

- ment. Paper presented at the biennial meeting of the Society for Research in Child Development, Toronto.
- Main, M. (in press). Cross-cultural studies of attachment organization: Recent studies changing methodologies, and the concept of conditional strategies. *Human Development*.
- Main, M., & Cassidy, J. (1988). Categories of response to reunion with the parent at age six: Predictable from infant attachment classification and stable over a one-month period. *Developmental Psychology* 24, no. 3, 415-426.
- Main, M., & Hesse, E. (1989). Adult lack of resolution of attachment-related trauma related to infant disorganized/disoriented behavior in the Ainsworth strange situation: Linking parental states of mind to infant behavior in a stressful situation. Submitted ms.
- Main, M., & Solomon, J. (1986). Discovery of a new, insecure-disorganized/disoriented attachment pattern. In M. Yogman & T. B. Brazelton (eds.), *Affective development in infancy* (pp. 95-124). Norwood, N.J.: Ablex.
- Main, M., & Weston, D. (1981). The quality of the toddler's relationship to mother and father. *Child Development* 52, 932-940.
- Main, M., & Weston, D. (1982). Avoidance of the attachment figure in infancy: Descriptions and interpretations. In C. M. Parkes & J. Stevenson-Hinde (eds.), *The place of attachment in human behavior* (pp. 31-59). London: Tavistock.
- Matas, L.; Arend, R. A.; & Sroufe, L. A. (1978). Continuity of adaptation in the second year: The relationship between quality of attachment and later competence. *Child Development* 49, 547-556.
- Mill, J. S. (1874). *A system of logic, ratiocinative and inductive, being a connected view of the principles of evidence and the methods of scientific investigation* (8th ed.). London: Longmans, Green.
- Mayr, Ernst. (1976). *Evolution and the diversity of life: Selected essays*. Cambridge, Mass.: Belknap Press.
- Radke-Yarrow, M.; Cummings, E. M.; Kuczynski, L.; & Chapman, M. (1985). Patterns of attachment in two- and three-year olds in normal families and families with parental depression. *Child Development* 56, 884-893.
- Spicker, S. J., & Booth, C. (1985, April). Family risk typologies and patterns of insecure attachment. In J. O. Osofsky (chair), *Intervention with infants at risk: Patterns of attachment*. Symposium conducted at the biennial meeting of the Society for Research in Child Development, Toronto.
- Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development* 48, 1184-1199.
- Strage, A., & Main, M. (1985, April). Parent-child discourse patterns at 6 years predicted from the organization of infant attachment relationships. Paper given at the biennial meeting of the Society for Research in Child Development, Toronto.
- Van IJzendoorn, M. H., & Kroonenberg, P. M. (1988). Cross-cultural patterns of attachment: A meta-analysis of the strange situation. *Child Development* 59, 1, 147-156.
- Wartner, U. (1987). Attachment in infancy and at age six and children's self-concepts: A follow-up of a German longitudinal study. Unpublished doctoral dissertation, University of Virginia.

IN Attachment in the Preschool Years  
 (1985) M. Greenberg, D. Cicchetti, & E.M. Cummings  
 (Eds.), Chicago: University of Chicago Press

## 5 · Parents' Unresolved Traumatic Experiences Are Related to Infant Disorganized Attachment Status:

IS FRIGHTENED AND/OR FRIGHTENING PARENTAL BEHAVIOR THE LINKING MECHANISM?

Mary Main and Erik Hesse

THE STUDY OF human attachment can be encompassed within two major branches of inquiry. The first has been concerned with (a) describing the normal development and functioning of an attachment behavioral system, a system presumed to have evolved to take continual account of the whereabouts of caregivers (attachment figures), and to promote proximity to those figures whenever necessary (Bowlby [1969] 1982); and (b) with describing the effects of potentially traumatic events, such as loss of attachment figures, upon the further functioning of the individual. Traumatic loss of parents or other attachment figures and abuse by attachment figures are considered likely to overwhelm the developing attachment behavioral system (Bowlby 1973, 1980) and to be contributory factors in depression (Brown, Harris, & Bifulco 1985) and later difficulties in parenting (Quinton & Rutter 1985).

The second branch of inquiry has centered upon individual differences in attachment organization. During infancy, these individual differences are usually identified through an examination of infant behavioral responses to the parent in a separation and reunion observation conducted in the unfamiliar laboratory environment (Ainsworth, Blehar, Waters, & Wall 1978). The three traditional categories of infant response to this situation are: *secure/B* (the infant shows signs of missing the parent, seeks proximity on reunion, and then returns to play); *avoidant/A* (the infant ignores and avoids the parent upon reunion); and *ambivalent/C* (the infant is highly distressed and highly focused on the parent, cannot be settled by the parent, and may seek proximity and display anger in quick succession). In several studies, these response categories have been found associated with parental behavior toward the infant, independent across parents (a given infant may be secure with one parent but avoidant with the other), and predictive of the child's later social-emotional functioning (see Bretherton 1985 for review).

This study would not have been possible without the assistance of Carol George, Ruth Goldwyn, and Nancy Kaplan, who were critical to the design and conduct of the Adult Attachment Interviews, and Anitra DeMoss, who coded them. This paper has been through many drafts and editions, and we gratefully acknowledge the criticisms, queries, and commentaries of Mary Ainsworth, Anne Beuter, John Bowlby, Jude Cassidy, Giovanni Liotti, and Judith Solomon.

Recently, we have developed an interview centered upon the adult's description and evaluation of his or her attachment-related history (George, Kaplan, & Main 1985). Study of the verbatim transcripts of this interview permits judges to classify each adult into one of three adult attachment categories: secure-autonomous with respect to attachment, dismissing of attachment, or preoccupied by past attachments. These adult classifications have been found to predict the infant's Strange-Situation response to the parent, such that, for example, secure parents typically have secure infants while dismissing parents have avoidant infants (Main 1985; Main, Kaplan, & Cassidy 1985; Main & Goldwyn, in press; Ainsworth & Eichberg, in press). In addition, the parent's adult attachment classification has been found directly predictive of behavior toward the offspring (Crowell & Feldman 1988; Ward, Carlson & Kessler 1989b; see also Grossmann, Fremmer-Bombik, Rudolph, & Grossmann 1988).

In this chapter, we discuss a significant connecting link between these two central areas of inquiry, that is, an association between *unresolved loss of attachment figures (or other attachment-related trauma)* as experienced by the parent, and the infant's *failure* to fit to one of the traditional, organized Strange-Situation response categories. This is in essence the discovery of a second-generation effect of unresolved loss of attachment figures, with the infants of parents who are judged unresolved with respect to this potentially traumatic experience being found to fit to a new (fourth) infant attachment category now termed "disorganized/disoriented" (Main & Solomon, this vol., and 1986) and previously termed "unclassifiable" (Main & Weston 1981).

The reader should note that (1) the term "trauma" traditionally refers to experiences of intense fear, terror, or helplessness (see DSM-III-R [American Psychiatric Association 1987]), which threaten an individual with psychological or behavioral disorganization, although (2) whether any given experience is actually traumatic ultimately rests with the history the individual brings to the experience, and individual perceptions. Experiences such as physical or sexual abuse by a parent are almost inevitably traumatic, while loss experiences are only potentially traumatic, with the effects dependent upon the individual and upon surrounding conditions.

Recent studies have demonstrated that not only unresolved loss of important figures through death, but also unresolved experiences of physical or sexual abuse, and even more general recent traumas (such as a recent close brush with death on the part of the parent) are associated with infant *D* attachment status (see below). At this point, only a very few of our original Bay Area subjects have described traumas other than the potential trauma implied in loss of important figures. Hence in this chapter our attention will be chiefly confined to loss experiences.

We begin with a review of disorganized/disoriented behavior patterns and their sequelae in recent studies. We next discuss the association discovered

between parental lack of resolution of loss experiences and infant disorganization (Main 1983, 1985; Main & Hesse 1989), which has led to the development of a new, unresolved *adult* attachment category, and studies replicating and extending our findings to include unresolved experiences of physical and sexual abuse as predictors of infant *D* attachment status (Ainsworth & Eichberg, in press; Friedman 1986; Main, Kaplan, & Hesse, unpublished data; Levine, Ward, & Carlson 1989; Ward, Carlson, Allman, Levine, Greenberg, & Kessler 1989a). We then examine the patterning of infant disorganized/disoriented behavior observed in the Ainsworth Strange Situation, which suggests that the infant may at times be experiencing a fear or distress too intense to be deactivated through a shift in attention (the Ainsworth *A* pattern), yet at least momentarily cannot be ameliorated through approach to the attachment figure (the Ainsworth *B* and *C* patterns). This leads to a discussion of the role that fear may sometimes play in the *D* infant's experiences with the parents, and to a discussion of the hypothesis that *the traumatized adult's continuing state of fear together with its interactional/behavioral concomitants (frightened and/or frightening behavior) is the mechanism linking unresolved trauma to the infant's display of disorganized/disoriented behavior*. Such behavior could be particularly puzzling or frightening to the infant because its immediate cause would often lie in the parent's response to memories aroused by ongoing events rather than resulting from those events directly.

Since the attachment figure is normally the "solution" provided to the infant for dealing with stressful or alarming experiences, an infant who is frightened by the attachment figure is presented with a paradoxical problem—namely, *an attachment figure who is at once the source of and the solution to its alarm*. The chapter concludes with a discussion of the *A*, *B*, and *C* infant attachment classifications as indicative of relatively well-organized behavior patterns and infant *D* response patterns as indicative of a momentarily irresolvable conflict.

#### DISORGANIZED/DISORIENTED INFANT ATTACHMENT STATUS: DESCRIPTION AND SEQUELAE

In this section, we briefly review the development of the *D* attachment category and describe some of the behavior patterns which are regarded as disorganized and/or disoriented. For a more complete description of the *D* system, see Main and Solomon (this vol.).

#### "Unclassifiable" Responses to the Ainsworth Strange Situation

The *A*, *B*, *C* classificatory system was developed in conjunction with Ainsworth's study of a sample of Baltimore infants and mothers living in rela-

tively stable circumstances, and has repeatedly been successfully applied to the study of infants and parents in similar low-risk, middle-class samples. Within our own upper-middle-class Bay Area sample, we had earlier reported difficulties in classifying the Strange-Situation response of about 13% of infants (Main & Weston 1981). Studies of high-risk/maltreatment samples in which children were observed with maltreating or psychotic parents in contrast yielded reports of frequent classification difficulties. Recognition of these difficulties often began with the observation that, using the traditional system that classifies every infant as *A*, *B*, or *C*, infants were being classified as *B* (secure) with respect to a parent who was in all likelihood maltreating or frightening (see Main & Solomon, this vol., for a review of these studies).

#### *Disorganized/Disoriented Infant Attachment Status*

Recently, Main and Solomon (1986) conducted an analysis of the Strange-Situation behavior of fifty-five infants who were originally considered *unclassifiable* within the traditional system (Main & Weston 1981), and were now found to exhibit a diverse array of *disorganized/disoriented* and sometimes seemingly *undirected* behaviors. The more recent instructions for identifying infant *D* Strange-Situation response were, however, based upon thorough study of 200 infants judged to be *disorganized/disoriented*, including 100 infants from maltreatment and high-risk samples (Main & Solomon, this vol.).

Infants are judged to fit to the *D* (hereafter, *disorganized*) category when they show strong or combined indices of disorganization or disorientation in the presence of the parent such as freezing of all movement; approaching the parent with head averted; rocking on hands and knees following an abortive approach; moving away from the parent to the wall when apparently frightened by the stranger; screaming for the parent by the door upon separation, then moving silently away upon reunion; or rising to greet the parent on reunion, and then falling prone to the floor. Most of these behaviors appear to be of a type ethologists term "conflict behaviors," that is, behaviors that result from the simultaneous activation of incompatible behavioral systems (see, e.g., Hinde 1970).

While it is not uncommon for an infant to show some of these behaviors at low levels of intensity in stress situations in which the parent is absent (e.g., freezing briefly as the stranger approaches during a separation episode), when behaviors of this type are seen at higher levels of intensity *in the parent's presence* they appear difficult to explain. For example, upon reunion, an infant is held on mother's lap for a long period, during which time the infant has a dazed expression and repeatedly twists its hair and raises hands to ears. Or, an infant is crying loudly in the first moments of reunion and attempting to gain the parent's lap, then suddenly "freezes" in a given posture for several sec-

onds. In such cases (a) the observer cannot determine what, if anything, is causing the distress, or (b) why, if the infant wished to gain the parent's lap, it stopped moving in mid-activity.

Some of these behavior patterns (such as stereotypies) are expected in neurologically impaired infants. There is no evidence to date, however, that *D* reflects any stable constitutional deficiency on the part of infants in normal samples. In the larger Bay Area sample (141 infant-mother Strange Situations analyzed to date), only three out of thirty-four infants judged *D* with one parent were also judged *D* with the second parent (Main & Solomon, this vol.). Independence of "unclassifiable" (now, *D*) attachment status was also found between mothers and day-care caregivers (Krentz 1982). A relation between the *D* category and parental behavior patterns was suggested in two independent studies comparing maltreating to well-matched control families. In both studies, the *D* category was found strongly and specifically associated with maltreatment (Carlson, Cicchetti, Barnett, & Braunwald 1989; Lyons-Ruth, Zoll, Connell, & Odom 1987).

We underscore here that the infant's *D* Strange-Situation response in low-risk samples such as ours is not normally an indication of maltreatment. Indeed, we will argue here for a quite different, although related, mechanism.

#### *Follow-up Studies of Unclassifiable or D Infants in Low-Risk Samples*

In our upper-middle-class Bay Area sample, children initially judged unclassifiable (and later recoded as "disorganized") with a particular parent in infancy most often showed *controlling* (role-reversing) responses to reunion with that parent at age 6, being generally either punitive toward the parent on reunion or else caregiving. In addition, when a child had been judged *D/unclassifiable* with a particular parent in infancy, parent-child discourse for that dyad was judged dysfluent five years later, while discourse with the second parent reflected the original attachment classification with the second parent being, for example, fluent (associated with group *B* infancy classifications) or fluent-restricted (associated with group *A* infancy classifications; Strage & Main 1985). Finally, *D* attachment status with mother in infancy predicted apparent difficulties with thinking regarding attachment-related events: thus fearful, disorganized, and contradictory or irrational-seeming thought processes regarding parent-child separations appeared in children who had been classified *D* five years previously (Kaplan 1987).

Similarly, in a Charlottesville study, Cassidy found negative self-descriptions, and bizarre or violent descriptions of interactions between a child and mother doll in attachment-related situations where 6-year-olds were judged *controlling* in their (*D*-equivalent) reunion response to the mother (Cassidy 1986, 1988). Still more recently, George and Solomon (1989) found that both a mother's narrative description of herself as helpless with respect to the child,

and her perception of the child as out of her control were strongly correlated with her 6-year-old's controlling response to reunion with her in the laboratory.

#### LACK OF RESOLUTION OF MOURNING FOR ATTACHMENT FIGURES LOST THROUGH DEATH: RELATED TO INFANT DISORGANIZED/DISORIENTED ATTACHMENT STATUS

The association between parental lack of resolution of mourning for lost attachment figures and infant *D* attachment status was discovered in conjunction with a sixth-year follow-up study of our Bay Area sample (Main 1983, 1985; see Main & Weston 1981, and Main et al. 1985 for a more complete description of the characteristics of this sample). In this study, we compared the transcripts of a mother's discussion of her own attachment history with her child's Strange-Situation classification during infancy (five years earlier). In the larger sample from which the subjects for this study were drawn (189 dyads observed over a four-year period, 141 infant-mother Strange Situations analyzed to this date), a majority of children had been classified as *B* (secure) with mother, and only 16% had been considered unclassifiable/disorganized-disoriented (Main & Weston 1981). In contrast, this report is based upon a selected subsample of fifty-three mothers and infants (twenty-four girls, twenty-nine boys), selected to include as many *D* infant-mother dyads as were available during the period of the study (seventeen, or 32%), as close to equal numbers of *B* and *A* infant-mother dyads as possible (sixteen dyads, seventeen dyads) and three *C* dyads. The report includes the forty infant-mother dyads who participated in the follow-up study described in Main et al. 1985) together with thirteen dyads brought in within the succeeding year. A more detailed description of our findings relating lack of resolution of mourning to infant *D* attachment status can be found in Main and Hesse (1989).

#### *The Adult Attachment Interview: Procedure, Reports of Experiences of Loss, and the Original Three Category Adult Attachment Classification System*

While their children were being seen in a series of assessments involving attachment-related issues, the parents in our follow-up study were interviewed regarding their own attachment histories, and were asked to evaluate the effect of their histories upon their personality and functioning. The hour-long Adult Attachment Interview (George et al. 1985) began with a request for a description of the adult's relationship to each parent during childhood, and later moved to request a description of the relationship to any other individual(s) considered the equivalent of a parent. Adults were asked whether they had experienced the death of any parent or parental figure, any close family member, or anyone else who was especially important to them; how they reacted to the loss at the time; how they thought the loss had affected their adult person-

alities; and how it may have affected their response to their child. For the purposes of the current study, data concerning loss were categorized as follows: loss of a close family member (older than the subject) prior to the completion of high school; later loss of older family members, and loss of any other important persons at any point in time; no important loss experiences.

As noted earlier, Adult Attachment Interviews are transcribed verbatim, and each transcript is assigned to a single overall classification for the adult's "state of mind with respect to attachment" irrespective of particular relationships and experiences. In keeping with the three-part Ainsworth infant attachment classification system, our original adult attachment classification system assigned each adult to one of three categories, each equivalent to and predictive of infant categories: secure/autonomous with respect to attachment (associated with the parents of *B* infants), dismissing of attachment (associated with the parents of *A* infants), or preoccupied by past attachment relationships and experiences (associated with the parents of *C* infants). Earlier studies employing the Adult Attachment Interview also used this original, three-part scoring system (e.g., Kobak & Sceery 1988; Crowell & Feldman 1988; Main & Goldwyn, in press).

#### *Scoring Subjects for Lack of Resolution of Mourning of Important Figures Lost through Death*

A fourth, *U* ("unresolved") adult attachment category has now been developed, which is assigned to subjects in conjunction with scores above 5 on a nine-point scale assessing lack of unresolved loss (described below). Like infant *D* attachment status, which is assigned in conjunction with a best-fitting, alternative, or "forced" *A*, *B*, or *C* classification (so that the infant is actually classified *D/A*, *D/B*, or *D/C*; see Main & Solomon, this vol.), adult unresolved attachment status is also assigned in conjunction with a best-fitting alternative adult category. Thus, an adult who is judged unresolved with respect to trauma will be classified as, for example, unresolved/secure or unresolved/dismissing of attachment. Insofar as possible, separate scores are assigned to the discussion of each individual lost. The transcript is assigned the highest score given to any loss experience.

Bowlby (1980) uses the term "mourning" to refer to "all the psychological processes, conscious and unconscious, that are set in train by loss." In constructing a scale intended to assess unresolved loss, we focused on the concept of disorganization and disorientation in mental (cognitive and affective) process as it might be made evident in speech transcriptions. We searched specifically for signs of disorganization both because (1) mental processes in an attached individual are normally organized with some continuing reference to attachment figures—hence, loss of an attachment figure through death will inevitably lead to some disorientation—and (2) because of several specific

findings from the literature concerning responses to bereavement. Thus, among the disorganizing and disorienting experiences affecting the bereaved in the first months succeeding a loss are (a) necessarily incomplete mental and behavioral search processes, (b) vulnerability to a disbelief that the loss has occurred or is permanent (as in fleeting illusions that the dead person is present or is approaching), (c) experiences of disorientation in places or situations in which the dead figure had commonly been found, and (d) unfounded fears of having been causal in the death itself (Bowlby 1980; Parkes 1972, 1980; Raphael 1982).

If, however, the outcome of mourning is favorable, a reorganization of mental processes will ultimately take place, leading to renewed orientation to the present environment. Indeed, healthy mourning is identified by Bowlby (1980) as "the successful effort of an individual to accept both that a change has occurred in his external world and that he is required to make corresponding changes in his internal, representational world and to *reorganize*, and perhaps to *reorient*, his attachment behavior accordingly" (italics ours).

Our present scale for assessing unresolved loss from interview transcripts takes account of statements indicative of continual mental disorganization and disorientation as shown in (1) lapses in metacognitive monitoring of reasoning processes, (2) lapses in metacognitive monitoring of discourse processes, or (3) reports of extremely disorganized or disoriented behavioral responses to a death when such statements are not accompanied by convincing evidence of later successful resolution of mourning (Main, DeMoss, & Hesse 1989). Lapses in metacognitive monitoring of the types to be described appeared in adults who were functioning well in intellectually demanding contexts, and in a recent analysis we have suggested that these lapses may result from unexamined early beliefs regarding a particular loss or loss in general (Bowlby 1980), and/or from experiences of fear and/or anxiety which occur during the discussion of the loss experience (Main & Hesse 1989). Note that we do not consider "dismissing" discussions of a major loss experience ("I just considered it a blessing by the time it happened. The next year, I started high school.") as indicative of disorganization and/or disorientation. Rather, such discussions would seem to indicate "failed mourning"—that is, that the process of mourning has yet to begin.

Examples of apparent lapses in the *metacognitive monitoring of reasoning processes* include (1) indications of disbelief that the person is dead—for example, "It's really better for him that he is dead, because now he can go on being dead and I can take care of things like he wanted." (2) Feelings of being materially causal in a death where no material cause is present—for example, "I still think it might have happened because I was so angry with her that Sunday that I just hoped she would die." (3) Efforts to manipulate the mind so as to ignore the facts or implications of a death—for example, "I haven't had to go back there since he died, so most of the time I sort of

pretend he's still there and I can always call him up if I wanted." (Note that indications of religious belief in a metaphysical life after death are not taken as lapses in reasoning processes. Moreover, such beliefs are often stated as hopes, or as matters of speculation, as, "I like to believe that he is still watching me from Heaven.")

Indications of apparent *lapses in the metacognitive monitoring of discourse processes* take the form of altered discourse during the discussion of a death, suggesting that the individual has entered into a special state of mind in which orientation to the usual conversational strictures are absent. These include: (1) Unusual attention to detail—for example, "He died forty-two years ago last month, on November 7, a Monday, and right before his forty-second birthday. He would have been eighty-four, no, eighty-five, on this November 8." (2) Poetic phrasing (rhetorical/eulogistic speech)—for example, in discussing a death and not elsewhere within the interview, the subject uses eulogistic/rhetorical phrasing, as, "She was young, she was lovely, she was dearly beloved by all who knew her and who witnessed her as she was torn from us."

Reports of *extreme disorganization or disorientation in behavior* following a death are also taken as indices of unresolved mourning, unless accompanied by statements convincingly evidencing resolution. These include reports of attempted suicide and reports of redirected grief, for example, extreme responses to the death of a pet or a public figure following absence of response to a lost attachment figure.

As noted earlier, each subject is scored on a nine-point scale for lack of resolution of mourning for each individual lost through death. Scores of 3 or less are assigned when the subject's discussion of the loss indicates some continuing feeling of regret, and continuing or reemerging affection or sorrow, without accompanying disorganization, for example, brief tears in remembering a shared love of music ("My father loved the violin!"), or regrets expressed for not having had a longer time together.

Ratings of 7 are assigned to individuals who indicate excessive fear or guilt surrounding the loss, or extreme bereavement reactions, or whose speech becomes distinctly disoriented during discussions of the loss. Finally, ratings of 9 are assigned to individuals whose thought processes regarding the lost figure are highly disorganized, or are in clear violation of the usual understanding of physical reality and causality. Subjects are assigned a rating of 9 when, for example, they fear having caused the death of an attachment figure through their own thought processes during childhood, or indicate subtly that the dead person is still believed to be alive. Note that scores indicative of definite unresolved mourning in our system would also often be indicative of frightening ideation (having caused the death of a loved person, or believing a person to be both alive and not-alive), or of frightening or overwhelming experiences (e.g., suicide attempts).

### *Interjudge Reliability, Sex Differences, and Birth Order*

Ratings assigned by one judge (Anitra DeMoss) were used for all fifty-three cases. To estimate interjudge reliability, two judges (Hesse and DeMoss) rated thirty cases blind to one another's ratings and to all information regarding the infant. Interrater reliability was high ( $r = .87$ ).

Tests for sex differences and birth order yielded no significant results. Neither infant disorganization nor mother's score for lack of resolution of mourning was related to the sex or birth order of the child.

### *Direct Relations between Mother's Loss Experiences and Infant Disorganization*

Fifteen mothers in this selected sample had lost an older family member with whom they had lived prior to the completion of high school. Nine of these fifteen experiencing early loss (60%) had infants judged disorganized<sup>1</sup> with them in the Strange Situation, while only eight of the thirty-eight remaining mothers (21%) had *D* infants ( $p = .009$ ). Note that these results do not provide an estimate of the relation between early loss and *D* attachment status in the population from which they are drawn, since we deliberately selected for as many mothers of *D* infants as possible.

### *Infant Disorganization Related to Mother's Unresolved Mourning*

The relation between mothers' experience of loss and infant *D* attachment status was found to be mediated by lack of resolution of mourning, which differed significantly according to infant *D* or non-*D* attachment status. Among the fifteen mothers experiencing early loss, nine had infants assigned to *D* attachment status, and six had non-*D* infants. The mean score for LRM for the mothers of the nondisorganized infants was 3.9 on the nine-point scale, while the mean score for mothers of the *D* infants was 7.2. Thus, mother's experience of early loss of an older family member did not in itself lead to infant *D* attachment status, unless the mother had experienced lack of resolution of mourning as a consequence.

Six mothers had not experienced loss. None of these had disorganized infants. We divided the remaining forty-seven mothers experiencing loss into three classes: few or no indications of unresolved mourning (scores 1–3), neither definitely resolved nor unresolved mourning (4–6), unresolved mourning (7–9). Only three out of nineteen mothers (16%) showing no indices of unresolved mourning had disorganized infants. In contrast, eleven out of twelve unresolved mothers (91%) had infants who had been judged disorganized with

1. For our follow-up studies of both parents and children in our original Bay Area sample, we relate our findings to infants who were both unclassifiable (within the traditional *A, B, C* classification system) and disorganized.

them in the Strange Situation five years previously. The twelfth infant had been originally assigned to the extremely avoidant *A1* category, but was placed in the *D*-equivalent *controlling* category when observed again at 6 years. It is interesting to note that this mother described herself as having been rethinking her early losses only recently.

### *More Recent Studies Relating Mother's Traumatic Experiences to Infant D Attachment Status*

Ainsworth and Eichberg (in press) studied an unselected Charlottesville sample of forty-five infants and mothers, comparing infant *A, B, C,* and *D* Strange-Situation attachment classifications to mother's Adult Attachment Interview responses a few months later. The Adult Attachment Interview transcripts were scored for lack of resolution of mourning by Mary Ainsworth who was blind to infant Strange-Situation attachment status. As in the Bay Area study, individuals assessing infant Strange-Situation attachment status were blind to all other information regarding the dyad. As opposed to the Bay Area study, however, the Charlottesville sample was unselected for infant-mother attachment categories.

1. In our own study, we found mother's lack of resolution of mourning significantly associated with the infant's best-fitting group *C* (insecure-ambivalent) attachment category (Main & Hesse 1989). Thus, the mother was significantly more likely to show unresolved mourning for lost attachment figures when the infant's best-fitting attachment category was *C* than when the best-fitting category was *A* or *B* (using a traditional *A, B, C* infant attachment category analysis). Ainsworth and Eichberg found mother's unresolved mourning significantly associated with her placement in the (infant *C*-equivalent) preoccupied adult attachment category. This suggests that adults whose state of mind with respect to attachment is preoccupied may be especially vulnerable to loss and other traumatic experiences, and makes sense of the fact that we found a higher proportion of *C* than *A* or *B* infants disorganized.

2. Few Charlottesville mothers had experienced early loss of a parent: none of these (five) had *D* infants. When loss was more inclusively defined to include loss of important persons at any point, an association with infant *D* attachment status appeared as a trend but failed to reach statistical significance. Twelve out of thirty mothers experiencing loss had *D* infants (40%), while three out of fifteen (20%) mothers with no loss experience had *D* infants ( $p = .20$ ).

3. Fifteen of the forty-five infants in the Charlottesville study were assigned to *D* attachment status. All (eight) mothers judged unresolved with respect to loss of attachment figures (using an earlier version of our scale) had disorganized infants, while post-hoc analyses indicated that two more mothers of *D* infants would have been assigned to unresolved status using a more completely developed scale (Main et al. 1989). These findings support our Bay

Area study (Main 1983, 1985) in concluding that it is unresolved mourning for loss of an attachment figure that is especially strongly associated with infant *D* attachment status and not the death as such.

4. Finally, for the mothers of five *D* infants in the Charlottesville study, there were no definite indications of unresolved mourning. In two of these five cases, however, infant *D* attachment status was predicted in advance from other traumas which were considered unresolved. In one case, the mother had been abused by her parents. In a second especially instructive case, the mother had almost died of an extremely dangerous disease with sudden onset just prior to the Strange Situation. From the mother's discussion of this close brush with death, the judge (Ainsworth) considered the mother still unresolved and again correctly predicted infant *D* attachment status.

Recently, comparison between adult and infant attachment status has been extended to two poverty samples of black and Hispanic teenaged mothers living in inner-city New York, some of whom experienced physical or sexual abuse. Both studies used the new infant and adult attachment classification systems, that is, including infant *D* and adult unresolved categories. In one study, infant attachment status was found highly concordant (87.5% four-category match) with concurrent assessments of the teenage mother's attachment organization (Levine et al. 1989); in another, the Adult Attachment Interview was administered prenatally, and the mother's attachment category was again found predictive of the infant's (69% four-category match; Ward et al. 1989).

In both of these samples, as in the Bay Area and Charlottesville samples, the mother's unresolved status was found specifically predictive of the infant's disorganized/disoriented attachment status. These adolescent mothers were often found unresolved with respect to maltreatment experiences.

A history of physical or sexual abuse in parents of some *D* infants had also been noted in a small ( $n = 15$ ) study of blind and partially sighted infants (Friedman 1986). Not only unresolved loss of attachment figures, but also unresolved abuse and other recent unresolved traumatic experiences appear to be linked to *D* attachment status in our in-progress analysis of a new Bay Area sample (Main, Kaplan, & Hesse, unpublished data).

#### ANALYSIS OF THE DIVERSE ARRAY OF DISORGANIZED/DISORIENTED INFANT BEHAVIORS: IS FEAR AND/OR INHIBITION OF ATTACHMENT BEHAVIOR INVOLVED?

Consideration of the behavior of infants placed in the *D* category leads naturally to speculation regarding both the immediate cause of the behavior observed within the Strange Situation (e.g., why the infant falls prone at a particular moment) and the more general, ontogenetic cause (e.g., experiences in interaction with the parent which have led the infant to develop this

particular pattern of response). As the reader is already aware, we will shortly suggest that frightened and/or frightening parental behavior may provide the link between the parent's experience of unresolved trauma and the infant's disorganized/disoriented behavior as exhibited in the Strange Situation. Here we examine some of the diverse forms of *D* behaviors observed.

One salient theme that runs through the disorganized/disoriented behavior of *D* infants is that of *contradiction or inhibition of action as it is being undertaken*—indeed, an undermining of action which occurs almost as soon as action is initiated. In many cases, this appears to be an inhibition or contradiction of action begun specifically with respect to attachment. Thus, immediately upon the parent's appearance in the doorway, the infant orients, then places hand to mouth; or rises, then falls prone; or cries, calls, and eagerly approaches the parent, then turns about and avoids the parent with a dazed expression. Later, in the same episode, the infant may approach the parent obliquely or with head averted; cling to the parent while averting gaze; cry, while moving away from the parent; make hesitant, stop-start movements on approach to the parent; or undertake movements of approach which have a slow, limp, "underwater" quality as though being simultaneously inhibited or contradicted.

Several of these behavior patterns suggest that the presence of at least a limited fear may act to inhibit or contradict movements of approach or proximity seeking. Fear may also play a role in "freezing," a frequently appearing disorganized/disoriented behavior also exhibited by some animal species when frightened. The infant who stills or freezes in moments of distress impresses the observer as having no alternative solution (neither a person, nor a location, to which flight may be taken). When the parent is present, this seems an anomalous pattern.

There are also more direct markers of fear among the behaviors which we have labeled "disorganized." Apprehensive movements and expressions are markers for the *D* category, as are fearful expressions, extremely tentative approaches, moving swiftly away immediately upon or just following approach to the parent, and tense, vigilant body postures. Our impression is, then, that *D behavior often involves the start, followed by the inhibition of an attachment sequence*. Moreover, we may note that it is often precisely *movements or expressions of apprehension* which replace (inhibit) or accompany (contradict) the initiation of action with respect to attachment.

This analysis of some of the disorganized/disoriented response patterns is speculative only, and may be disconfirmed by later observations or experiments (e.g., in an individual case freezing could occur in imitation of the parent's behavior in similar circumstances, or could have been reinforced by some parental response pattern). Further, some instances of disorganized/disoriented behavior will undoubtedly be the result of neurological impairments, while in other instances the infant's disorganized/disoriented behavior

may be more indicative of confusion than of fear, since the infant may be responding either to obviously conflicting signals, or to signals or events it perceives as conflicting or confusing (see Krentz 1982; see also Volkmar & Siegel 1979; and Volkmar, Hoder, & Siegel 1980 for a discussion of conflicting signals from a stranger which appear to lead to disorganized/disoriented behaviors in some toddlers). Nonetheless, at present the above analysis does appear to fit well with many of our observations of *D* infants, and with our informal observations of the behavior of some parents of *D* infants, described below.

#### SPECULATIONS REGARDING THE ONTOGENY OF *D* ATTACHMENT STATUS: FRIGHTENING OR FRIGHTENED BEHAVIOR ON THE PART OF THE PARENT?

If we are correct in presuming that an experience of fear plays a causal role in at least some types of disorganized/disoriented infant behavior, then we may presume that these behaviors have something to do with the history of infant-parent interactions, and that these interactions may be frightening to the infant. As we have already indicated, investigators working with two different maltreatment samples have found a high proportion of *D* infants (about 80%), and certainly we can expect that experiences of parental maltreatment will be directly frightening to an infant (Carlson et al. 1989; Lyons-Ruth et al. 1987; see also Radke-Yarrow, Cummings, Kuczynski, & Chapman 1985 who found many infants of parents suffering from psychotic episodes were unclassifiable within the traditional *A*, *B*, *C* classification system). Here, however, we are concerned with samples in which the observed (potential) trauma lies in the parent's history rather than in the infant's direct experience, and usually consists in the loss of significant attachment figures through death rather than physical or sexual abuse. In this case, we must ask why unresolved loss on the part of the parent would lead to infant behavior patterns which are at all similar to those displayed by maltreated infants.

We suggest that a parent suffering from unresolved mourning may still be frightened by her loss experiences. As a result, she may display an anxiety that could in turn be frightening to her infant. As we have already indicated, loss is not an inevitably frightening or overwhelming (traumatic) experience, but may have been traumatic for those particular individuals who appeared to us to be unresolved. Thus, a particular loss may have been traumatic because of the age at which it occurred, because of the conditions which surrounded it, or because the individual had also suffered a history of abuse.

We are not able to examine this issue in a satisfactory way on the basis of our present sample. In order to begin to determine whether trauma might have contributed to disorganized/disoriented discussions of loss, however, we conducted a post hoc analysis of our interviews. Early trauma was narrowly de-

finer as any of the following experiences occurring prior to the completion of high school: loss of a close family member through accident, loss of both parents, sexual abuse by a parent, physical abuse by a parent. Only nine of our fifty-three mothers reported events of this type, with at least one mother experiencing at least one of these traumas.

These experiences did appear to be associated with unresolved mourning. Five of the twelve mothers (41%) were judged to experience definitely unresolved mourning, but only four among the remaining forty-one women (10%) had experienced traumas of this kind.

Our own informal and nonblind observations of the behavior of the parents of *D* (disorganized) infants—as opposed to the parents of organized infants—during the Strange Situation tend to provide support for our hypothesis that the parent of the *D* infant may be frightening or frightened. In these informal observations, we have noted the following patterns, each of which seems to us likely to frighten an infant, either by being directly threatening or by indicating fright on the part of the parent. (Most of the more frightening patterns listed here have *not* yet been noted in our studies of low-risk samples and are instead taken from videotapes of maltreatment and high-risk dyads.)

#### *Unusual Vocal Patterns*

These include: (1) simultaneous voicing and de-voicing intonation (especially during greeting or when initiating physical contact) leading to an ominous, or "haunted," tone or effect. Thus, the parent may greet the infant with a simultaneously voiced and de-voiced "Hi." This is a breathy, extended, falling intonation which can be recreated by saying "Hi" while pulling in on the diaphragm. (2) Parent's voice has sudden marked drop in intonation to deep or low pitch. When marked, such changes are startling, especially when the speaker is a woman whose pitch and intonation suddenly seem to belong to a male speaker.

#### *Unusual Movement Patterns*

These include: (1) parent suddenly moves object or own face very close to infant's face ("looming"). (2) Parent's movements or postures are part of a pursuit sequence. (3) Parent presents conflicting signals by, for example, calling infant while standing with hands on hips and neck and chin jutted forward in a threatening posture. (4) Unpredictable invasions of the infant's personal space, as the parent's hands suddenly sliding from behind or across the infant's face or throat. (5) Parent's handling of the infant suggests extreme timidity. (6) Parent is extremely responsive to any indications of rejection on the part of the infant, as, for example, slumps and folds previously extended hands on lap and waits, focused on infant with a pleading look, when infant makes an impatient gesture.



### *Unusual Speech Content*

These include: (1) parent implies that infant's actions could have harmful consequences—(a) "You'll kill that little (stuffed) bear if you do that!" (b) "Uuuohh! (Frightened intake of breath as infant moves toy car across bare floor.) Gonna have an accident! Everybody's gonna get killed!" (2) Sudden initiation of games with a frightening speech content, if accompanied by an unusual, frightening pattern of movement and intonation—"I'm gonna get you!" (3) Direct indications of fear of the infant, as, for example, backing away from the infant while directing the infant not to follow in a stammering, apprehensive voice—"Don't follow, d-don't."

It is self-evident that a maltreating parent will behave in ways that are frightening to an infant. Why, on the other hand, a parent who displays only frightened rather than threatening behavior would produce fear in an infant is less obvious and is a topic that demands closer examination. As stated above, it seems likely that such qualities of parental behavior are often related to the parents' own traumatic experiences rather than to some aspect of the ongoing parent-infant interaction. If this is the case, these parental behaviors are no doubt all the less comprehensible to the infant and most likely seem not only unpredictable as patterns of behavior but also inexplicable in origin.

### *Further Consideration of Dynamics Occurring When the Parent's Frightened Behavior Results from Past Traumas*

We presume that the infant is equipped with behavioral systems which continuously monitor the environment as well as the accessibility of the attachment figure. Depending on the circumstances, cues to danger within the environment will then trigger inhibition of action about to be taken, flight, and/or attachment behavior. The parent's observed expressions of fear will provide one such cue, and, in the usual case, these expressions will (a) alert the infant to some observable danger in the immediate environment, for example, an approaching animal, or an apparently dangerous edge or surface; (b) lead to changes in the infant's behavior which in some way effectively reduces its danger; and (c) be rapidly succeeded by protective parental action, thus reducing the infant's state of alarm.

Under these more usual circumstances, the source of the danger to the infant is in fact external to both infant and parent. When, however, the source of the "danger" leading to parental expressions of fear or anxiety is internal to the (still-traumatized) parent, (a) the parent may not be oriented to any obviously frightening aspect of the environment, or (b) may be oriented to an aspect of the environment which has become associated with her history and internal state but is not intrinsically alarming, and (c) is at any rate unlikely to take satisfactory protection action. In this case:

1. The parent's frightened behavior will be *incomprehensible* because,

stemming from internal factors, its source will be either (a) indiscernible; or (b) if discernible due to the parent's orientation it will be something that the parent has associated with her own thought processes—for example, a photograph with remote associations to her earlier trauma.

2. Owing to the fact that what is producing fear in the parent is attachment-related, the infant may occasionally become confused in the parent's mind either with the parent herself or with those attachment figures whose death or behavior produced the original trauma. In these cases—when, for example, the parent fears having been causal in the death of an attachment figure—the parent may *indicate to the infant that the infant itself is the source of the alarm*.

3. Adding to these potential complications is a natural tendency toward flight in individuals experiencing fear. Hence, the parent (a) *may indicate a desire to get away from the immediate environment and/or the infant* (which would greatly intensify the infant's state of fear), or instead (b) *may even subtly indicate a propensity to flee to the infant as a haven of safety*.

It appears, therefore, that many of the likely sequelae to a parent being alarmed by an internal source would lead to confusion and fear on the part of the infant, and hence to disorganization and disorientation (below).

### DISORGANIZATION, DISORIENTATION AND THE ATTACHMENT BEHAVIORAL SYSTEM

To this point, we have shown that (1) an interview-based method of assessing unresolved trauma has been developed which relies chiefly upon apparent lapses in the metacognitive monitoring of reasoning or discourse during discussions of loss or other attachment-related trauma<sup>2</sup> (2) to predict infant *D* attachment status. High scores for unresolved trauma on the part of the parent have been found predictive of infant *D* attachment status in two white middle-class samples—our original Bay Area sample (Main & Hesse 1989), and the Charlottesville sample studied by Ainsworth and Eichberg (in press). As this chapter goes to press, the relation between infant *D* attachment status and unresolved adult attachment status<sup>3</sup> has been replicated in two ado-

2. Until very recently, researchers were advised to use the indices of disorganization and disorientation in thought processes during discussions of a loss in order to identify unresolved trauma of other kinds. We have now completed a draft of a separate scale for assessing unresolved experiences of physical abuse, and we are applying it to a new Bay Area sample of infants and mothers.

3. In both the Bay Area and Charlottesville samples, almost all infants whose mothers were judged unresolved had infants judged disorganized, but the *D* attachment status of a minority of infants in each sample remained unexplained. While some instances could conceivably be accounted for by traumas not described by the parent, we underscore that in all probability other factors are operating in a substantial minority of *D* cases: for example, neurological difficulties,

lescent poverty samples and infant disorganized/disoriented Strange-Situation response has been predicted prior to the birth of the child (Levine et al. 1989; Ward et al. 1989).

Above, we suggested a possible relation between unresolved trauma and frightened and/or frightening behavior on the part of the parent. We conclude with a discussion of how such behaviors may be related to infant *D* attachment status.

Bowlby ([1969] 1982) has described the attachment behavioral system as (a) developing in all ground-living primates raised in any but highly abnormal rearing conditions, (b) leading to a focus upon maintaining proximity to one or a few selected caregivers, and (c) providing the infant with the chief behavioral means by which it can assure its own survival. The system is presumed to take continual account of these environmental and internal conditions that would normally lead to the activation or termination of displays of attachment behavior—and hence to be continually *context-sensitive*. In general, the system is organized to increase infant-caregiver proximity in situations of threat or alarm, but to permit activation of exploratory behavior when the situation is not threatening and proximity is assured. Among the conditions provoking alarm are (1) unfamiliar environments and (2) threatened or actual separations from the attachment figure.

In considering individual differences in patterns of attachment as observed in the Strange Situation, it is worthwhile to note that the functioning of the attachment behavioral system as described above is most readily observable in infants judged *secure* within the Strange Situation. Thus, a relatively smooth and organized transition between exploratory behavior and attachment behavior is observed in the response of these (and only these) infants, who explore the environment so long as proximity to the parent is assured; turn their attention to attachment when proximity is threatened; and, following a display of attachment behavior directly upon reunion with the parent, return once more to exploration.

The *A* and *C* infant Strange-Situation responses also appear relatively well-organized, although more complex and conceivably more vulnerable to disorganization than the secure attachment patterns. At a theoretical level, we understand the avoidant infant to be *minimizing* the display of attachment behavior relative to the level of activation of the attachment behavioral system, by *reducing reactivity to fear-eliciting (attachment-eliciting) cues* (Bowlby 1980; Main, in press, and 1981). Behavioral organization is then maintained through a shift in attention away from the parent which is largely accomplished through exploration—a strategy that may also serve to maintain what-

confusion regarding parental signaling or some other aspect of the experimental procedure, and temporary stresses of other kinds.

ever proximity to the parent seems possible (Main 1981; Main & Weston 1982).<sup>4</sup> The insecure-ambivalent infant also appears organized in its persistent focus upon the caregiver. Expressing alarm over even relatively unalarming events—hence, *maximizing* the display of attachment behavior—this seemingly “hypervigilant” infant draws or attempts to draw the attention of an unpredictably responsive caregiver.

The factors leading to the production of the *D* pattern of behavior are inherently complex. A comprehensive discussion would require (1) a more detailed focus upon the role of conflict in infant responses to the Strange Situation, and relatedly (2) consideration of the number and nature of the parameters which serve to control responses for infants assigned to differing attachment classifications. The Strange-Situation behavior of the secure infant may, for example, be under the control of caregiver location only and therefore involve little or no conflict. The behavior of the avoidant and ambivalent infants may be additionally controlled by the past behavior of the attachment figure, so that for these infants likely caregiver response as well as caregiver location must continually be taken into account (Main, in press). In that their caregivers have typically failed to provide negative (terminating) feedback to attachment behavior in the home situation, being either rejecting of attachment behavior (Ainsworth et al. 1978; replicated in two further samples by Main & Stadtman 1981) or unpredictably responsive (Ainsworth et al. 1978), the behavior of these infants in the more stressful Strange Situation may be in part the product of conflict—a conflict that can nonetheless produce relatively organized outcomes (as the avoidant infant's exploration, which may be a form of displacement behavior).<sup>5</sup> Finally, the more dramatically conflicted behaviors appearing in disorganized infants—unpredictable both in timing and form—may seem chaotic precisely because of a history of frightening experiences which (below) provide mixed positive and negative feedback to the attachment behavioral system.

A complete discussion of the origin and significance of pattern *D* behavior would involve simultaneous examination of the behavior of *A*, *B*, and *C* infants and is beyond the scope of this chapter. Previously, however, we had

4. The avoidant pattern may be vulnerable to breakdown under increased stress, however, at which time the previously avoidant infant may approach the parent in a disorganized manner (as see Ainsworth et al. 1978 description of difficulty-to-classify proximity seeking in pattern *A* infants subjected to a second Strange Situation).

5. To many people accustomed to observing infant Strange-Situation behavior using the three-part category system, the ambivalent pattern seems much the least well organized. This may be in part because a majority of *C* infants are in fact disorganized (Main & Hesse 1989) but may also result from observations of the infant who first seeks, then angrily rejects, the mother—an alternation in behavior patterns which is one possible result of conflict.

If, however, we consider the *C* (nondisorganized) infant as *maximizing* of attachment behavior, this alternation may appear less disorganized. Bowlby (1973) suggests that, inside of some relationships, angry behavior is ultimately proximity promoting.

drawn attention to the conflict experienced by the infant who is physically rejected by the attachment figure (Main 1981; Main & Weston 1982). We suggested that this (insecure-avoidant) infant is theoretically captured within a positive feedback loop in which rejection arouses attachment behavior which, rejected again by the attachment figure, leads to still further arousal of the attachment behavioral system. We described this situation as inherently disorganizing, but we suggested that the rejected infant escapes behavioral disorganization through a shift in attention away from the attachment figure and from attachment-eliciting changes in the environment. This shift in attention can probably only be accomplished, however, when (a) the experience of parental rejection has been relatively consistent and nonthreatening and (b) when the conditions in the surrounding environment are only moderately stressful.

If we are correct regarding the unpredictably frightening behavior patterns shown on occasion by still-traumatized parents, then we can see that their infants are confronted with an inherently perplexing set of circumstances. In contrast to both avoidant and ambivalent infants—who may be frightened by difficulties in obtaining caregiver responsiveness in stressful situations—the fear the *D* infant experiences stems from the parent as its source. Placed in the Strange Situation in the company of a parent whose behavior has been unpredictably frightening, then, the *D* infant may at moments unavoidably experience an alarm sufficiently intense that the activation of attachment behavior cannot be systematically controlled. When the effects of attachment-eliciting cues cannot be minimized (as they apparently can for the avoidant infant), increasing proximity to the attachment figure is the usual solution. For the infant who has been alarmed unpredictably by the attachment figure, however, approach to the parent may be occasionally interrupted by displays of disorganized/disoriented behavior precisely because memories involving fear of the parent have momentarily become aroused.

In conclusion, it seems apparent that frightening behavior on the part of the still-traumatized parent should lead to disorganized/disoriented infant behavior, since the infant is presented with an irresolvable paradox wherein the haven of safety is at once the source of the alarm. Moreover, the conflict between opposing tendencies to approach and to flee from the attachment figure stems from a single external signal (threatening or fearful parental behavior); is internal to the infant; is self-perpetuating; and is exacerbated by placement in a stressful situation.

#### REFERENCES

- Ainsworth, M. D. S.; Blehar, M. C.; Waters, E.; & Wall, S. (1978). *Patterns of attachment: A psycho-biological study of the strange situation*. Hillsdale, N.J.: Erlbaum.
- Ainsworth, M. D. S., & Eichberg, C. G. (in press). Effects on infant-mother attachment of

- mother's unresolved loss of an attachment figure or other traumatic experience. In P. Marris, J. Stevenson-Hinde, & C. Parkes, *Attachment across the life cycle*. New York: Routledge.
- American Psychiatric Association Committee on Nomenclature (1987). *Diagnostic and statistical manual of mental disorders, III-R*. Washington, D.C.: American Psychiatric Association.
- Bowlby, J. (1969) 1982). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation*. New York: Basic Books.
- Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss, sadness and depression*. New York: Basic Books.
- Bretherton, J. (1985). Attachment theory: Retrospect and prospect. In I. Bretherton & E. Waters (eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development* 50(1-2, Serial No. 209), 3-35.
- Brown, G.; Harris, T.; & Bifulco, A. (1985). Long-term effects of early loss of parent. In M. Rutter, C. Izard, & P. Read (eds.), *Depression in childhood: Developmental perspectives*. New York: Guilford.
- Carlson, V.; Cicchetti, D.; Barnett, D.; & Braunwald, K. (1989). Disorganized/disoriented attachment relationships in maltreated infants. *Developmental Psychology* 25, no. 4, 525-531.
- Cassidy, J. (1985, April). Attachment and the self at six. Paper presented at the biennial meeting of the Society for Research in Child Development, Toronto.
- Cassidy, J. (1986). Attachment and the self at six. Unpublished doctoral dissertation, University of Virginia.
- Cassidy, J. (1988). Child-mother attachment and the self in six-year-olds. *Child Development* 59, 121-134.
- Crowell, J., & Feldman, S. (1988). The effects of mothers' internal models of relations and children's developmental and behavioral status on mother-child interactions. *Child Development* 59, 1273-1285.
- Friedman, C. T. (1986). Interaction and attachment: Determinants of individual differences in a sample of visually impaired one- and two-year-olds and their mothers. Unpublished doctoral dissertation, Department of Education, University of California, Berkeley.
- George, C.; Kaplan, N.; & Main, M. (1985). The Berkeley Adult Attachment Interview. Unpublished protocol, Department of Psychology, University of California, Berkeley.
- George, C., & Solomon, J. (1989, April). Internal working models of parenting and security of attachment at age 6. Paper presented at the biennial meeting of the Society for Research in Child Development, Kansas City.
- Grossmann, K.; Fremmer-Bombik, E.; Rudolph, J.; & Grossmann, K. E. (1988). Maternal attachment representations as related to patterns of child-mother attachment and maternal sensitivity and acceptance of her infant. In R. A. Hinde & J. Stevenson-Hinde (eds.), *Relations within families*. Oxford: Oxford University Press.
- Hinde, R. A. (1970). *Animal behavior: A synthesis of ethology and comparative psychology* (2d ed). New York: McGraw-Hill.
- Hinde, R. A. (1982). Attachment: Some conceptual and biological issues. In C. M. Parkes & J. Stevenson-Hinde (eds.), *The place of attachment in human behavior*. New York: Basic Books.
- Kaplan, N. (1987). Individual differences in 6-year-old's thoughts about separation: Predicted from attachment to mother at age 1. Unpublished doctoral dissertation, Department of Psychology, University of California, Berkeley.
- Kobak, R. R., & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development* 59, 135-146.
- Krentz, M. S. (1982). Qualitative differences between mother-child and caregiver-child attachments of infants in family day care. Unpublished doctoral dissertation, California School of Professional Psychology, Berkeley.
- Levine, L.; Ward, M.; & Carlson, B. (1989, September). Attachment across three generations: Grandmother, mother and infants. Paper presented at World Association of Infant Psychiatry and Allied Disciplines, Lugarno, Switzerland.
- Lyons-Ruth, K.; Zill, D.; Connell, D. B.; & Odum, R. (1987, April). Maternal depression as mediator of the effects of home-based intervention service. Paper presented at the biennial meeting of the Society for Research in Child Development, Baltimore.

- Main, M. (1981). Avoidance in the service of attachment: A working paper. In K. Immelmann, G. Barlow, L. Petrino, & M. Main (eds.), *Behavioral development: The Bielefeld interdisciplinary project* (pp. 651-693). New York: Cambridge University Press.
- Main, M. (1983). New prospects in the study of attachment. Paper presented at the annual meeting of the American Academy of Child Psychiatry, San Francisco.
- Main, M. (1985, April). An adult attachment classification system: Its relation to infant-parent attachment. Paper presented at the biennial meeting of the Society for Research in Child Development, Toronto.
- Main, M. (in press). Cross-cultural studies of attachment organization: Recent studies, changing methodologies, and the concept of conditional strategies. *Human Development*.
- Main, M., & Cassidy, J. (1988). Categories of response to reunion with the parent at age six: Predicted from infant attachment classifications and stable over a one-month period. *Developmental Psychology* 24, no. 3, 415-426.
- Main, M.; DeMoss, A.; & Hesse, E. (1989). A system for assessing lack of resolution of mourning from interview transcripts. Unpublished manuscript, Department of Psychology, University of California, Berkeley.
- Main, M., & Goldwyn, R. (in press). Interview-based adult attachment classifications: Related to infant-mother and infant-father attachment. *Developmental Psychology*.
- Main, M., & Hesse, E. (1989). Interview-based assessments of a parent's unresolved trauma are related to infant "D" attachment status: Linking parental states of mind to infant behavior observed in a stressful situation. Submitted manuscript, working title.
- Main, M.; Kaplan, N.; & Cassidy, J. (1985). Security in infancy, childhood and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development* 50(1-2, Serial No. 209), 66-104.
- Main, M., & Solomon, J. (1986). Discovery of a new, insecure-disorganized/disoriented attachment pattern. In T. B. Brazelton & M. Yogman (eds.), *Affective development in infancy* (pp. 95-124). Norwood: Ablex.
- Main, M., & Stadtman, J. (1981). Infant response to rejection of physical contact by the mother: Aggression, avoidance and conflict. *Journal of the American Academy of Child Psychiatry* 20, 292-307.
- Main, M., & Weston, D. (1981). The quality of the toddler's relationship to mother and father. *Child Development* 52, 932-940.
- Main, M., & Weston, D. (1982). Avoidance of the attachment figure in infancy: descriptions and interpretations. In C. M. Parkes & J. Stevenson-Hinde (eds.), *The place of attachment in human behavior* (pp. 31-59). London: Tavistock.
- Parkes, C. M. (1972). *Bereavement: Studies of grief in adult life*. London: Tavistock.
- Parkes, C. M. (1980). Bereavement counseling: Does it work? *British Medical Journal* 1, 740-743.
- Quinton, D., & Rutter, M. (1985). Parenting behavior of mothers raised in care. In A. R. Nichol (ed.), *Longitudinal studies in child psychology and psychiatry: practical lessons from research experience* (pp. 157-261). Chichester and New York: Wiley.
- Radke-Yarrow, M.; Cummings, E. M.; Kuczynski, L.; & Chapman, M. (1985). Patterns of attachment in two- and three-year-olds in normal families and families with parental depression. *Child Development* 56, 884-893.
- Raphael, B. (1982). *The anatomy of bereavement*. New York: Basic Books.
- Strage, A., & Main, M. (1985, April). Parent-child discourse patterns at 6 years predicted from the organization of infant attachment relationships. Paper given at the biennial meeting of the Society for Research in Child Development, Toronto.
- Volkmar, F. R.; Hoder, E. L.; & Siegel, A. E. (1980). Discrepant social communications. *Developmental Psychology* 16, no. 5, 495-505.
- Volkmar, F. R., & Siegel, A. E. (1979). Young children's responses to discrepant social communications. *Journal of Child Psychology and Psychiatry* 20, 139-149.
- Ward, M.; Carlson, B.; Altman, S. C.; Levine, L.; Greenberg, R. H.; & Kessler, D. B. (1989a). Predicting infant-mother attachment from adolescent's working models of relationships. Submitted manuscript.
- Ward, M.; Carlson, B.; & Kessler, D. B. (1989b). Adolescent mother-infant attachment: Interactions, relationships and adolescent working models. Submitted manuscript.

## PART TWO

# Research on the Normal Development of Attachment in Preschool Years