

Mothers' Reactions to Their Child's Diagnosis: Relations With Security of Attachment

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Presents a theoretical model based on attachment theory as a framework for understanding the processes involved in parents' resolution versus nonresolution of their reaction to receiving their child's diagnosis of cerebral palsy. The Reaction to Diagnosis Interview (RDI), a 15-min interview designed to assess parental resolution of a child's diagnosis, is described. To assess the validity of the RDI, 70 mothers of infant and preschool children with a diagnosis of cerebral palsy were administered the RDI, and the security of each child's attachment to his or her mother was assessed using the Strange Situation. Results indicate that parental resolution versus nonresolution of the child's diagnosis is strongly associated with secure versus insecure child-parent attachment. Results are discussed in terms of the validity of the RDI, implications for clinical research and theory, and the potential use of the RDI as a clinical assessment procedure.

For years, many health care professionals have thought that families who have children with developmental disabilities experience relatively high levels of stress and that this stress is associated with increased risk for negative outcomes, such as parental depression, child dependence, and problems in family interaction. Although there has been some controversy regarding the validity and direction of effects of these risks (e.g., Kazak, 1989; Wallander et al., 1989), what is noncontroversial is the need to identify the risk and resilience factors, to develop reliable and valid procedures for the early identification of families at risk, and to develop effective intervention procedures.

One repeating theme regarding families of disabled children is the parents' reaction to their child's diagnosis. The literature suggests that receiving such a diagnosis is a crisis for most or all parents (e.g., Burden & Thomas, 1986; Waisbren, 1980) and that parents tend to progress with variable success through a period of mourning or grieving (e.g.,

Blacher, 1984). Further, there are suggestions in that the degree of resolution of that grieving is associated with variations in sensitivity and effectiveness of parenting (e.g., Bowlby, 1980).

The results of research in this area have been equivocal for at least three reasons: (a) There has been no empirically testable theory guiding the research; (b) there has been no standardized, reliable, and validated procedure for assessing parents' ongoing reactions to such a diagnosis; and (c) the focus on whether parents go through similar stages in coping with a diagnosis has taken precedence over the questions of differential parental patterns of coping with a diagnosis, differential effects of those patterns on parenting, and, ultimately, differential effects on developmental outcomes in the child.

In this article, we present a theoretical framework, based largely on attachment theory and research, that may guide research on parental resolution of grief regarding a child's diagnosis. Next, we present a standardized, reliable procedure for assessing parents' success in resolving their child's diagnosis. Finally, we present validity data on the relations between parental resolution of grief regarding the diagnosis and the security of the child's attachment to that parent. Attachment theory is a particularly good candidate as a framework for this research because of its focus on the effects that trauma to intimate relationships can have on parenting (e.g., Bowlby, 1980; Main & Hesse, 1990), and the success of the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978) in predicting concurrent and future child outcomes.

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Relevance of Attachment Theory and Research

Developed by Bowlby and Ainsworth (e.g., Ainsworth et al., 1978; Bowlby, 1969, 1980), attachment theory proposes that our species has evolved behavior systems that function to protect children from danger while providing them with the opportunity to explore and learn the skills necessary to survive and successfully reproduce. Complimentary and highly integrated behavior systems have developed in both the child and the parent/caregiver that have the predictable outcome of increasing protective proximity and contact between the child and the parent in dangerous or alarming situations while increasing exploration away from that caregiver in secure, nondangerous or nonalarming situations.

The successful development and operation of this "secure base" pattern is dependent on the smooth, homeostatic integration of the child's attachment behaviors with the parent's caregiving behaviors (Bowlby, 1969). To the extent that this integration fails, children are likely to feel anxious about the availability of their attachment figure(s) and will be at risk for either inhibiting their attachment systems in an avoidant strategy, overactivating their attachment systems in an ambivalent strategy (e.g., Ainsworth et al., 1978), or displaying a disorganized, disoriented, or controlling pattern of attachment behavior (Cassidy & Marvin, 1992; Main & Solomon, 1990). Research suggests that these patterns can reliably be identified in the home (e.g., Ainsworth et al., 1978; Belsky & Isabella, 1988) and in standardized laboratories with infants (Ainsworth et al., 1978), preschoolers (Cassidy & Marvin, 1992), and young school-age children (Main & Cassidy, 1988). A growing body of research also suggests that these insecure, anxious attachment strategies are associated with increased risk for a range of current and future developmental and interpersonal problems (e.g., Ainsworth et al., 1978; Benoit, Zeanah, Boucher, & Minde, 1992; Greenberg, Speltz, & DeKlyen, 1993; Lieberman & Pawl, 1990; Sroufe, 1983).

Given this body of research on other low- and high-risk populations, it is reasonable to assume that similar relations among patterns of caregiving behavior, attachment strategies, and child outcome measures apply as well to children who are diagnosed with a chronic developmental disability, such as cerebral palsy. Parental failure to grieve or resolve the trauma of receiving that diagnosis could interfere with sensitive caregiving during infancy and early childhood, leading to an increased risk for an insecure attachment.

In fact, much of the focus of attachment theory and research has always been traumas to the attachment and caregiving systems. Traumatic childhood loss of or abuse by attachment figures is known to overwhelm the attachment system, to produce anxious/disorganized

attachments, and to increase the risk for later depression and difficulties in parenting (Bowlby, 1980; Brown, Harris, & Bifulco, 1986; Crittenden, Partridge, & Claussen, 1991; Lyons-Ruth, Block, & Parsons, 1993; Main, Kaplan, & Cassidy, 1985; Quinton & Rutter, 1985). Related risks are thought to result from parents' loss of a child (e.g., Bowlby, 1980). It is important to note that it seems to be the lack of resolution of a traumatic experience, rather than the trauma itself, that is most highly associated with subsequent problems with either the attachment or the caregiving systems (e.g., Main et al., 1985).

Bowlby's (1980) work on loss and mourning and the work of researchers such as Main and Hesse (1990) and Lyons-Ruth et al. (1993) suggest a pathway through which an unresolved attachment-related loss or other trauma can impact an adult's caregiving system in a way that fosters an anxious or insecure attachment in that adult's offspring. Specifically, the loss of an attachment figure is an overwhelming, frightening event which leads variably to grief, incomplete mental and behavioral search for the lost person, a vulnerability to disbelief that the loss is permanent, experiences of disorientation in situations in which the lost individual had commonly been found or thought of, and unfounded fears of having been causal in the loss. During the period of intense mourning, the grieving individual will experience conflicting internal working models regarding the self, the lost person, and their relationship: conflicts between those working models that existed prior to the loss and the newly developing working models that reflect the reality and permanence of the loss.

Successful mourning or resolution of the loss implies that the individual goes through certain changes. Through processes not yet understood, the individual, for the most part, ceases the incomplete search processes, accepts the loss as permanent, remains fully oriented in situations that elicit memories of the lost figure, and no longer fears having been causal in the loss. The conflicting internal working models just mentioned come to reflect the reality of the loss and become integrated into a single set of relatively nonconflicting working models.¹

In the case of unsuccessful resolution, the individual experiences on a chronic basis some combination of the frightening, intrusive, avoidant, dissociative and/or disoriented symptoms often associated with incomplete mourning. Multiple conflicting internal working models of self and other may continue to coexist (Bowlby, 1980). These conflicting models represent, in noninte-

¹This is not meant to imply that resolution is ever complete; most resolved parents report at least occasional recurrences of grief, fantasied cures, and so on, especially around holidays and times when certain developmental milestones would otherwise have been expected.

grated form, both the earlier relationship with its frightening loss and the current relationship(s) in which the person is functioning. Using a standardized procedure called the Adult Attachment Interview, Main and her colleagues (e.g., George, Kaplan, & Main, 1985; Main et al., 1985) have been able to identify reliably parents experiencing unresolved early loss of an attachment figure. A number of subsequent studies have found that the children of these individuals are at increased risk for insecure attachments (see van IJzendoorn & Bakermans-Kranenburg, in press).

Main and Hesse (1990) proposed a direct link between the unresolved trauma and the increased risk that this individual's offspring will develop an insecure pattern of attachment. They proposed that the parent who has an earlier, unresolved loss will continue to be highly distressed or frightened in many attachment-caregiving interactions and will either (a) display caregiving behavior that, in form or in context, is incomprehensible to the child; (b) confuse the child with the parent's own attachment figure and unwittingly communicate to the child that he or she is a source of alarm to the parent; and/or (c) tend to flee from or avoid the child and/or situation when (certain) attachment-caregiving interactions are activated.²

Under these circumstances, attachment-caregiving interactions cannot proceed in the smooth, reciprocal fashion described earlier. It is especially difficult for this parent to terminate the child's attachment behavior and serve as a secure base for the child. In fact, the child may come to learn that his or her attachment behavior may actually activate frightening or frightened behavior in the parent rather than supportive and protective behavior toward the child.

Main and Hesse's (1990) work has focused on insecure attachments in children whose parents have experienced unresolved loss of their own attachment figure(s). However, they suggested that other traumas to attachment-caregiving relationships may have similar consequences. Maltreatment in the form of physical or sexual abuse are clear candidates: situations in which the child is frightened of the very person on whom he or she depends for protection. A number of studies have established that maltreatment is an extremely high-risk factor for insecure attachments (e.g., Cicchetti & Barnett, 1992; Crittenden et al., 1991). And Lyons-Ruth et al. (1993) found that approximately 60% of a sample

of children whose mothers were exposed to violence or abuse as children developed disorganized forms of avoidant attachments.

Parents' Reactions to Their Child's Diagnosis

The theory just outlined provides a single framework within which we might be able to identify parents who are unresolved regarding their child's diagnosis and to investigate whether these children are at increased risk for personal and/or relationship problems. Certainly, receiving a diagnosis such as cerebral palsy is a traumatic experience for any parent, and the clinical literature suggests a range of responses similar to those related to loss (e.g., Blacher, 1984; Jessop, Riessman, & Stein, 1992). In fact, the phrase "grieving the loss of the perfect child" is often used to describe the process through which the parent changes his or her internal working models of self and child from those representing the perfect, healthy child originally anticipated to those representing a child with a chronic medical condition.

The theory would suggest that, to the extent that a parent is unable to move past the crisis of the diagnosis, reorient to the present reality, and change internal working models of both self and offspring accordingly, he or she would be considered unresolved with respect to the diagnosis. When that parent's caregiving system is activated by the child's attachment behavior or by some event that is mildly threatening to the child, the parent should have more difficulty responding in a way conducive to a secure attachment. This difficulty could take many forms, such as the following: misinterpretation of the child's cues; relative lack of comfort interacting with the child in close, intimate physical contact; unrealistic expectations or demands that the child function as if he or she were less disabled; angry or depressed affect when the caregiving system is activated; and, in extreme cases, strong avoidance of caregiving activities in general. In turn, these caregiving difficulties should significantly increase the risk of an insecure attachment.

This theoretical model led to the standardized Reaction to Diagnosis Interview (RDI), and accompanying classification system outlined next. In an earlier article, which included a larger sample of 91 mothers who had children with cerebral palsy (CP) or epilepsy (Pianta, Marvin, Britner, & Borowitz, in press), trained coders were found to agree on their classifications of resolved versus unresolved in 92% of cases. Classification of the mothers was approximately evenly divided between resolved and unresolved, and resolution status was related neither to severity of the child's medical condition nor to the amount of time that had elapsed between receiving the diagnosis and the administration of the RDI.

²Main and Hess (1990) very specifically proposed that frightened or frightening behavior on the part of the caregiver who is unresolved regarding loss of her own attachment figure will lead to a specific pattern of attachment behavior in her infant labeled *disorganized*, or in older children labeled *controlling*. At this time, we assume a wider range of negative caregiving patterns related to nonresolution of the child's diagnosis. For this reason, we predict that nonresolution is associated with a range of insecure attachment patterns, rather than with one particular pattern.

In this study, we present data that validate the RDI and that begin to test the theoretical framework outlined as it applies to families who have young children with CP. Specifically, we look at the relations between a mother's resolution regarding her child's diagnosis of CP and the security of the child's attachment to her as measured in the Strange Situation procedure (Ainsworth et al., 1978; Cassidy & Marvin, 1992; Marvin & Pianta, 1989; Marvin, Pianta, & O'Connor, 1994). We predict that mothers who are classified as resolved regarding their child's diagnosis will tend to have children who are securely attached to them, whereas those classified as unresolved will tend to have children who are anxiously attached.

Method

Sample

The sample largely, but not completely, overlapped the CP subsample reported in Pianta et al. (in press). It consisted of 70 children between the ages of 14 and 54 months (median age = 34 months) who had received a diagnosis of CP, and their primary caregivers (67 mothers and 3 grandmothers), hereafter referred to as *mothers*. Three additional children were excluded from the analyses because coders agreed independently that their Strange Situations were not classifiable due to the severity of their sensory and motor impairments. Elapsed time between receipt of the diagnosis and the day of data collection ranged from 2 months to 50 months ($M = 22.4$ months). Among the children, there were 44 boys and 26 girls. The families were recruited from clinics at university medical centers, community hospitals, and early intervention programs in Virginia, West Virginia, North Carolina, Maryland, and Washington, DC.

The severity of the children's impairments ranged from mild to severe: The least impaired were able to locomote with only minimal difficulty and demonstrated age-expected cognitive and communication skills, whereas the most severely impaired were incapable of any independent locomotion and demonstrated significant cognitive and communicative delays. However, all met a minimum criterion of 8- to 10-month level of cognitive skills as assessed by a combination of the Bayley Scales of Infant Development, the Vineland Adaptive Behavior Scales, and clinic staff and parent reports of functional levels. Three children were African American, one was Latin American, and the remainder was Caucasian.

Eighty-four percent of the mothers were currently living with a spouse or partner. The median level of mothers' education was 12 years (range = 8 to 18 years) and of partners' education was 12 years (range = 4 to 21 years). Forty percent of the mothers were employed outside the home for an average of 35 hr/week. Ninety-

one percent of the partners were employed outside the home for an average of 39 hr/week. Median annual family income was \$29,300 (range = \$6,000 to \$120,000).

Measures and Procedures

Families traveled to the laboratory, and the project paid for their transportation and for overnight accommodations and breakfast if the family desired. The data reported in this article were collected as part of a larger project, and each family was provided with lunch and received a small honorarium, and each child received a toy at the end of the single day of data collection. The mother, child, and (if available) father/partner participated in a number of observational and interview procedures, and the children were administered standardized developmental assessments. The parents were also given a number of questionnaires to fill out and return by mail. The two procedures relevant to this report were the RDI and the Strange Situation. The Strange Situation was always conducted first, and the RDI was administered separately to each parent approximately 2 hr later as part of a set of interviews about each parent's views of her or his close relationships. In this article we are concerned with the maternal RDI and the child's Strange Situation with mother.

RDI. The RDI is a highly structured, standardized interview that takes approximately 15 min to administer. It consists of five questions designed to elicit both content and affect regarding the parent's internal working model of the child's medical condition as that condition relates to the child, the parent, and the health-care system. The questions probe specifically for the parent's episodic recall of thoughts and feelings about her child's medical problem and the process leading up to the diagnosis; changes in those thoughts and feelings since the diagnosis; and her past and current thoughts regarding the causal role she and/or other people or factors may have played in her child's condition. The actual questions are presented in Table 1. Probes are limited to asking the parent twice for specific, episodic details when these are not forthcoming or to clarifying a question for the parent. No more than two probes are used to elicit episodic detail for any given part of a question. Each interview was videotaped.

Coding of interviews. Parents' verbal and non-verbal responses to the RDI were coded using a standard procedure (Pianta & Marvin, 1992). The coding process begins with taking extensive notes during repeated viewings of the videotape. Specific verbal and/or nonverbal behavioral events in the interview are identified as elements reflecting either resolution or nonresolution.

Elements of resolution include (a) acknowledgment that the experience of the diagnosis was difficult; (b)

Table 1. *Reaction to Diagnosis Interview*

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1. When did you first realize that [child's name] had a medical problem [probe for details]?
 2. What were your feelings at the time of this realization?
 3. Have these feelings changed over time?
 4. Tell me exactly what happened when you learned of [child's name]'s diagnosis. Where were you, who else was there, what were you thinking and feeling at that moment? (If new material regarding feelings is elicited from this question, then Question 3 is repeated.)
 5. Parents sometimes wonder or have ideas about why they have a child with special needs. Do you have anything like that that you wonder about? (Prompt if necessary: For example, some parents feel that they might have done something to contribute to their child's condition; others believe that God must have a reason for giving them this child. What do you wonder about?)
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recognition of a change in feelings since the diagnosis; (c) assertion of moving on in life; (d) suspension of the search for an existential reason ("Why me?"/"Why my child?") for the diagnosis; (e) accurate (nondistorted) representation of the child's abilities; and (f) balanced, integrated statements regarding the benefits and drawbacks of the whole experience to the self. Elements of lack of resolution include (a) cognitive distortions about the child's condition in the form of unrealistic beliefs, denial of the severity of the condition, or wished-for realities; (b) continued active search for an existential reason for the diagnosis; (c) grieving, anger, or other affect strong and pervasive enough to suggest that the individual is "stuck in the past," as if the diagnosis had just been given; (d) episodic memory and/or affect is sufficiently unavailable during the interview to indicate that the individual is cut off from the experience of the diagnosis; and (e) incoherence and disorientation (e.g., losing one's train of thought and contradicting oneself) is sufficiently present to indicate the lack of an organized mental framework or strategy with which to communicate about the experience.

Once these elements are identified, the coder classifies the pattern of elements presented by this parent as either Resolved or Unresolved regarding the diagnosis (Pianta & Marvin, 1992). This classification is based on the parent's organized pattern of responses in a way analogous to that used in classifying infants and young children in the Strange Situation (Ainsworth et al., 1978; Cassidy & Marvin, 1992) and adults in the Adult Attachment Interview (Main & Goldwyn, 1991).

A classification of Resolved reflects a strategy in which the parent has moved beyond the crisis of the diagnosis. Although some mourning may continue, this parent has experienced an attenuation in the feelings associated with the initial crisis, a reorientation to the present and future, an acceptance of the child's condition, and a balanced view of the impact of the child's condition on the self. Importantly, this parent's interview is coherent, believable, and affectively appropriate.

A classification of Unresolved reflects a strategy in which the parent has not successfully moved through and past the crisis of the diagnosis. The parent either remains focused on that experience in an emotionally overwhelmed or angry stance, or the parent uses defensive exclusion, denial, or deflection to keep from confronting and resolving the crisis. In either case, this parent seems not to have experienced the same cycle of feelings as those classified resolved and does not communicate a sense of realistically accepting the child's condition and its impact on the self. In most interviews, there are elements of both resolution and lack of resolution: The coder must determine the organizational pattern within which this particular configuration of elements best fits.

As an option, each parent can also be classified into a particular subpattern of Resolved or Unresolved. To date, three subclassifications of Resolved and six subclassifications of Unresolved have been reliably identified (Pianta et al., in press). However, for purposes of this study, each mother was classified as either Resolved or Unresolved. The following are brief examples of responses from the interviews of two mothers. Excerpt 1 is from the interview of a mother classified as Resolved; Excerpt 2 is from a mother classified as Unresolved.

Excerpt 1

Question: What were your feelings at the time of your realization that she had a medical problem?

Response: I was very scared, very scared. I kind of felt like ... um ... you kind of grieve, you know, you just feel like you've lost a child. Even though they're still alive you just feel like your healthy baby has been turned into a ... you know ... you don't know what [nervous laugh]. But its ... you grieve. You just feel like you've lost a baby, kind of.

Question: Have these feelings changed over time?

Response: Yes, very much because she's ... she's done remarkably well, so ... um ... you know [slight laugh], I don't feel anymore like I've lost a child at all. I get sad when I think about, you know, like I was saying [becomes quiet], about the ballet and stuff like that, but ... um ... overall I'm very happy.

Excerpt 2

Question: Tell me exactly what happened when you learned of [child's name]'s diagnosis. Where were you, who else was there, what were you thinking and feeling at that moment?

From the response: And the doctor says, "Well, we've found the diagnosis and its CP." So [gestures with shoulder shrug and open palm] ... that's what I was telling you, the first question you have is, well, "how long has she

got to live?" I mean this really sounds stupid when you know about CP, but at the time it was very, very real [voice breaks, begins crying]. And they just mapped it all out, you know, they said, like I already told you a couple of times, the wheelchair and all this and all the way home we cried [crying, covers mouth, has to pause].

Question: Have these feelings changed over time?

From the response: As a matter of fact, I think its [the pain] even stronger now than it was then [wipes face, crying]. Because you got this little ol' baby and you don't realize how—ahow tall they get [crying] ... and what a walker looks like and what a wheelchair looks like!

Each interview was independently classified by two trained coders. Coders were blind to each other's classifications as well as to the attachment classifications. The level of coder agreement reported next was computed at this point. After level of coder agreement had been computed, each case involving a disagreement was identified and conferenced to agreement. The agreed-upon classifications were used in the analyses.

Studying a larger sample of children with either CP or epilepsy, Pianta et al. (in press) found that Resolved or Unresolved status was not associated with years of maternal education, median annual family income, diagnosis type (CP vs. epilepsy), or severity of the child's condition.

Strange Situation. Each mother-child dyad was videotaped either in the original infant Strange Situation (Ainsworth et al., 1978), in the slightly modified Preschool Strange Situation (Cassidy & Marvin, 1992), or in the more extensively modified Strange Situation for Motor-Impaired Children (Marvin & Pianta, 1989). The Strange Situation for Motor-Impaired Children is a functional analogue to the original Strange Situation; it was designed to activate the child's use of the caregiver as a visual and manipulatory "secure base for exploration" and to activate the child's attachment system to a mild level. It consists of a standard sequence of episodes in which (a) the caregiver holds and assists the child as necessary in exploring the toys; (b) there is an in-room separation and reunion; (c) the child is handed to a friendly stranger, encouraged to interact with the stranger, and then returned to the caregiver; and (d) there is a full separation-reunion sequence during which the caregiver leaves and then reenters the room.

The attachment classification procedure for nonlocomotor children is a modification of Ainsworth et al.'s (1978) original system. It retains a similar pattern of criteria based on interest in exploration; distress and

other forms of attachment behavior on separation; calming on reunion; and proximity-seeking, contact-maintaining, avoidant, and resistant behavior on reunion. At the same time, it excludes criteria that are based on intact locomotor abilities and includes a number of behavior patterns commonly observed in children with CP (e.g., variations in smiling, vocalizing, and body movement when emotionally aroused). Modifications of the Strange Situation procedure and classification system for attachment research have been used with children with other forms of developmental problems, such as PDD, autism, and other neurological impairments (e.g., Capps, Sigman, & Mundy, 1994; S. Pipp-Siegel, personal communication). Fundamentally, these systems are similar to Ainsworth et al.'s original system in that they all mildly stress the youngster's attachment system through separation and elicit/classify patterns of termination of the attachment system and activation of the exploratory system upon reunion.

Each locomotor infant's ($n = 5$) attachment pattern was classified using Ainsworth et al.'s (1978) original system. Each locomotor preschooler's ($n = 34$) attachment pattern was classified using the system developed by Cassidy and Marvin (1992; see Cicchetti, 1995, and Stevenson-Hinde & Shouldice, 1995, for validity studies). Because both the infant system and this particular preschool system have repeatedly been shown to be reliable and valid indicators of attachment security in their appropriate age groups, and because only five children were classified according to Ainsworth et al.'s original system, attachment classifications from these two systems were pooled and analyzed together. Finally, each nonlocomotor infant or child's ($n = 31$) attachment pattern was classified using the system developed by Marvin et al. (1994).

Each Strange Situation was classified independently by two trained coders, each blind to the other's classifications and to the RDI classifications. Using the criteria from the three classification systems just mentioned, each child's pattern of exploration and response to separation and reunion was classified as either secure or anxious/insecure. Coder agreement was computed at this point, and any disagreements were subsequently conferenced to agreement. The agreed-upon classifications were used in the analyses.

Time since diagnosis. For each child, the length of time (in months) elapsed between the age at which the diagnosis was presented to the parents, as reported by the parents during a videotaped interview, and the date of data collection was calculated.

Standardized developmental assessments. Each child was administered either the Bayley Scales of Infant Development-Mental Index or the Peabody Picture Vocabulary Test-Revised, depending on the child's age and impairment. Raw scores were converted

to age-equivalent scores using the norms provided. The age-equivalent scores served as an estimate of the child's performance on a standardized measure of cognitive ability.

Results

The results are presented in three parts. First, to establish continuity with the results reported in Pianta et al. (in press), we present data for the RDI on coder agreement; proportions of mothers classified as Resolved versus Unresolved; and relations between resolution status and the potential correlates of child sex, severity of the child's condition, time since diagnosis, and age-equivalent developmental status. Second, we present data on coder agreement for the attachment classifications; the distribution of securely versus anxiously attached children; and the relations between attachment status and the potential correlates of severity of the child's condition, time since diagnosis, and age-equivalent developmental status. Third, we examine the relation between parent resolution status as measured by the RDI and child-parent attachment status as measured by the Strange Situation.

RDI Results

Of the 70 RDIs classified independently by two coders, there was initial agreement on 66, for an agreement level of 94%, $\chi^2(1, N = 70) = 55.1, p < .0001$ (kappa = .88). Thirty-three (47%) of the mothers were classified as Resolved on the RDI, whereas 37 (53%) were classified as Unresolved. There was no statistical relation between resolution/nonresolution and child sex, $\chi^2(1, N = 70) = .12, p = .72$, or severity of the child's disability, as measured by locomotor/nonlocomotor status, $\chi^2(1, N = 70) = 1.3, p = .25$. Resolution/nonresolution status was not related to time since diagnosis, $F(1, 66) = .61, p = .44$. Child age-equivalent score from the standardized developmental assessment was not related to resolution status, $F(1, 66) = .37, p = .54$. These results are consistent with those reported in Pianta et al. (in press).

Strange Situation Results

Of the 31 nonlocomotor Strange Situations classified independently by two coders, there was initial agreement on 27, for an agreement level of 87%, $\chi^2(1, N = 31) = 16.95, p < .0001$ (kappa = .74). Of the 39 locomotor Strange Situations, there was initial agreement on 34, for an agreement level of 87%, $\chi^2(1, N = 39) = 41.6, p < .0001$ (kappa = .74). A chi-square test of the 70 independently classified Strange Situations

exceeded levels of agreement expected by chance, $\chi^2(1, N = 70) = 41.6, p < .0001$ (kappa = .74).

Thirty-four (49%) of the children were classified as securely attached to their mothers, whereas 36 (51%) were classified as anxiously or insecurely attached. There was no statistical relation between security of attachment and severity of the child's disability, as measured by locomotor/nonlocomotor status, $\chi^2(1, N = 70) = 2.0, p = .16$. Security of attachment was also unrelated to time since diagnosis, $F(1, 66) = .91, p = .34$, and was unrelated to age-equivalent score from the standardized developmental assessment, $F(1, 66) = 2.66, p = .11$.

Relations Between RDI Status and Strange Situation Status

As predicted, there was a significant relation between RDI status and Strange Situation attachment status. Mothers classified as Resolved regarding their child's diagnosis had children who were securely attached to them, and mothers classified Unresolved had insecurely attached children, $\chi^2(1, N = 70) = 27.6, p < .0001$. This significant relation holds both for the nonlocomotor children, $\chi^2(1, N = 31) = 20.1, p < .0001$, and for the locomotor children, $\chi^2(1, N = 39) = 8.6, p = .0033$. There were too few infants ($n = 5$) to test separately for use of Ainsworth et al.'s (1978) classification system, but the significant relation does hold separately as well for the Cassidy and Marvin (1992) system, $\chi^2(1, N = 65) = 6.4, p = .011$. For the sample as a whole, 82% of mothers classified as Resolved had securely attached children, whereas 81% of mothers classified as Unresolved had insecurely attached children.

With a hit rate this high, exceptions to the rule (i.e., off-diagonal cells) can sometimes be very informative. In this case, there were three exceptions to the rule (11%) within the nonlocomotor group and 10 (34%) within the locomotor group. The exceptions were essentially evenly split between the two possibilities (resolved and insecure; unresolved and secure), and the differences between groups in the proportion of exceptions did not reach significance at the .05 level, $\chi^2(1, N = 70) = 2.9, p = .088$. Therefore, no patterns are apparent to the exceptions.

Discussion

The finding that approximately half the children in this sample were securely attached to their mothers is generally consistent with findings of other studies of young children with a variety of developmental problems such as prematurity, cystic fibrosis, congenital heart disease, and Down's syndrome (see van IJzendoorn, Goldberg, Kroonenberg, & Frenkel, 1992, for a

meta-analysis of relevant studies). This percentage is somewhat lower than that found across a number of studies of normal, low-risk populations (van IJzendoorn et al., 1992), suggesting that a diagnosis of CP may be a mild risk factor for an insecure attachment. However, the finding that over 80% of mothers classified as Resolved had securely attached children suggests that it may be the status of the caregiver's resolution of the diagnosis, rather than the CP itself, that is the more important risk factor.

The results of this study indicate that the RDI is a reliable and valid procedure for assessing a mother's success in resolving the crisis and grief regarding her child's diagnosis of CP. The findings that 82% of mothers classified as Resolved had securely attached children and that only 19% of mothers classified as Unresolved had securely attached children indicate that the RDI is a strong predictor of this important child outcome measure. Assuming that security of attachment will predict concurrent and future child outcomes in children with CP as it does in other low- and high-risk populations (e.g., Ainsworth et al., 1978; Belsky & Isabella, 1988; Cassidy, 1988; Greenberg et al., 1993; Sroufe, 1983; Stevenson-Hinde & Shouldice, 1995), it is likely that a parent's response to the RDI could serve as a useful predictor for behavioral and relationship outcomes for children with CP. Until longitudinal data on this relation becomes available, however, results of the RDI can only be considered concurrent predictors.

In a wider sense, this study provides the first empirical validation for the widely held ideas that parents experience a grief reaction when their child is diagnosed with a chronic medical condition, that resolution of that reaction is variable in success, and that the success of that resolution has important implications for the parent-child relationship. By testing the association between parental RDI classification and child attachment classification, this study provides an indirect test of the negative effect that parental nonresolution of a child's diagnosis is hypothesized to have on the parent's caregiving system. A full test of the hypothesis that lack of resolution of the diagnosis will impede the functioning of the caregiving system, which will in turn impede the development of a secure attachment and other child outcomes, requires further study. It is necessary to identify the specific negative effect(s) that lack of resolution has on the functioning of the caregiving system and to identify the specific effect(s) that these negative caregiving patterns have on the organization of the child's attachment system. Although this is beyond the scope of this article, the results of this study are strong enough to suggest an extension of the theoretical model presented in the introduction.

Briefly, we propose that any parent who realizes that her child has a chronic, disabling medical condition will experience a range of very intense, distressing feelings and a range of conflicting representational

models of her child and herself. Included among these conflicting models will be those representing her child and herself before the realization, and those representing her child and herself after the realization. Resolution requires that these conflicting representational models become integrated into a new model that more closely represents the reality of the current situation (cf. Main & Hesse, 1990). However, the distressing feelings are so intense that most parents probably cycle between focusing on that integrative process and defending against the feelings through a variety of strategies for excluding them from awareness (cf. Horowitz, 1976). Successful resolution occurs as parents, over the course of these cycles, more or less gradually integrate the conflicting representational models and focus their attention on the present and future reality implied by the child's condition. Note that there may be individual differences in how central a role the distressing feelings play in successful resolution (Pianta et al., *in press*). Nonresolution, in contrast, exists for as long as the parent is unable to integrate the conflicting representational models successfully and refocus attention on the present and future.

When the resolved parent's caregiving system is activated by the child's attachment behavior or by some perceived need or threat to the child, the parent has a relatively integrated representational model of herself and of her child to organize her caregiving behavior. She is also relatively free of the intense, distressing feelings associated with the crisis of the diagnosis.

The unresolved parent's caregiving system will also be activated by many of the same conditions. However, although her caregiving system is activated by a child with a real and chronic medical condition, her caregiving behaviors will tend to be organized in a way that reflects her conflicting representational models, and they may be further hampered by the continuing intense, distressing feelings associated with the diagnosis. It will be relatively difficult for this parent to interpret her child's cues accurately or to choose a coherent caregiving behavior that is adapted to the child's needs, in the face of these conflicting models and feelings. The unresolved parent is thus presented with a paradox: Her caregiving system is distorted, impeded, or conflictually activated by the very person whom the system is designed to care for and protect.

From the perspective of the child in this relationship, activation of his or her attachment system will, with some degree of certainty, lead either to rejection of the attachment behavior by the parent or to a form of caregiving behavior that may not be sensitively responsive because conflicting representational models are activated in the parent. It will be much more difficult for this child to use the parent either as a haven of safety or as a secure base for exploration. To cope with this rejecting, unpredictable, or disorganized caregiving behavior, the child will be more likely to develop one of

the attachment strategies that have been identified as anxious or insecure (Ainsworth et al., 1978; Cassidy & Marvin, 1992; Main & Solomon, 1990).

This theoretical model suggests that we look for evidence of conflicting representational models both in parent interviews about caregiving practices and in direct observations of attachment-caregiving interactions. The fact that we have identified a number of different patterns of nonresolution (Pianta et al., in press) suggests that there may be many different versions of conflicting models, perhaps each associated with its own pattern of parental caregiving behavior and child attachment strategy.

This and Pianta et al.'s (in press) research also suggest that the study of individual patterns of resolution and nonresolution may be an important adjunct to the study of stages of grief and resolution. As used, the construct of stages of resolution inherently assumes likelihood of resolution, as well as homogeneity with respect to the course of resolution. In fact, however, it appears that many parents are at high risk for long-term nonresolution and that there are distinctly different patterns of both resolution and nonresolution.

This raises the question of what accounts for some of the mothers being resolved about their child's diagnosis within a matter of months after receiving it, whereas others were still unresolved as many as 4 years after the diagnosis. We suspect there are many variables that can play a role; there are many developmental pathways to either resolution or nonresolution. Time is probably one. However, we suspect that other variables play a more important role. Among these are the type and degree of practical and emotional support that a parent receives from a partner and from extended family and friends. Another is the strategy a parent developed as a child for operating within intimate relationships and for coping with intense, difficult feelings within those relationships. If, for example, a parent developed a dismissing strategy during childhood for dealing with intimate feelings and interactions (Ainsworth et al., 1978; Main et al., 1985), it is likely that she will have a relatively difficult time accessing the feelings and conflicting representational models to the extent required for successful resolution of her child's diagnosis. We are currently analyzing the Adult Attachment Interviews (George et al., 1985) and spouse, family and friendship social support data for each of the mothers in our sample in order to begin to answer this question.

Perhaps the most important implications of this study are clinical in nature. The data presented in Pianta et al. (in press) indicate that the RDI is an efficient procedure to administer and code, and it has very high interjudge reliability. The results of this study indicate that the RDI is also a valid procedure in terms of concurrent prediction of attachment status—of a child outcome measure that is widely used to explore a range of basic and clinical research questions and is closely

related to it theoretically. It appears, at least in the case of CP, that parents are at significant risk for difficulty in resolving their child's diagnosis and that nonresolution is highly associated with insecure attachments. In this time of managed health care and medical cost containment, efficient early identification procedures are becoming increasingly important. The results of this study are strong enough to suggest that the RDI might be useful for early identification of at-risk dyads in clinical settings.

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