time, while others may be frightening and insensitive.

Is much, if not most, of the FR behavior we observed in father-infant interaction actually a form of rough-and-tumble play? The FR coding system we used (Main & Hesse, 1995) explicitly states that behavior that occurs in the context of play are not to be coded as FR behaviors. Thus, we coded only those FR behaviors that appeared suddenly and out-of-context, unaccompanied by the nonverbal meta-communications that signal the father is playing. The FR behaviors of the fathers described above were just as shocking and surprising to our coders as it appeared to be to their babies, and were very similar, although considerably higher in frequency, to the frightening behaviors we observed in mothers.



Nonetheless, it is possible that many fathers who displayed these types of behaviors with their infants were not dissociated, but were fully aware of what they were doing. That is, they may have intended to shock and surprise their babies, and maybe even to frighten them a bit. Several scholars of paternal caregiving have suggested that fathers and mothers may have qualitatively different roles as caregivers, and that researchers who assume that father-child attachment and caregiving is functionally the same as mother-child attachment and caregiving, only weaker and more secondary, are missing these important differences (Grossman et al., 2002; Paquette, 2004). They argue that whereas the mother-child relationship is generally aimed at comforting the child in times of stress, father-child relationships may be more focused on fostering the child's exploration, mastery, and openness to the world. According to Paquette, "Men seem to have a tendency to excite, surprise, and momentarily destabilize children; they also tend to encourage children to take risks, while at the same time ensuring the latter's safety and security, thus permitting children to learn to be braver in unfamiliar situations..." (p. 193). Thus, it may be relatively normative for many fathers to stimulate, destabilize, and even frighten their infants as part of their perceived role in helping their children bravely face the world, so it may be particularly difficult to distinguish these types of behaviors from the FR behaviors that result from trauma-induced dissociation.

Since FR behavior directed to infants is more likely to interfere with the mothers' customary role of providing comfort, FR behaviors in mother-infant interactions are likely to be more problematic for the development of secure infant-mother attachment, and ultimately, for children's healthy social-emotional development, compared to FR behavior in fathers. In fact, mother-infant attachment has been shown to be a stronger

predictor of children's later social-emotional development than father-infant attachment (Grossman et al., 2002). However, although Grossman et al. found that father-infant attachment did not predict children's secure attachment representations at age 10, fathers' sensitive and challenging play at 24 months did predict children's later secure attachment representations.

When fathers stimulate, or even over-stimulate, their infants with frightening encounters, but then help them to calm down when they become frightened and emotionally overwhelmed, these fathers may actually be facilitating their infants' ability to regulate overwhelming emotions. Thus, just as fathers who sensitively support children's mastery in play are more likely to have secure children, fathers who sensitively support their infants' ability to cope with fear and overstimulation may facilitate their emotional development. In contrast, fathers who are frightening and insensitive may exacerbate their infants' emotional dysregulation, since they frighten their infants without helping them cope with their dysregulated emotional state.

Thus, the primary goal of the present study is to examine fathers' and mothers' sensitive and frightening behavior *in combination* as predictors of children's emotion regulation at 24 months and attention problems at age 7. We hypothesize that the children whose fathers were simultaneously frightening and insensitive will show the highest levels of emotional dysregulation as toddlers, and the highest levels of attention problems at age 7, whereas children whose fathers were simultaneously frightening and sensitive will show the lowest levels of emotional dysregulation and attention problems, or at least, they will be similar to children whose fathers were sensitive but not frightening. That is, paternal sensitivity should mitigate the effects of paternal FR behavior. However, since

maternal FR behaviors are expected to be more anomalous and harmful than father FR behaviors to children's later social-emotional development, we do not expect maternal sensitive caregiving to mitigate the effects of maternal FR behavior,

We will also examine parents' FR behavior and sensitive caregiving in combination as predictors of their children's internalizing symptoms. Since internalizing problems are not highly related to emotional dysregulation, and in fact may relate to emotional over-control rather than under-control, we do not expect interactions between fathers' sensitivity and FR behavior to predict children's internalizing symptoms. Fathers' sensitivity or FR behavior alone may relate to children's later internalizing symptoms, but we expect maternal caregiving to relate more strongly than paternal caregiving to children's later internalizing symptoms.

This study also has two secondary goals: 1) to examine the relation of fathers' combined FR behavior and sensitive caregiving to fathers' representations of attachment and to their attachment security with their infants, and 2) to examine subtypes of FR behaviors as predictors of fathers' U/d attachment representations and father-infant disorganized attachment. We expect that fathers who display FR behavior and are also insensitive may be more likely than other fathers to be classified as U/d or insecure in the AAI, and to have disorganized or insecure relationships with their infants. In contrast, fathers who mix displays of FR behavior with sensitive and responsive care may be more likely than other fathers to be classified as secure-autonomous in the AAI and to have secure relationships with their infants. Also, Abrams et al. (2006) found that only the dissociative subcategory of FR behaviors predicted infant attachment disorganization. Perhaps we found a strong relation between U/d status and FR behavior for mothers

(Jacobvitz et al., 2006) but not for fathers (McFarland et al., under review) at least in part because nearly all of the mothers' FR behaviors occurred while they were in a dissociative state, but this was not true for the fathers. Thus, we will examine whether fathers' U/d classification and father-infant disorganized attachment are related only to the dissociative subcategory of FR behavior.

Finally, given that studies have shown that fathers are more likely to engage in rough-and-tumble play with boys than with girls (Lindsey, Mize, & Pettit, 1997), and that boys often show higher rates of attention problems and aggression than girls (Achenbach, Howell, Quay, & Conners, 1991), differences in child gender and interactions of parental caregiving with gender will also be examined.

## Method

### *Participants*

The participants were drawn from a longitudinal study of 125 couples followed from within two months of when they expected the birth of their first child, until that child was 7 to 8 years old. Couples were recruited through birthing classes, radio announcements, newspaper press releases and flyers distributed at maternity stores in the Austin metropolitan area. Criteria for participation were that the couples were living together at the time of recruitment, were having their first child, and spoke English as their primary language. Each family received a \$50 savings bond for their child at the completion of each of the three phases of data collection, bimonthly newsletters with updates on the project, a T-shirt for their child, an audiotape of lullabies, and a copy of their videotaped interactions.

The mean age of fathers was 31.55, ranging from 19-51. Most participants were Caucasian (82%); the rest were Hispanic (9%), African-American (3%), or Native American, Middle Eastern, or Indian (6%). The median family income was \$30,000 - \$45,000. The combined income of 80% of the couples was \$30,000 - \$45,000 per year, and 48% of the couples earned more than \$45,000 per year. Families earning less than \$15,000 per year comprised 7% of the sample. Participants were well-educated; 69% had some college and 23% held an advanced degree.

By the time infants were 8 months old, 118 families were still participating in the study, and by 12-15 month, when the Strange Situation assessments were obtained, 112 families remained in the study. Eight families had moved away, 2 could not be located, and the other 3 declined to participate for personal reasons. In addition, 7 fathers did not have AAI data and 7 fathers did not have Strange Situation data. In each case, 5 fathers could or would not come to the lab to participate, and 2 more did not have usable data due to equipment malfunctions. Between the 24-month and 7-year visits, 9 families moved away, 2 families declined participation, and 12 families could not be located. Therefore, 85 families participated in the study at 7 years. Only the 75 teachers who knew the child for at least 3 months were contacted to complete the Child Behavior Check List-Teacher Report Form (CBC-TRF; Achenbach, 1991). Four of the 75 teachers did not complete the TRF and thus, 71 children were included in analyses using the teacher data. Each analysis included all subjects who had data available for that particular analysis.

### *Procedures*

Prenatally, the attachment representations of the parents-to-be were assessed using the Adult Attachment Interview in a laboratory setting during the mothers' last trimester of pregnancy. Parent-infant interactions were videotaped in the home when infants were 8 months old, and parent-infant attachment security was assessed using the Strange Situation when infants were 12 or 15 months old (order was counterbalanced for mothers and fathers). When children were 24 months old, their emotion regulation was assessed from laboratory observations of the child in a series of task situations designed to produce frustration. Finally, when the children were 7 years old, the children's teachers filled out the CBC-TRF (Achenbach, 1991) to assess each child's social-emotional problems.

### *Measures*

*Fathers' attachment representations.* Fathers' representations of attachment were assessed using the Adult Attachment Interview (AAI, George et al., 1984/1985/1996), a semi-structured interview designed to assess adults' current states of mind regarding attachment based on their recollections of their childhood relationships with their parents. Participants were asked to describe and evaluate attachment-related childhood experiences, including loss of attachment figures through death and threatening experiences such as abuse, and to discuss their current perceptions of the effects of these experiences on their development and why their parents may have behaved as they did. Several trained faculty members and graduate students conducted the AAI, memorizing the questions so they could use a relaxed conversational style. Interviews lasted from 60 to 90 minutes and included probes to increase the specificity of responses and facilitate recall.

Using the AAI classification system (Main, Goldwyn, & Hesse, 1984-2003), trained coders classified each participant as secure/autonomous, or as one of three insecure categories: preoccupied, dismissing, or cannot classify. Secure-autonomous individuals are able to discuss their child relationships with their parents, whether positive or negative, in a clear, coherent and open manner. In contrast, insecure individuals share an inability to fully integrate their early memories in a coherent and believable manner.

In addition, adults are classified as unresolved/disorganized (U/d) in conjunction with the best fitting overall category of secure/autonomous, dismissing, or preoccupied if they show lapses in the monitoring of reasoning or discourse during the discussion of loss and/or trauma or an extreme behavioral reaction to the loss or trauma. Interviews were scored on two 9-point scales, "Unresolved with respect to loss", and "Unresolved with respect to trauma". Adults receiving a score higher than 5 on either scale are classified as U/d in addition to their best-fitting overall category. If fathers were assigned a score of 5 on this scale, then the coder must decide whether the indices of U/d identified warrants placement into the U/d category.

Interviews were audiotaped and later transcribed. All of the fathers' transcripts were coded by a trained graduate student, and 28% of the AAI transcripts (N = 32) were also coded by a second trained graduate student for reliability. Exact agreement between the two coders on the 5-way classification --secure-autonomous, dismissing, preoccupied, unresolved with respect to trauma, and cannot classify but not unresolved --was 88% ( $k = .85$ ). Disagreements between the two coders were resolved by the third author, who is an AAI coder trainer.

*Parent-infant caregiving.* When infants were 8 months old, mother-infant and father-infant interactions were videotaped in home visits during 30 minute interactions in which the parent was instructed to play with the infant as they ordinarily would, to change the infant's clothes, and to feed the infant. The interactions were videotaped and later rated using the *Infant Caregiving Scales (ICS)* (Hazen, 1997), which consists of 90 items rated on a 7-point scale. Items were derived from examples of caregiving described in Ainsworth's global scales for assessing sensitivity, acceptance, and cooperation (Ainsworth, Blehar, Waters, & Wall, 1978). A *Sensitivity* scale was derived from this measure using a criterion sort method (Waters & Deane, 1984). Seven expert judges rated each of the 90 items according to the extent to which they were diagnostic of sensitive parenting. Items which judges agreed were highly diagnostic of sensitivity or insensitivity (reverse scored) were averaged to create a measure of sensitivity.

The sensitivity scale consisted of 17 items that assessed the extent to which parents responded quickly and appropriately to their infants' wishes. Examples include, "Parent responds to baby when he or she cries," "Parent's actions are finely tuned to the baby's wishes," and "Parent frequently misinterprets baby's cues; does not seem to understand baby's nonverbal communication" (reverse scored). Cronbach's alpha for this scale was .94. Five coders rated fathers on all 90 items, and 102 of the 118 tapes (86%) were double-coded for reliability. Seven tapes with low inter-rater reliability were also coded by a third coder. The ratings were averaged across all coders. Inter-rater reliability, assessed using intra-class correlation, was .64.

Other observers rated the interactions for *Frightened/Frightening (FR)* behavior using a coding system developed by Main and Hesse (1995) to assess behaviors likely to



frighten infants. The FR scale included 4 subscales of FR behaviors: 1) Threatening physical and facial/verbal behaviors, 2) Frightened behaviors, 3) Dissociated/disorganized behaviors, and 4) Role-reversed behaviors. Coders recorded all instances of threatening, frightening, dissociative, and role-reversed parental behaviors, and then assigned a global numerical score for overall FR behavior on the basis of the resulting frequencies of weak, moderate, and strong indicators of individual FR behaviors.

Two trained observers rated 100% of the fathers for FR behavior. The intraclass correlation for these two observers was .85. For interactions in which these two coders disagreed by more than one point, a third coder was used to determine the appropriate rating. Scores of all coders were averaged for to obtain final FR scores.

*Father-infant attachment.* The Strange Situation procedure (Ainsworth et al., 1978); was used to assess infants' attachment security with both mothers and fathers. . Based on the infant's reunion with the parent, parent-infant attachment was coded as secure (B), insecure-avoidant (A), or insecure-resistant (C), using the procedures described by Ainsworth et al. (1978). Infants are classified as secure if they use their parent as a secure-base, seeking comfort when distressed by a brief separation, and the comfort received successfully reduces their distress, such that they can explore/play again. Insecure (avoidant and resistant) infants do not effectively use the parent as a secure base and fail to successfully interact with the parent to reduce their levels of distress. Infants who show a mix of strategies for organizing their attachment behavior are categorized as "cannot classify" (CC).

In addition to the primary coding of organized attachment (A, B, and C), the Strange Situations were coded on a 9-point Likert-type disorganized/disoriented (D) scale (Main & Solomon, 1990). This scale assessed apprehensive, trancelike, or sequential or simultaneous contradictory behaviors occurring anytime in the presence of the parent. Infants are placed in a disorganized group if they score above 5 on the 9-point scale. If infants are assigned a score of 5 on this scale, then the coder must decide whether the behavior warrants placement into the disorganized category. Infants are assigned a secondary classification of A, B, or C in addition to the D classification, so that attachment can be assessed as secure vs. insecure (i.e., B vs. A & C, with U or CC classified according to their best-fitting alternative), or organized vs. disorganized (based on whether or not the infant was placed in the disorganized group).

Two coders who were trained for reliability on both coding systems independently rated 100% of the videotapes. The reliability between the two coders for the 4-way classification (A, B, C, or D) was  $k = .60$ ,  $p < .001$ . The coder trainer resolved disagreement on 15 particularly difficult cases, most of which were classified as CC.

*Toddlers' emotion regulation.* When children were 24 months old, they were videotaped with a researcher who presented them with two challenging and potentially frustrating tasks in a laboratory setting while the parent waited on the other side of a partition. This was done to assess their emotion regulation apart from interactions with their parents. In first task, the researcher presented children with a plexiglass tube with a snack in the middle and told the children to get the snack. Children were provided with bristle blocks that they could use to push the snack through to the other end. This task was challenging and the children usually needed help from the researcher. In the second

task, children were shown a large plexiglass locked box full of attractive toys and told they could play with the toys if they could get them out. This task could not be solved without help from the researcher. The researcher helped the child when the child sought help and increased aid if the child became distressed. Each task lasted approximately 5 to 10 minutes.

Observers rated videotapes using the Children's Emotion Regulation Scales (Boyd-Soisson, 2002), which rate the child's appropriate emotion regulation, underregulation, and overregulation. In the present study, only the scale examining emotional underregulation was examined. *Underregulation* was defined as the extent to which the child becomes emotionally overwhelmed and is unable to control his or her emotions and/or focus on finding a solution to what is causing the distress. Children were rated high on this scale if they become so visibly upset by the tasks that they screamed, cried or tantrumed, and the researcher was unable to comfort or help the child. This scale ranged from 1- child showed no underregulation of their emotions, to 7- child displayed underregulation of emotion throughout the tasks. Because 24-month-old children may still have some difficulty separating from their parents, raters were instructed to ignore instances on videotapes in which children left the task to look for a parent or cried for a parent.

Two primary coders rated all the videotapes and 65% were checked for reliability, in addition to 15% of the tapes being coded in conference for training purposes. When the two main raters disagreed by 2 or more points on any scale, discrepancies were resolved by a third coder. Cohen's kappa between the two main raters was .96.

*Children's emotional and behavioral problems.* When children were 7 years old, their teachers completed the Child Behavior Checklist- Teacher Report Form (CBC-TRF) which assesses symptoms of internalizing and externalizing problems in children from ages 4 to 18 (Achenbach, 1991). The checklist contains 113 statements about the child's behavior and offers 3 response choices: 0 (not true), 1 (somewhat or sometimes true), and 2 (very true or often true). In the present study, we assessed only the scales for Attention Problems and Internalizing Symptoms.

## Results

*Fathers' attachment representations and father-infant attachment.*

*Descriptive data.* AAI data was available for 118 fathers, who were classified as follows: 54 secure-autonomous (F), 36 dismissing (Ds), 4 preoccupied (E), 17 unresolved (U/d) and 7 cannot classify (CC). Six of the U/d fathers and 1 of the CC fathers had a secondary classification of secure-autonomous. Strange Situation data was available for 105 father-infant dyads, who were classified as follows: 58 secure (B), 12 insecure-avoidant (A), 14 insecure-resistant (C), 14 disorganized (D), and 7 CC. Six of the D dyads had a secondary classification of secure. The 7 CC dyads included 4 who were also classified as D and secure, 2 who were D and insecure, and 1 who was not D and secure.

*Father's attachment representations as a predictor of sensitive and frightening caregiving.* To examine the relation of fathers' AAI classifications and their combined sensitive-frightening caregiving style, fathers were categorized into four caregiving-style groups: 1) Sensitive-Not Frightening, 2) Sensitive-Frightening, 3) Insensitive-Not Frightening, and 4) Insensitive-Frightening. Fathers were considered frightening if they scored a 5 or above on the 9-point FR scale, and insensitive if they scored a 4.5 or below

on the 7-point sensitivity scales. These cut-offs were chosen to be conservative about placing a father in a negative category, since only scores at 5 or above on the FR scale indicate clearly frightening behavior, and only scores of 4 or below indicate behavior that is clearly insensitive.

We first examined fathers' caregiving style groups as a function of their U/d attachment status; this chi square was not significant,  $\chi^2(3, N = 111) = 4.04, ns$ . However, fathers' caregiving style groups did differ significantly as a function of fathers' secure-autonomous versus insecure classification,  $\chi^2(3, N = 111) = 12.56, p < .01$ . In this analysis, U/d or CC were classified according to their best-fitting alternative classification. As shown in Table 1, secure-autonomous fathers were more likely to be in the Sensitive-Frightening group than insecure fathers (75% of the fathers in this group were secure-autonomous), whereas insecure fathers were more likely to be in the Insensitive-Not Frightening group and the Insensitive-Frightening group (insecure fathers made up 70.6% and 71.4% of these two groups, respectively).

To see if fathers' U/d status is predictive of specifically dissociative FR behaviors versus other subcategories, we performed a series of T-tests comparing U/d fathers versus all other fathers. Fathers classified as U/d did not differ on any of the FR subcategories;  $t(1, 112) = .251, ns$ , for physical threatening,  $t(1, 112) = .492, ns$ , for facial/verbal threatening,  $t(1, 112) = .000, ns$ , for frightened,  $t(1, 112) = .222, ns$ , for dissociative, and  $t(1, 112) = 1.47, ns$ , for role-reversal.

*Fathers' sensitive and frightening caregiving as a predictor of father-infant attachment.* We used chi-square analyses to examine the relation of the four caregiving style groups to disorganized versus organized, and secure versus insecure, father-infant

attachment. No relation was found between fathers' caregiving style at 8 months and the infants' later disorganized versus organized attachment,  $\chi^2(3, N = 105) = 5.64, ns$ , or secure versus insecure attachment,  $\chi^2(3, N = 105) = 4.32, ns$ , with fathers.

*Fathers' and mothers' caregiving and child outcomes*

*Descriptive data.* For both mothers and fathers, their sensitivity scores were moderately negatively correlated with their FR scores,  $r(121) = -.26, p < .01$  for mothers, and  $r(119) = -.34, p < .001$  for fathers. Also, mothers' sensitivity scores correlated positively with those of fathers,  $r(118) = .25, p < .05$ , but mothers' and fathers' FR scores were not significantly correlated.

Mean caregiving scores for fathers were 4.44 ( $SD = .83$ ) for sensitivity and 4.05 ( $SD = 2.31$ ) for FR behaviors, and for mothers, 4.43 for sensitivity ( $SD = .90$ ) and 3.14 for FR behaviors ( $SD = 41.84$ ). Paired sample t-tests indicated that fathers scored higher in FR behaviors than mothers,  $t(118) = 3.28, p < .001$ , but fathers and mothers did not differ on sensitivity. Furthermore, considering that a score of 5 or above on the FR scale indicates that the parent is frightening, 53 fathers (44.5%) but only 25 mothers (20.7%) were frightening with their infants. Mean frequencies of the types of FR behavior shown by fathers and mothers are shown in Table 2. Paired sample t-tests comparing the different types of FR behaviors displayed by fathers and mothers indicated that fathers displayed significantly higher levels of physical and facial/verbal FR behaviors than mothers, but fathers and mothers did not differ in frightened, dissociated, or role-reversed behaviors.

T-tests by child gender were used to examine whether mothers and fathers differed in the types of caregiving behaviors they directed to boys versus girls. No

significant child gender differences were found for father's sensitivity or FR behaviors, or for mothers' sensitivity. However, mothers were significantly more likely than fathers to show FR behaviors to boys ( $M = 3.64, SD = 1.87$ ) than girls, ( $M = 2.42, SD = 1.35$ ).

Descriptive statistics for 24-month-olds emotional underregulation and teacher ratings of 7-year-olds' T-scores for Attention Problems and Internalizing Problems obtained from CBC-TRC ratings are shown in Table 3. Emotional underregulation scores were available for 58 boys and 41 girls, and CBC-TRC ratings were available for 46 boys and 21 girls.

*Relation of fathers' and mothers' frightening behavior and sensitive caregiving to toddlers' emotion regulation and childrens' attention problems and internalizing symptoms.* A series of OLS regressions were used to examine parents' sensitivity and FR behaviors, as well as the interaction between these two scores, as predictors of children's emotion regulation, attention problems, and internalizing problems. Separate regressions were run for mothers and fathers, and for each child outcome measure. Given that both mothers and fathers were found to use different caregiving styles with boys versus girls, child gender was also included as a predictor in all regressions, as were interactions between child gender and caregiving scores (sensitivity and FR behaviors). Since we predicted that children whose fathers were frightening and simultaneously insensitive would be more likely than other fathers to be emotionally dysregulated, we used the inverse of the sensitivity score (i.e., insensitivity) to create our interaction terms. Following the procedures recommended by Aiken and West (1991), interaction terms for frightening X insensitive caregiving, child gender X frightening behaviors, and child gender X insensitive caregiving, were created by centering the predictors and then

finding the product of each pair of predictors. However, 3-way interactions (child gender X frightening X insensitive) were not included in the regression models, since preliminary analyses indicated that no 3-way interactions were significant, and adding the 3-way interaction reduced the power of the model and created an unacceptable level of multicollinearity. Results of all regression analyses are shown in Table 4.

Fathers' sensitive caregiving predicted lower scores for toddlers' emotional underregulation, and as predicted, this main effect was qualified by a significant interaction between fathers' sensitive caregiving and frightening behaviors. As shown in Figure 1, toddlers' emotional underregulation was highest for fathers who were frightening and insensitive, whereas emotional underregulation for toddlers whose fathers were frightening and sensitive was just as low as for those whose fathers were sensitive but not frightening.

Effects of child gender were found only in relation to mothers' sensitive caregiving. Specifically, a significant interaction between child gender and mothers' sensitivity indicated that boys with insensitive mothers ( $N=21$  boys whose mother was rated below 4.5 on sensitivity) were rated as higher on emotional underregulation ( $M = 1.76$ ,  $SD = 1.78$ ) than boys with sensitive mothers ( $N=35$ ,  $M = 1.17$ ,  $SD = .47$ ), but the opposite was true for girls (for girls with insensitive mothers,  $N=21$ ,  $M = 1.11$ ,  $SD = .44$ ; for girls with sensitive mothers,  $N = 20$ ,  $M = 1.82$ ,  $SD = 1.52$ ).

Children's attention problems were predicted by a significant interaction between fathers' frightening behaviors and sensitive caregiving. As shown in Figure 2, the interaction for attention problems showed a similar pattern to the interaction found for toddlers' emotion regulation. As predicted, children whose fathers were both frightening



and insensitive received the highest ratings for attention problems, while those whose fathers were frightening but also sensitive were rated as low in attention problems as children whose fathers were sensitive but not frightening.

In the regression using maternal caregiving to predict children's ratings for attention problems, a significant sensitivity by gender interaction was found. Boys with insensitive mothers had the highest ratings for attention problems ( $N = 10$ ,  $M = 57.00$ ,  $SD = 8.30$ ), while girls with sensitive mothers had the lowest ratings ( $N = 16$ ,  $M = 51.5$ ,  $SD = 2.45$ ). Boys with sensitive mothers ( $N = 16$ ,  $M = 54.75$ ,  $SD = 6.64$ ) and girls with insensitive mothers ( $N = 11$ ,  $M = 54.36$ ,  $SD = 5.71$ ) were rated in-between these groups and did not differ.

The only significant predictor of children's internalizing problems was mothers' frightening caregiving; no other main effects or interactions were significant. Mothers who were more frightening were more likely to have children who were rated high in internalizing problems by their teachers at age 7.

### Discussion

Results of this study support the suggestion that in general, fathers and mothers have qualitatively different types of caregiving roles, in that they show different patterns of attachment and caregiving, and their caregiving patterns predict differently to child outcomes. Although we found in previous research that sensitive paternal caregiving mediates the relation of attachment representations and parent-child attachment security for fathers as well as mothers, results of the present study indicate that the relation of parents' U/d attachment representations, FR behavior, infant attachment security, and child outcomes differs between fathers and mothers. For fathers, engaging in FR behavior

while interacting with their infants is predicted by their representations of attachment, and predicts child outcomes, only when considered in combination with their sensitivity to the infant.

Although fathers' U/d classification did not predict higher levels of FR behavior, fathers who were classified as insecure in the AAI were more likely than fathers classified as secure-autonomous to engage in both FR behavior and insensitive caregiving. Furthermore, children of fathers who were frightening and insensitive were rated higher than the children whose fathers who were frightening and sensitive in emotional underregulation at 24 month, and in attention problems at age 7. Ratings of emotion regulation and attention did not differ between children who had frightening but sensitive fathers and children who has fathers who were sensitive but not frightening, suggesting that fathers' sensitive caregiving mitigated the negative effects of their FR behavior.

These findings suggest that fathers' insensitivity and FR behavior together, rather than FR behavior alone, may forecast later children's later problems with self-regulation. In addition, it may be that fathers who stay sensitive while keeping babies highly stimulated, on the fence between fear and fun, may actually be scaffolding their children's later development of the ability to regulate intense emotions, cope with overstimulation, and stay focused. It is less clear why children whose fathers were neither sensitive nor frightening were rated the lowest of all on attention problems. Perhaps the fathers of these children were relatively uninvolved fathers, and therefore, their low scores on attention problems had more to do with their relationships with their mothers.

As predicted, we did not find that maternal caregiving and FR behavior interacted to predict child outcomes. Instead, mothers' insensitive interactions with infants predicted children's later emotional underregulation and attention problems (but in both cases, only for boys), and mothers' FR behavior predicted children's later internalizing problems. Thus, sensitive caregiving does not seem to mitigate the effects of FR behaviors for mothers as it does for fathers. This supports the suggestion that the maternal role as a secure base where the child can seek comfort is incompatible with frightening behavior, even if displayed in an overall context of sensitivity. The finding that maternal insensitivity predicted children's attention problems at age 7, at least for boys, is consistent with earlier research by Jacobvitz and Sroufe (1987), in which mothers' insensitive and intrusive interactions with their children during infancy was found to predict teacher-rated ADHD symptoms in kindergarten.

We hypothesized that that when fathers' FR care is accompanied by insensitivity, it is more likely to be a product of dissociation than is true for FR care accompanied by sensitivity. Therefore, fathers' U/d status was expected to be related to the combination of FR behaviors with insensitive caregiving, even though it was not related to FR behavior alone. But fathers who were high in both FR behavior and insensitivity were more likely than other fathers to have insecure representations of attachment, not U/d representations. In addition, none of the subcategories of FR behavior were related to fathers' U/d classification, including the dissociative subcategory. Thus, we did not find support for the idea that fathers' unresolved loss and trauma predicts dissociative FR behavior with infants. Since fathers are generally not the primary caregivers, fathers who feel overwhelmed with trauma may simply withdraw emotionally from infant caregiving

altogether rather than lapsing into a dissociate state and displaying FR behavior. In contrast, mothers, as primary caregivers, may feel more compelled to remain engaged even when feeling overwhelmed by trauma. Alternatively, having to care for a helpless infant may exacerbate feeling of being overwhelmed by trauma more often for primary caregivers than for secondary caregivers. Future research should examine in more detail how unresolved trauma affects the caregiving of fathers versus mothers.

The finding that the higher frequencies in FR behavior for fathers relative to mothers was due entirely to fathers' greater use of threatening physical and facial/verbal behaviors further supports the idea that the fathers are higher in FR behavior because most of their FR behavior is intentional rather than a product of dissociation. Although these types of behavior were sudden, out of context, and unaccompanied by metacommunications signaling play, many fathers may have nonetheless had a playful intent, and may feel that scaring the baby is a form of rough-and-tumble play that may encourage the baby to become more bold and adventurous.

Although previous studies have found that fathers engage in more physical play with boys than girls (Lindsey et al., 1997), fathers in the present study did not engage in more FR behavior with boys than girls. Surprisingly, it was mothers who were found to engage in more FR behavior with boys than girls, although they did not differ in their sensitivity to boys and girls. Given that mothers' FR behavior predicted children's internalizing symptoms for both boys and girls, it may be that girls are more sensitive to maternal FR behavior than boys, such that relatively lower levels of maternal FR behavior may result in internalizing symptoms for girls.

Boys and girls also may react differently to maternal insensitivity. When mothers had been insensitive, boys but not girls were rated as more emotionally underregulated as toddlers and higher in attention problem at age 7. In fact, girls showed more underregulated behavior when their mothers had been sensitive than when they had been insensitive. It may be that for girls, what may appear to be acting out in early childhood is actually a sign of early social competence, whereas the opposite is true for boys. For example, Baumrind (1989) reported that compliance in early childhood predicted later social competence for boys, whereas early noncompliance predicted later social competence for girls. Similarly, Turner (1991) found that insecure 4-year old boys were more disruptive, aggressive, and attention-seeking in peer interaction than secure boys, whereas insecure 4-year-old girls were more compliant, dependant, and pleasing with peers compared to more assertive, noncompliant secure girls.

Taken together, results of this study lend support to the suggestion that mothers and fathers may serve different functions as parents and attachment figures. As such, research that operates on the assumption that fathers fulfill the same attachment function as mothers, i.e., providing a secure base for children to receive comfort in times of stress, may minimize the extent to which fathers contribute to children's development. Through engaging in stimulating, and perhaps at times frightening, physical play in a safe and sensitive context, fathers may play an important role in helping their children cope with frightening situation, and strong emotions. Conversely, fathers who engage in frightening interactions but fail to sensitively step in and offer comfort when their infants become distressed may put their infants at risk for becoming emotionally underregulated and easily overwhelmed. Paquette (2004) has suggested that fathers and mothers may have

complementary roles, such that fathers' ability to benefit their children through destabilizing interactions may depend in part on the mother's competence in functioning as a secure base. Thus, infants and young children may be more comfortable engaging in frightening interactions with fathers when they know they have a secure base nearby should the interaction become too intense. This hypothesis should be investigated in future research.

However, the role differentiation of mother as the comforting secure base who provides tender loving care, and father as the stimulating playmate and facilitator of bold exploration, should not be overstated. Although parents may specialize in their sex-typed roles, undoubtedly both parents also serve both functions from time to time. Also, there are likely to be cultural and regional variations in the extent to which mothers' and fathers' parenting roles diverge. For example, in some cultures, fathers engage in little or no rough-and-tumble play with their children (Roopnarine, Ahmeduzzaman, Hossain & Riegraf, 1992). Also, couples who reject traditional sex roles may be less likely to take on different roles as caregivers. Perhaps the differences in the findings for fathers in the Abrams et al. (2006) study and the present study might be explained, at least in part, by regional variations in the extent to which mothers and fathers take on traditional sex roles in parenting. That is, fathers in the Bay Area of northern California are likely to be less traditional, and perhaps more likely to function as a comforting secure base for their infants, compared with fathers from central Texas.

Future studies should be aimed at investigating variations in mothers' and fathers' roles as attachment figures and caregivers, and how these variations relate to children's outcomes. Are children's outcomes facilitated more by having parents that take on

complementary roles, or can one caregiver serve as both a secure base that provides comfort and a playmate who encourages exploration and mastery? What kinds of roles do single parents, and particularly single fathers, take on as attachment figures? How do parents who assume egalitarian sex roles, or gay or lesbian parents, function as joint attachment figures? In addition, studies of how parents function as an attachment system and jointly influence children's outcomes are needed, as are studies of how parents' roles as attachment figures change as their children develop.

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Table 1

*Number of Fathers in Each Caregiving Style Groups as a Function of Fathers' Secure-Autonomous Versus Insecure AAI Classification.*

| Fathers' caregiving style   | Fathers' AAI classification |          |       |
|-----------------------------|-----------------------------|----------|-------|
|                             | Secure-Autonomous           | Insecure | Total |
| Sensitive-Not Frightening   | 28                          | 24       | 52    |
| Sensitive-Frightening       | 21                          | 7        | 28    |
| Insensitive-Not Frightening | 5                           | 12       | 18    |
| Insensitive-Frightening     | 4                           | 10       | 14    |

Table 2.

*Mean Frequencies for Mothers' and Fathers' FR Subcategories*

| FR Behavior    | Mothers | Fathers | <i>T</i> Value |
|----------------|---------|---------|----------------|
| Physical       | 1.31    | 4.20    | 28.322**       |
| Facial/Verbal  | 1.68    | 4.22    | 23.862**       |
| Frightened     | .327    | .239    | .920           |
| Dissociative   | .831    | .628    | .800           |
| Role Reversing | .218    | .183    | .147           |

\*\*  $p < .001$

Table 3.

*Descriptive Statistics for Child Outcomes by Child Gender*

| Child Outcome                 | <u>Girls</u> |           | <u>Boys</u> |           |
|-------------------------------|--------------|-----------|-------------|-----------|
|                               | Mean         | <i>SD</i> | Mean        | <i>SD</i> |
| <u>24 months</u>              |              |           |             |           |
| Emotional Underregulation     | 1.41         | 1.20      | 1.45        | 1.14      |
| <u>7 years—CBC-TRC Scales</u> |              |           |             |           |
| Attention Problems            | 52.77        | 4.30      | 55.29       | 6.87      |
| Internalizing Problems        | 52.35        | 9.76      | 55.16       | 10.64     |

Table 4.

*Regression Analyses Predicting Toddlers' Emotion Regulation at 24 Months and Teacher Ratings of Children's Attention Problems and Internalizing Symptoms at 7 Years from Parent-Infant Interactions at 8 Months*

|                            | Emotion Underregulation at 24 months |      |                  | Attention Problems |      |                   | Internalizing Symptoms |      |                   |
|----------------------------|--------------------------------------|------|------------------|--------------------|------|-------------------|------------------------|------|-------------------|
|                            | B                                    | SE   | B                | B                  | SE   | $\beta$           | B                      | SE   | $\beta$           |
| <u>Father's Caregiving</u> |                                      |      |                  |                    |      |                   |                        |      |                   |
| Sensitivity                | -.31                                 | .15  | -.22*            | .20                | 1.05 | .03               | -3.05                  | 1.72 | -.26 <sup>†</sup> |
| Frightening (FR)           | -.02                                 | .05  | -.04             | -.01               | .35  | -.00              | -.21                   | .60  | -.05              |
| Child Gender               | -.05                                 | .23  | -.02             | -2.37              | 1.48 | -.19              | -.92                   | 2.42 | .05               |
| Insensitive X FR           | .12                                  | .05  | .22*             | .93                | .34  | .34**             | .63                    | .56  | .15               |
| Insens. X Gender           | .33                                  | .33  | .11              | 3.03               | 2.25 | .18               | -7.06                  | 3.67 | -.27 <sup>†</sup> |
| FR X Gender                | .00                                  | .11  | .00              | -.84               | .71  | -.15              | -.61                   | 1.17 | -.07              |
| <u>Mother's Caregiving</u> |                                      |      |                  |                    |      |                   |                        |      |                   |
| Sensitivity                | -.18                                 | .22  | 1.12             | -1.66              | .86  | -.25 <sup>†</sup> | -1.2                   | 1.4  | -.12              |
| Frightening (FR)           | .58                                  | .42  | .76              | 1.38               | 1.78 | .40               | 1.9                    | .99  | .37*              |
| Child Gender               | 2.08                                 | 1.17 | .75 <sup>†</sup> | 3.53               | 5.04 | .28               | .27                    | 2.73 | .01               |
| Insensitive X FR           | -.17                                 | .10  | -.83             | -.34               | .44  | -.38              | -.49                   | .76  | -.10              |
| Insens. X Gender           | .62                                  | .31  | .81*             | 1.77               | 1.31 | .52*              | 1.67                   | 3.30 | .08               |
| FR X Gender                | .06                                  | .26  | .04              | .13                | 1.09 | .02               | -1.07                  | 1.86 | -.10              |

<sup>†</sup>  $p < .10$ . , \*  $p < .05$ , \*\*  $p < .01$

Figure 1

*Interaction between Fathers' Frightening Behavior and Sensitive Caregiving Predicting Toddlers' Emotional Underregulation*

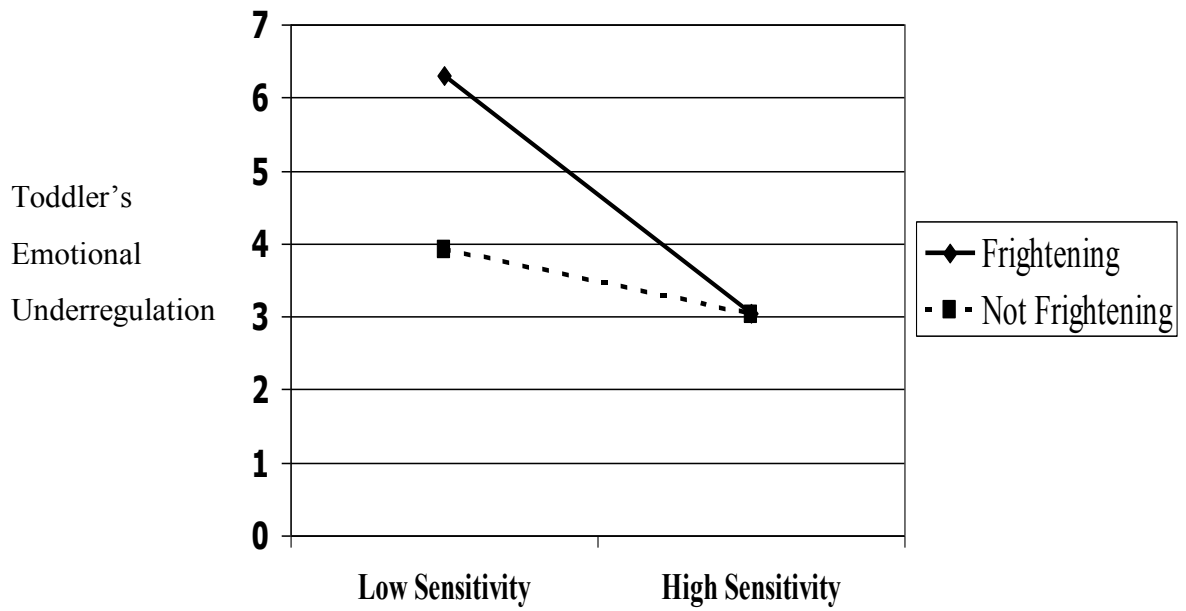




Figure 2

*Interaction between Fathers' Frightening Behavior and Sensitive Caregiving Predicting Teacher*

*Ratings of Children's Attention Problems at Age 7*

