

Unsolvable Fear, Trauma, and Psychopathology: Theory, Research, and Clinical Considerations Related to Disorganized Attachment Across the Life Span

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This article features a selective review of attachment theory and research that have contributed knowledge about dynamics underlying early trauma, mechanisms by which maladaptive responses to trauma may be transmitted between generations, and trauma-related risk factors for psychopathology in children, adolescents, and adults. First, we focus on the foundations of attachment theory and discuss ways in which the attachment, exploratory, and fear behavioral systems interact to promote infants' survival. The second section of the paper examines the connection between frightening experiences and disorganized attachment. Infants who are regularly and seriously frightened by aspects of their caregiving environment are believed to be at risk for "unsolvable fear" in which organized attachment responses to fear are impossible. We describe the behaviors and representations characteristic of disorganized children and their parents. Next, we review recent research about relations among attachment, trauma, and psychopathology across the lifespan. Finally, we discuss implications of these findings for clinical practice.

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Epidemiological research in the past decade suggests that exposure to traumatic events is relatively common. Several large-scale studies have found the lifetime prevalence

of exposure to traumatic events to be between 39% and 70% (Freedy & Donkervoet, 1995). In one national probability sample of more than 4000 adult American women, more than 35% of the women had experienced at least one of four traumatic criminal events: rape, molestations or attempted sexual assault, physical assault, and homicide of a close friend or relative (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Based on a field trial conducted as part of the development of the fourth edition of the *Diagnostic and Statistical Manual* (American Psychiatric Association [APA], 1994), researchers concluded that the broadness or narrowness of the definition used for traumatic events had little effect on the association of such events with strong feelings of fear, helplessness, and horror or on the prevalence rate for posttraumatic stress disorder (PTSD) in the sample (Kilpatrick, Edmunds, & Seymour, 1992).

Although much information has been gained on the prevalence of traumatic events and the effects these events can have on children and adults, much remains to be learned regarding the ways in which individuals cope with trauma (Fullerton & Ursano, 1997). For example, why is it that some individuals who experience a traumatic stressor develop PTSD, whereas others who experience the same or similar stressors exhibit comparatively minimal symptomatology? Similarly, why are stress reactions acute in some individuals but chronic in others? In this article, we demonstrate ways in which attachment theory may be useful in the search for answers to such questions.

Little discussion of attachment theory has appeared in the trauma literature, yet we believe that the theory is well suited to address individuals' responses to trauma throughout the life span. Attachment theory was initially developed to explain basic human processes related to survival, security, and responses to frightening experiences

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(Bowlby, 1969/1982, 1973, 1980). Attachment research in the past decade has generated intriguing findings related to early experiences with fear, how these experiences shape later responses to trauma, how adults' processing of trauma relates to general psychological functioning, and how risk for poor response to trauma may be transmitted intergenerationally (see Lyons-Ruth & Jacobvitz, 1999, for a review). The emphasis on the infant-caregiver relationship in much attachment research is often not found in the trauma literature, but some exceptions exist. For example, Breslau, Davis, Andreski, and Peterson (1991) found that early separation from parents was a risk factor for developing a chronic versus acute response to traumatic stressors in a large random sample of individuals served by an urban health maintenance organization. Such findings suggest that even very early experiences between child and caregiver may have implications for the ability to negotiate traumatic experiences later in life.

In this article, we review recent theory and research regarding interrelations among attachment, trauma, and psychopathology, focusing on the disorganized pattern of attachment. We also discuss implications of these findings for clinical practice. First, however, we review the biological foundations of Bowlby's attachment theory, including discussion of the close links found in most ground-living primates among attachment behavior, survival, and fear.

FOUNDATIONS OF ATTACHMENT THEORY: BIOLOGICAL BASIS AND INDIVIDUAL DIFFERENCES

Biological Basis of Attachment Behavior

The notion that attachment behavior is biologically based was introduced in the 1950s by the British psychiatrist John Bowlby. Bowlby's (1969/1982, 1973, 1980) initial investigations were driven by his interest in understanding why infants become attached to their mothers. His theoretical propositions arose from his observations of common attachment phenomena in infants, including (a) the young infant's insistent interest in maintaining proximity to selected attachment figures, usually biological relatives, (b) the infant's tendency to use these figures as a secure base for exploration, and (c) the infant's flight to the attachment figure as a haven of safety when alarmed. Drawing on the work of ethologists, Bowlby used the concept of the *attachment behavioral system* to describe the organization of infant behaviors that result in bringing the mother and baby together or keeping them together. This proximity affords children many advantages, most notably

greater protection from predators and potentially dangerous situations, but also access to food, education, and proper temperature and other physiological regulation (Bowlby, 1988; Main, 1981). Bowlby theorized that attachment behavior is adaptive from an evolutionary perspective because children engaging in such behavior were more likely to survive and thus live to pass on the genes that contain the tendency to become attached.

The attachment system is thought to be as important for infant survival as are the behavioral systems for feeding and exploration. Bowlby (1958, 1969/1982) emphasized that maintaining proximity to a protective, older individual is the human infant's sole means of protection and is consequently its single adaptive behavioral strategy for responding to experiences of fear. He pointed out that whereas the fox or rabbit may flee to its den or burrow and gain safety when frightened, it is only by reaching the attachment figure that the primate infant reaches its location of safety. Human as well as other ground-living primate infants therefore tend to continually monitor the accessibility of their attachment figures, maintain proximity even in relatively nonthreatening situations, and seek the attachment figure as a haven of safety in times of alarm (see Hesse & Main, 1999). Attachment becomes most highly activated when the infant is stressed (e.g., when the infant is sick or tired) or frightened (e.g., when the infant is in the presence of a large dog, a loud noise, or a looming, unfamiliar person). The tendency for the attachment system to become activated in such situations increases the chances that a baby will receive protection at precisely the times that he or she is most vulnerable (Bowlby, 1973).

Individual Differences in Infant Attachment

Bowlby's initial writings on attachment theory examined why human infants generally become attached. Although Bowlby remained interested in normative attachment processes, his work as a psychiatrist increasingly drew his attention to questions related to individual differences in attachment. He noted that although virtually all children—if given any opportunity at all—become attached, the quality of attachment varies widely. Bowlby (1973) believed that individual differences in attachment emerged in large part from the quality of infants' experiences with attachment figures. Based on repeated daily interactions with an attachment figure, babies develop reasonably accurate representations of how the attachment figure is likely to respond to their attachment behav-

ior. For instance, infants with a mother who is generally sensitive, responsive, and available will come to form a representation of her as sensitive, responsive, and available. Closely intertwined with the internal representation of the attachment figure is the representation of the self. For example, infants who have received sensitive, loving care will come to view themselves as lovable. Conversely, those whose bids for comfort are ignored, mocked, or rejected will come to view themselves as unlovable and unworthy of care. Infants who have mental representations of the caregiver as available and responsive and representations of self as loveable and worthy of care are considered *securely attached*. Infants with representations of the caregiver as unavailable or rejecting and of the self as unable to obtain care are said to be *insecurely attached*. This perspective on infants' internalization of caregiving experiences shares much with the notions of self and object representations found in psychoanalytic theory (Fonagy, 1999) and self-schemata found in cognitive theory (Beck, Rush, Shaw, & Emery, 1979), although differences may exist with regard to the processes underlying representation formation and change.

The principal method for assessing individual differences in quality of attachment (i.e., secure vs. insecure attachment) in 12- to 18-month-old infants has been Ainsworth's "strange situation" procedure (Ainsworth, Blehar, Waters, & Wall, 1978). This 20-minute laboratory procedure contains free-play episodes, as well as episodes when the parent and a female stranger alternately leave and return to the baby, who remains in a toy-filled playroom. Attachment quality is coded primarily on the basis of the infant's behavior during the two episodes of infant-parent reunion. In Ainsworth's initial investigation using the strange situation, three groups of infants were identified in a low-risk, middle-class American sample: secure, insecure/avoidant, and insecure/resistant. Infants classified as secure showed interest in contact, proximity, or at least interaction with the parent on reunion. In contrast, insecure/avoidant infants actively avoided and ignored the mother in the reunion episode, and insecure/resistant (also called insecure/ambivalent) infants seemed unable to attend to the toys and remained preoccupied with the parent. Based on several decades of empirical investigation, attachment researchers now claim that infant reunion behavior in the very brief strange situation procedure is not based on infant temperament, neonatal characteristics, birth order, gender, mood, or chance factors, but that it

provides insight into the stable organization of infants' representations of the specific caregiver with whom they are seen in the strange situation (for reviews, see Belsky, 1999; Solomon & George, 1999a; Thompson, 1999; see Kagan, 1984, for a diverging evaluation of the strange situation; see also Vaughn & Bost, 1999, for a thorough discussion of the contribution of infant temperament to attachment classification).

Through careful home observations of mothers and infants, Ainsworth provided some of the first empirical support for Bowlby's assertion that such individual differences in attachment are related to infants' caregiving environments (Ainsworth et al., 1978). Ainsworth and colleagues found that mothers of secure infants were generally sensitive, responsive, and warm when interacting with their babies. In contrast, mothers of avoidant infants often rejected or ignored the infant's attachment behavior and displayed an active aversion to physical contact with the infant. Interactions between these mothers and their infants were often brief and unpleasant for the infant. Finally, Ainsworth found that mothers of resistant infants were neither averse to contact nor notably rejecting, but they were particularly inept in holding the infant and responding smoothly to the infant's cues in face-to-face interactions; these mothers of resistant infants also tended to be inconsistent and unpredictable in their responsiveness to infant distress.

Main's (1990) concept of attachment strategies provides a means of understanding how caregiving experiences may contribute to the differences in infants' reunion behavior observed in the strange situation. According to Main, infants achieve their goal of maintaining proximity to the attachment figure by developing a strategy, or plan of action, that is tailored to the specifics of the caregiving environment they face. They then employ these strategies in attachment-related situations such as the strange situation reunion episodes. Secure babies, whose parents promptly and sensitively respond to their infants' signals, have learned that all they must do to ensure protection is to express their distress when faced with a problem. In contrast, insecure/avoidant babies have learned to suppress the expression of attachment behavior (i.e., learned to deactivate the attachment system) in order to maintain protective access to caregivers who are uncomfortable with closeness. Insecure/ambivalent babies have learned to express distress even when threats to their well being are not obvious (i.e., learned to hyperactivate the attach-

ment system) in order to maximize the chances that their inconsistently responsive caregivers will be available when help is needed (for discussion of parental behavior and infant development of insecure strategies, see Cassidy & Berlin, 1994; Main, 1981, 1990). Despite the many differences observed among the secure, insecure/avoidant, and insecure/resistant infants, these infants all have caregiving environments that are predictable enough for them to develop an organized strategy for maximizing access to a protective caregiver. Parents of insecure/avoidant and insecure/resistant infants may not be highly sensitive and available, but they are able to offer their children a predictable means for obtaining a basic sense of safety. Thus, all of these parents can be viewed as able to serve as a haven of sorts for their children, although the attachment strategies that their children develop to increase parental availability may not be optimal with regard to the development of social competence and healthy emotion regulation (Thompson, 1999).

Not all parents, however, are able to provide a haven for their children. For some infants, the caregiving environment is so bizarre, threatening, unpredictable, violent, or frightening that not only are the infants insecure, but they also cannot organize a coherent strategy for ensuring protective access to their caregivers. In the attachment literature, infants without a clear strategy in the strange situation are given the classification of insecure/disorganized (Main & Solomon, 1986). We devote the next section of the article to this group of infants and discuss ways in which certain types of frightening experiences contribute to the inability to form an organized strategy. We describe the strange situation behavior of disorganized babies, the behavior and representations of children who had been disorganized infants, and the representations of their parents. We also present current theory and research aimed at explaining this form of attachment.

FRIGHTENING EXPERIENCES AND THE INABILITY TO FORM A STRATEGY

Disorganized Behavior and Representations in Children

In the late 1970s, Main and Weston (1981) noticed that many maltreated infants, as well as about 13% of infants in their own low-risk sample, were unclassifiable in the strange situation. Although it was clear that these babies were not secure, they could not be classified as avoidant or resistant. In the early 1980s, Main and Solomon (1986) reviewed more than 200 videotapes of unclassifiable

infants drawn from both maltreatment and low-risk samples and observed a diverse array of behaviors suggesting that the infants were experiencing distress or fright in the parent's presence with no organized means of coping with their problem.

Main and Solomon (1986) developed guidelines for identifying such disorganized behavior. They suggested that infants in the strange situation should be classified as disorganized when they exhibit behavior in one or more of the following thematic headings: (a) contradictory behavior patterns, either sequential or simultaneous; (b) undirected, misdirected, incomplete, and interrupted movements or expressions; (c) odd movements and postures, asymmetrical movements, and mistimed movements; (d) freezing, stilling, and slowed "underwater" movements and expressions; (e) clear signs of fear of the parent; and (f) clear signs of disorganization and disorientation. For example, a baby who moves toward the parent by crawling or walking backwards is displaying simultaneous contradictory behavior by combining approach and avoidance behaviors. Sequential contradictory behavior would be coded for a baby who crawls toward his father, gets halfway there, stops, turns away, crawls into the wall, turns to face his father, and puts his hands over his eyes.

Main and Hesse (1990) proposed that children whose experiences leave them unable to form an organized attachment strategy in infancy later develop a controlling stance as a way of organizing a disorganized relationship. Indeed, in two longitudinal samples, the attachment of 6-year-olds who had been insecure/disorganized in the strange situation was classified as insecure/controlling (Main & Cassidy, 1988; Wartner, Grossmann, Fremmer-Bombik, & Suess, 1994). Controlling behavior in young children can take one of two forms: hostile, punitive control, or solicitous, caregiving control (Main & Cassidy, 1988). This sort of controlling behavior has also been observed in preschool children, particularly those at developmental risk (Cassidy & Marvin, 1992). Based on this research and on research discussed below, the insecure/controlling designation in young children is viewed as evidence of disorganized attachment. Indeed, from a relational perspective, controlling behavior is evidence of disorganization in the relationship hierarchy between child and caregiver.

Insight into the mental representations of disorganized children can be gained by examining their narratives. Convergent findings from studies of disorganized children

provide a picture of the chaotic, incoherent, and frightening representations that these children possess. In one study, 6-year-old children whose attachment had been assessed in the strange situation in infancy were presented with a series of photographs of children undergoing increasingly stressful separations from the parent (Kaplan, 1987; Main, Kaplan, & Cassidy, 1985). Secure children tended to say that a separated child would be sad, but they then would typically generate constructive things that the child might do to cope with the sadness. In contrast, disorganized children typically sat frozen, speaking in whispers or not at all. Some disorganized children offered catastrophic stories, such as one in which the separated child killed herself by hanging. In another story, the child discovered the house burning down, ran to a hillside for safety, and looked down to observe the parents being killed on the highway.

Similar findings have been found in studies using doll-play narratives. In one study, 6-year-old children were asked to use dolls to tell stories about specific scenarios involving separation from parents (e.g., parents leaving children with a babysitter; parents going away overnight; Solomon, George, & De Jong, 1995). The stories of secure children were characterized by a fairy tale quality, wherein something bad occurred but there was a successful resolution in which the protagonists (i.e., children and parents) lived happily ever after. Attachment fears were generally allowed to emerge with little distortion and were integrated into the stories. As expected, findings were notably different for the children who had been classified as insecure/controlling (which, as discussed above, is considered to be parallel to the insecure/disorganized classification for infants). These children described chaotic and dangerous situations in which the child protagonists were helpless and unable to get help or control their behavior. In one story, toys flew out of control around the house and destroyed it. In other stories, children were thrown in jail or beaten. Such dangerous and frightening situations were often left unresolved, and stories typically ended in chaos and featured the disintegration of the self or the family. Perhaps even more telling, however, was the behavior of parents in these stories. Parents and other adults were frequently portrayed as unavailable in times of need, frightened, frightening, threatening, or even abusive. In short, the stories of disorganized children reflected the chaotic, distressing, and sometimes dangerous caregiving environments in which these children typically

lived. In a similar study of 6-year-olds, Cassidy (1988) found that the doll protagonist (representing the self) was most often involved in violent, hostile, negative, or bizarre behavior in the doll stories of disorganized children.

Attachment Figures as a Source of Alarm

To understand disorganized behavior in an infant whose parent is abusive or otherwise frightening, consideration of Bowlby's original theory is useful. As noted earlier, Bowlby proposed that, for an attached infant, the parent is the sole haven of safety that the infant can seek in times of alarm (1969/1982). Frightening behavior on the part of the attachment figure will activate simultaneous and competing tendencies. The fear stimulus will activate the infant's attachment system, which will motivate the infant to seek the attachment figure as a haven of safety. The same stimulus, however, will also activate the infant's fear system, which will motivate the infant to flee the attachment figure as a source of alarm. This poses an impossible paradox of simultaneous approach and avoidance, and no organized behavioral strategy is available to the infant in this situation (Main & Hesse, 1990). Because such infants face a competition between tendencies that cannot be resolved, their behavioral response to this—freezing, disorientation, disorganization—reflects the impossibility of their situation.

An interesting set of physiological data is emerging in relation to disorganized infants (see Spangler & Grossmann, 1999, for a review). For example, some attachment research has focused on salivary cortisol, which, in animals, has been linked with the inability to develop an effective strategy to cope with a stressor. These studies have shown that disorganized infants produce higher levels of salivary cortisol than other infants after brief separations from attachment figures (Hertzgaard, Gunnar, Erickson, & Nachmias, 1995; Spangler & Grossmann, 1993). Such findings support the idea that disorganized infants lack an organized strategy for coping with situations that activate the attachment system.

What is known about the precursors of disorganized attachment? In physiologically normal infants, evidence suggests that these anomalous behavior patterns are largely the result of interactional experiences with the parent with whom the infant is observed. The emerging data suggest that the more unpredictable, traumatic, and frightening the caregiving environment is, the more likely it is that the infant will be unable to devise a coherent

strategy and thus, by definition, will be disorganized. For example, disorganized behavior has been observed in approximately 14% of the infants in low-risk samples, whereas it has been observed in more than 80% of the infants in maltreated samples (see Lyons-Ruth & Jacobvitz, 1999, for a review).

Child abuse is one of the most dramatic examples of frightening parental behavior. Such violence is both terrifying and problematic because it creates an extreme conflict between approach and avoidance engendered by the simultaneous activation of the fear and attachment systems. Studies have indicated that parentally maltreated infants are indeed more likely than others to exhibit a disorganized attachment pattern (Barnett, Ganiban, & Cicchetti, 1999; Carlson, 1998). Furthermore, child victims of both sexual and physical abuse are likely to display behavior that resembles core features of disorganized attachment (Lyons-Ruth & Jacobvitz, 1999).

Child abuse is not the only way that parents can frighten their infants, however. For example, Main and Hesse (1990) have proposed that parents who are themselves frightened are frightening to an infant. From an attachment perspective, frightened parents may frighten an infant because the parents' own fearfulness may leave the infant lacking confidence in the parents' ability to serve their role as a secure base and protector for the infant. Relatedly, Lyons-Ruth, Bronfman, and Atwood (1999) noted that infants of frightened parents will experience "little sense of reliable influence over the attachment figure when under stress" (p. 44). A sizable body of research has been devoted to understanding the dynamics of parental abusive behavior (see Kotch, Muller, & Blakely, 1999, for a review), but much less is known about why parents might display frightened behavior around their infants. Although there are surely many reasons why parents might act frightened, Main and Hesse (1990) have summarized evidence that an important class of such behavior may be related to experiences of loss or trauma that the parents themselves have not resolved. This possibility is intriguing because it suggests that aspects of responses to traumatic experiences may be transmitted intergenerationally.

In short, both frightened parental behavior (which, in turn, frightens a child) and directly frightening parental behavior should lead to disorganization in infants. Hesse and Main (1999; see also Main and Hesse, 1998) have summarized a number of frightening/frightened parental

behaviors that they believe will lead to dysregulation of the infant's attachment system and have developed a system for coding these behaviors. Examples include dissociative behaviors (e.g., freezing of all movement), anomalous forms of threatening behavior (e.g., startling invasions of the infant's personal space), anomalous forms of frightened parental behavior (e.g., panic in the absence of environmental threat; apparent fear of the infant), role-inverting behavior (e.g., timid submission to the infant), sexualized behavior (e.g., sexually suggestive displays toward the infant), and disorganized behaviors (paralleling those identified in disorganized infants; e.g., strange, stiff movements).

Parental Unresolved Loss and Trauma

Much of the evidence for a connection between infant disorganization and parental unresolved loss or trauma comes from studies using the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996). This 60-min semi-structured interview probes attachment-related experiences during childhood such as memories of feeling loved or unloved, memories of being upset or ill, and memories of separation, rejection, and loss. Participants are asked to provide general descriptions of their relationship with each parent and to integrate specific instances with these more general descriptions. Scoring procedures yield ratings on a number of continuous scales and, most important for the purposes of this paper, an attachment classification.

The attachment classification of adults is based not so much on the content of their narratives as on the structure of the narratives. Two adults may both report having had strained relations with their parents, but the manner in which they report their attachment narratives may differ greatly. Research using the AAI has shown that the manner in which these narratives are conveyed is strongly predictive of infant attachment behavior. Indeed, AAI classifications based on attachment narratives are found to predict a variety of theoretically expected factors, including mothers' social/emotional functioning, mothers' parenting behavior, parent-child separation behavior, the child's behavior both in and outside of the strange Situation, and clinic status of both child and parent (see Hesse, 1999, for a review).

Adults are classified into one of four principal groups based on their AAI narratives (Main & Goldwyn, 1998). *Secure/autonomous* individuals value attachment relation-

ships and consider them to be influential, yet they can reflect on them with objective autonomy. They typically have good access to attachment-related memories, and they are able to integrate and reflect upon these memories in a coherent and convincing manner. Parents classified as secure/autonomous usually have infants who are classified as secure in the strange situation. Individuals who are *dismissing of attachment* minimize the importance of attachment relationships both in their childhood and their adult lives. Such people have poor access to attachment-related memories, and their overall evaluation of relationships with attachment figures typically does not match the specific details that they provide about these relationships. Parents classified as dismissing often have infants who are classified as avoidant in the strange situation. In contrast to dismissing adults, those who are *preoccupied with attachment* tend to chronically worry about attachment relationships, and their emotional involvement in these relationships is so overwhelming that they are frequently unable to discuss them in an objective or coherent way. Parents classified as preoccupied often have infants who are classified as resistant in the strange situation. Finally, and most relevant to the purposes of this section, *unresolved* individuals have experienced an attachment-related childhood trauma (i.e., loss or abuse) with which they have been unable to successfully come to terms. Parents with this attachment classification are more likely than other parents to have disorganized infants. Individuals classified as unresolved on the AAI are also assigned an underlying classification of secure, dismissing, or preoccupied (i.e., unresolved/secure, unresolved/dismissing, or unresolved/preoccupied). For example, a person whose AAI revealed a lack of resolution as well as a reliance on dismissing attachment strategies would be classified as unresolved/dismissing.

AAI narratives of adults classified as unresolved contain material that conveys some of the same qualities of confusion, dissociation, and incoherence seen in disorganized infants' behavior in the strange situation. It is the parts of the interview related to loss (all important losses during the person's life) and abuse (e.g., physical or sexual abuse, bizarre punishments, parental suicides or suicide attempts in the child's presence) that are important for coding lack of resolution. Specifically, a speaker is classified "unresolved with respect to loss or trauma" if there are lapses in the monitoring of reasoning (i.e., temporary lack of conventional logic or reality testing when discussing loss or trauma) or lapses in the monitoring of discourse (i.e.,

marked shifts or irregularities in the narrative style used by the speaker when discussing loss or trauma). Lapses in the monitoring of reasoning may indicate intrusions of incompatible belief systems into consciousness, whereas lapses in the monitoring of discourse suggest a shift into a state involving considerable absorption and diminished awareness of the interview situation. Despite the differences between these two types of lapses, both are considered to be examples of disorganization.

Lapses in the monitoring of reasoning during discussion of loss can take a number of forms, including (a) indications of disbelief that the person is dead, (b) suggestions that the speaker was somehow responsible for the death, despite evidence to the contrary, (c) indications of confusion between the identity of the dead person and the self, (d) psychologically confused statements, (e) indications that the dead person may be attempting to manipulate the speaker's mind, and (f) disorientation with respect to time and space. An example of a lapse in reasoning was observed by Ainsworth and Eichberg (1991) in an otherwise high-functioning mother. When the woman was asked whether she recalled any loss experiences, she responded, "Yes, there was a little man," and then began to cry. According to the woman, this man had been her caretaker for a few months when she was eight years old, and had given her what little affection she obtained in her early years. One day, he had asked her whether she would marry him when she grew up, and she had replied, "I can't because by then you'll be dead." He died two weeks later of a brain hemorrhage. While crying and still describing this event to the interviewer, the woman said, "Strange, how you can kill a person with just one sentence." This single statement placed her interview in the unresolved attachment category, and, as predicted, her infant was highly disorganized. Another interview offers an example of a belief that the lost person is simultaneously dead and alive: "It's probably better that he is dead because he can get on with being dead and I can get back to my business."

Lapses in the monitoring of discourse when discussing loss also can take a number of different forms, including (a) unusual attention to detail, (b) marked shift in the style or rhythm of the discourse, (c) unfinished sentences, and (d) prolonged silences. This type of lapse is illustrated in the following description of an interview (from Main & Goldwyn, 1998) with a parent of a disorganized infant who had used an ordinary conversational style during the earlier portions of the AAI. When asked to describe the

death of a young cousin, she exhibited a marked change in discourse register and responded,

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 by that most dreaded of diseases, tuberculosis. And then, like a flower torn from the ground at its moment of splendor, she was taken from us in that most terrible moment of her death. The sounds of the weeping, the smell of the flowers, her mother in her black dress cast across her daughter's coffin, I remember it still. (p. 104)

Such a sudden shift to a eulogistic form of speech is typical of the altered state of consciousness conveyed during lapses in the monitoring of discourse.

As we noted above, these types of lapses also occur with regard to unresolved trauma. Lapses in monitoring of reason can be seen in the disorganized thinking that is sometimes exhibited in survivors of sexual abuse and physical abuse. Examples of such lapses include stating that an event both happened and did not happen, taking responsibility for one's victimization for implausible reasons (e.g., "I was seductive and caused it"), and fearing having one's mind controlled by the abuser. Lapses in monitoring of discourse include disoriented speech, such as, "I would . . . um . . . get to me . . . didn't really . . . couldn't say." As these examples suggest, lapses in the monitoring of reasoning or discourse sufficient to lead to placement in the unresolved AAI category are often very brief, and may appear in conjunction with speech which is otherwise secure, dismissing, or preoccupied. It is also important to note that lapses do not include expressions of continuing pain or regret, or mild fearfulness regarding parent's behavior.

Links Between Parent Lack of Resolution and Child Disorganization

Six studies involving low-risk samples, four of which were prospective, have found an association between infant disorganization and parents' lack of resolution regarding loss or trauma. A meta-analysis of these studies indicated that the effect size for this relation was .31 (van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). This effect is particularly noteworthy, given that the assessment of infant disorganization and adult unresolved status are each based on a few seconds of a laboratory procedure. Recent research has indicated that the strength of the relation between infant disorganization and parent unresolved status may depend on the parents' underlying attachment

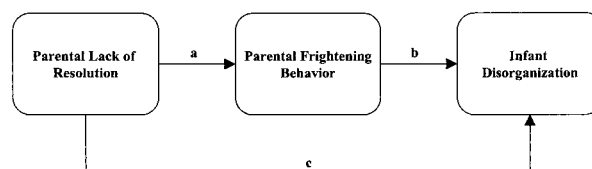


Figure 1. Model from Main and Hesse (1990) illustrating the connection between parental lack of resolution and infant disorganization.

classification. For example, Schuengel, Bakermans-Kranenburg, and van IJzendoorn (1999) found that this relation was significant for parents whose underlying classification was insecure but not for those whose classification was secure.

Why is unresolved classification in the parent associated with disorganization in the child? The lapses in monitoring surrounding the discussion of a loss/trauma experience suggest that these unresolved parents are still occasionally responding to partially dissociated and perhaps still frightening experiences. Main and Hesse (1990, 1992) have suggested that these parents may at times appear inexplicably frightened in the infant's presence because of a response to a stimulus (which might even be the baby) that they have perhaps unconsciously associated with a traumatic experience. As we noted earlier, an inexplicably frightened parent, like a directly frightening parent, may frighten the infant and increase the infant's risk of disorganization. Furthermore, other indices of unresolved status (e.g., momentary trance-like states) may be similarly frightening to infants because they indicate that the parent is unavailable to serve her or his role as the infant's protector and caregiver.

By putting these pieces together, a model explaining the link between parental lack of resolution and infant disorganization can be formulated (see Figure 1). In this model, which was first proposed by Main and Hesse (1990), parents' brief errors in discourse or reasoning in the AAI predict bouts of frightening, dissociated, and/or frightened behavior in the home (*path a* in Figure 1). This parental behavior, in turn, predicts infant disorganization in the strange situation (*path b*). In short, the model represents frightening and frightened behavior as a mediator of the relation between parental lack of resolution and infant disorganization (*path c*).

Recent findings, which we review here, provide mixed support for these three components of this model of infant disorganization. As we noted earlier with regard to *path c*, Schuengel et al. (1999) found a relation between maternal lack of resolution and infant disorganization only

for mothers with an insecure underlying attachment classification. Such differences between mothers with secure and insecure underlying attachment have also been found in research on *path a*. For mothers with insecure underlying attachment, a positive relation has been found between unresolved status and the display of frightening or frightened behavior at home, as predicted by the model (Jacobvitz, 1998; Schuengel et al., 1999). Jacobvitz found this same positive association for mothers with secure underlying attachment, but Schuengel et al. found that unresolved status was negatively related to the display of frightening or frightened behavior at home for such mothers. This latter finding is the opposite of what was expected because it suggests that, among mothers with secure underlying attachment, those who lack resolution with respect to loss or trauma are less likely than others to display frightening or frightened behavior. (Lyons-Ruth and Jacobvitz [1999] noted that the divergent findings of these two studies regarding *path a* may be due to the use of different types of home observation: Jacobvitz observed mothers completing a structured and relatively stressful series of tasks, whereas Schuengel and colleagues did not structure the home observations.) Finally, support for the hypothesized positive relation between parental frightening or frightened behavior and disorganized infant status (*path b*) has also been mixed. Schuengel and colleagues found a weak, positive relation, regardless of the mothers' underlying classification. Similarly, Lyons-Ruth, Bronfman, and Parsons (1999) found that frequency of maternal frightening or frightened behavior was related to disorganized infant status, but this relation was only significant for infants whose underlying attachment classification was insecure.

In summary, although some empirical support for the components of this model has been gained, this is a new area of research, and more work is needed to understand the complex links among parental attachment, parental caregiving behavior, and infant disorganized attachment. The model has been most strongly supported thus far for mothers whose underlying attachment classification is insecure, although, even in that case, the relation between frightening/frightened behavior and infant disorganization has been found to be relatively weak. Furthermore, to our knowledge, no research has tested the mediational model as a whole. Thus, little is known regarding the extent to which frightening or frightened behavior actually explains the relations that have been found between parental unresolved status and infant disorganization.

Recent Theoretical and Empirical Developments

In the remainder of this section, we review recent findings and theory on the precursors of disorganized attachment that augment the perspectives discussed above. First, some recent research has suggested that infant disorganization may result from a broader array of parental behaviors than was originally hypothesized and that the link between caregiving and infant disorganization may depend on particular configurations of parental behaviors. For example, Lyons-Ruth et al. (1999) found that, among mothers with an underlying insecure attachment classification, those with disorganized infants showed elevated rates of affective communication errors, hostile/intrusive behavior, and role confusion in the home compared to mothers of organized infants. These researchers also found that mothers who had disorganized infants but whose underlying attachment classification was secure exhibited a fearful, inhibited pattern of behavior in the home and a communication style that was withdrawn but not hostile. Similarly, Griffin (1998) provided evidence that parents of disorganized infants were more likely than other parents to alternate withdrawal with periods of hostile intrusiveness.

Based on this and other research, Solomon and George (1999b) have proposed that understanding the link between caregiver behavior and infant disorganization may require more than noting the frequency or intensity of caregiver frightening/frightened behavior. Such caregiver behaviors, they argued, may be only one aspect of a more general pattern of behavior in which caregivers often respond to the infant in highly inconsistent ways or simply fail to respond at all to the infant. Based on Bowlby's (1980) writing on defensive processes related to attachment, Solomon and George suggested that the impact of caregiver frightening/frightened behavior on infants may be moderated by the degree to which caregivers repair their relationship with the infant after frightening the infant. Caregivers who frighten their infant but quickly soothe the infant may provide a basis for infants to develop organized attachment strategies. When an infant is regularly frightened but not soothed by caregivers, however, he or she may avoid overwhelming attachment distress by excluding attachment-related information from consciousness. Bowlby (1980) termed such defensively excluded material *segregated systems*. Solomon and George proposed that the notion of segregated systems may help to explain the often odd and seemingly functionless behavior exhibited by disorganized infants in the strange

situation. As we discuss later, infants with segregated systems may be especially vulnerable to dissociative experiences later in life.

Understanding infant and adult disorganization is, in many ways, tantamount to understanding how humans cope with a profound sense of helplessness. Facing frightening or challenging circumstances with no apparent solution can lead to a number of “strategies of desperation,” including “dependent or childlike behavior . . . rages and aggression . . . or frozen withdrawal” (Solomon & George, 1999b, p. 27). Although all of these strategies may be used at different times by disorganized/unresolved individuals, some research has indicated that disorganized mother–child dyads are often characterized by imbalanced relationships in which one member tends to assume an aggressive, hostile stance and the other member assumes an overwhelmed, passive, helpless stance (Lyons-Ruth et al., 1999). The dynamics of such hostile–helpless dyads can be expected to differ depending on the specific roles taken by members of the dyad. Recent research has indicated that the configuration of such dyads may be determined, in part, by the unique histories of the mothers. Lyons-Ruth and Block (1996) found, for example, that mothers with a history of physical abuse were likely to assume a hostile role in relation to their children, whereas mothers with a history of sexual abuse were likely to assume a helpless role (see Alexander, 1992, for further discussion of attachment and sexual abuse). Such findings hint at the complex ways in which the effects of trauma may be expressed across generations.

A second area of development on precursors of child disorganization has highlighted the importance of considering the operation of a variety of behavioral systems in parent–child interactions. For example, Pianta, Marvin, and Morog (1999) noted that focusing exclusively on trauma related to the parent’s attachment system (e.g., incest) may lead researchers to ignore another potential source of unresolved trauma that may be related to infant disorganization: trauma to the parent’s caregiving system. An example of this may be found in parents who have a child with a serious disability or medical conditions. Parents who have children with serious medical problems must cope with the concomitant grief and loss of expected outcomes. Those who are unable to resolve these feelings of loss related to caregiving may suffer from the types of defensive processes, distortions, and disorientation seen in AAI narratives of unresolved adults; thus, these parents may be more likely than others to have disorganized

infants. Pianta and colleagues provided evidence of this in a sample of parents of children with cerebral palsy. Interviews related to the children’s disorder were coded using a broad definition of lack of resolution that included parents’ attempts to ignore the disorder, confusion, and unbalanced perceptions of the impact on the self. More than one half of the 40 parents were rated as unresolved using this system. As predicted, lack of resolution with regard to the child’s diagnosis was predictive of infant disorganization. Interestingly, lack of resolution with regard to loss or trauma (i.e., the AAI classification) was not predictive of infant disorganization in this sample.

Similar findings were apparent in a study in which mothers’ unresolved loss associated with miscarriage was investigated in relation to infant disorganized attachment behavior (Bakermans-Kranenburg, Schuengel, & van IJzendoorn, 1999). Specifically, mothers who were unresolved with regard to a miscarriage (i.e., those who evidenced lapses in monitoring of discourse and reason regarding miscarriage) were more likely than others to have disorganized infants. In contrast, unresolved status on the AAI was unrelated to infant disorganization. These findings suggest that the links between caregiving and infant disorganization may be better understood by focusing on the caregiving system in parents in addition to the attachment system.

A third recent development in research on the precursors of infant disorganization suggests that aspects of infant disorganization may be related to variables other than parental caregiving. For example, Spangler, Fremmer-Bombik, & Grossmann (1996) provided evidence that infant disorganization status at 12 months can be predicted by aspects of newborn behavioral organization. Specifically, risk of disorganized attachment was greatest for newborns who exhibited lower than average levels of emotion regulation and orientation to external stimuli. Given that attachment to a specific caregiver tends to occur at around 6 months (Bowlby, 1969/1982), this finding suggests that variables unrelated to attachment relationships may contribute to disorganization in some infants. The restricted behavioral organization viewed in the newborns who were later classified as disorganized may reflect any one of a number of causative factors. Genetics may be one of these factors, as might aspects of the prenatal environment (Spangler & Grossman, 1999). For example, mothers who are unresolved with regard to loss or trauma may experience higher than average levels of stress, which may increase the likelihood of neuromotor impairment in

their children (Schneider & Coe, 1993). It is important to note that any consideration of causative factors that characterize the child rather than the caregiving environment must account for the evidence that infants are unlikely to be classified as disorganized with more than one attachment figure (Main & Solomon, 1990; Steele, Steele, & Fonagy, 1996; van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). It may be that some infants are born with a physiological sensitivity that may increase their risk for disorganization in the presence of a frightened/frightening caregiver. Regardless of the precise factors leading to restricted behavior regulation in newborns, this research suggests that a complete model of infant disorganization may include pathways related to both individual disposition and the caregiving environment.

SOLVABLE AND UNSOLVABLE FEAR: ATTACHMENT, TRAUMA, AND PSYCHOPATHOLOGY

All babies face threat, and all babies face times when they are frightened. An emerging body of attachment research suggests, however, that the specific types of frightening situations that babies endure may relate to important differences in later experiences of trauma and future risk of psychopathology. As suggested in the previous section, a factor of particular importance in this regard is infants' exposure to frightening situations for which they cannot develop an organized coping strategy. In this section, we discuss theory and research on the interrelations among the caregiving environment, attachment, trauma, and the development of psychological problems in childhood, adolescence, and adulthood.

Organized Attachment and Child Functioning

Hesse and Main (2000) have proposed that infants with organized strategies—either secure or insecure—encounter fear with solution. For secure infants, the solution to frightening situations is to seek their parents. For avoidant infants, the solution is to turn attention away from potentially frightening stimuli in a defensive manner. For resistant infants, the solution is to exaggerate attachment behavior to gain the attention of an inconsistently available attachment figure. Insecure infants clearly must work harder than secure infants to cope with fear, but, like secure infants, they do have an organized strategy and a solvable problem.

Although organized, insecure attachment in infancy has been found to predict psychological problems in

childhood, it should not be equated with psychopathology (Sroufe, 1990). A number of studies have shown that, compared to secure infants, avoidant and resistant infants later have poorer relations with peers, lower self-esteem, lower frustration tolerance, lower ego-resilience, and less positive affect (for reviews, see Colin, 1996; Thompson, 1999). Despite these findings, however, few conclusive links have been found between attachment classification in infancy and the development of psychological problems (for an exception, see Warren, Huston, Egeland, & Sroufe, 1997, who found that a history of resistant attachment in infancy was predictive of anxiety disorders at age 17, even after accounting for infant temperament). In a recent review of the literature in this area, Greenberg (1999) concluded that attachment insecurity is not itself a form of psychopathology but may constitute a nonspecific risk factor that increases the likelihood of future psychopathology in combination with other risk factors. In other words, insecure attachment may be neither necessary nor sufficient for the development of most forms of psychopathology, but it may increase the risk, severity, or persistence of disorders. This perspective is sensible, given that typically 30% of low-risk infants are classified as insecure, but much less than 30% of children develop serious psychological problems. In the coming years, longitudinal data will likely provide important information regarding differences in the trajectories of secure, resistant, and avoidant infants, as well as information about moderators and mediators of the relations between these infant classifications and developmental trajectories. Even if large differences are not found in risk for psychopathology among these three types of infants, it is possible that early (organized) insecurity will be linked to decreased likelihood of being able to give and receive care in the ways necessary for intimate, loving adult relationships (Berlin & Cassidy, 1999; Cassidy, 2000, *in press*).

Disorganized Attachment and Child Functioning

As noted earlier, disorganized infants are placed in the impossible situation of fearing the very figures upon whom they rely for protection. Thus, in contrast to the solvable fear faced by secure, avoidant, and resistant babies, disorganized babies face fear without solution (Hesse & Main, 2000). The breakdown in attachment strategies resulting from unsolvable fear is reflected in behavior that appears more pathological than the organized behavioral strategies seen in avoidant and resistant infants (e.g., freezing, disorientation). Although disorga-

nized attachment should not be viewed as a form of psychopathology, emerging evidence suggests that the link between disorganized attachment and risk for psychopathology in children may be quite strong. At least eight studies to date have shown that infant and child disorganization is associated with the development of externalizing disorders, aggression, and clinic-referred oppositional defiant disorder (see Lyons-Ruth & Jacobvitz, 1999, for a review, and Lieberman & Pawl, 1990; Perry, 1999, for discussions of the importance of considering these behaviors as indicators of a child's fearfulness). Nonetheless, it is important to note that the relation between disorganization and pathology in children is far from perfect. Thus, as with other forms of insecure attachment, disorganized attachment is probably best viewed as a risk factor for psychopathology.

Research has also suggested that disorganized attachment is related to other types of developmental problems. With regard to the formation of peer relationships, for example, evidence indicates that disorganized children are more likely than others to have social skills deficits (Jacobvitz & Hazen, 1999; Wartner et al., 1994). Although most studies in this area have relied on standardized behavior checklists, Jacobvitz and Hazen used a case study method to gain insight into subtle differences between the peer relationships of organized and disorganized preschoolers. The researchers videotaped all children in dyadic play with two different peers identified by their teacher as friends. They found that preschoolers who were not classified as disorganized in infancy displayed similar behavior during play sessions with each of the two friends. In contrast, preschoolers classified as disorganized in infancy often showed strikingly different behavior with the two peers: sometimes aggressive, sometimes withdrawn, sometimes odd. The researchers suggested that this lack of consistency may reflect the separate, unintegrated models that these children have of a primary caregiver who alternates between predictable and frightening/frightened behavior. These researchers noted, however, that even when disorganized children do develop consistent strategies in early childhood, these strategies are unlikely to lead to competent peer relationships in middle childhood. Case studies indicated that the disorganized children tended to use such strategies in a rigid manner, suggesting that these children may have difficulty adapting their interactional style to different peers and different roles. Also, some evidence suggested that disorganized children may seek play-

mates who confirm their negative working model of self and other. It seems likely that these characteristics of disorganization in young children may set the stage for psychosocial difficulties in later years.

Some research findings have indicated that this lack of an organized interpersonal strategy in disorganized children may be mirrored in the cognitive realm in the form of deficits in reasoning ability. For example, Jacobsen, Edelstein, and Hofmann (1994) provided evidence that children classified as disorganized at age 7 were more likely than other children to give contradictory responses on a Piagetian measure of syllogistic reasoning ability, even after accounting for self-confidence, IQ, and attention problems. Moss, St-Laurent, and Parent (1999) found that 8-year-old children who were classified as disorganized at age 6 differed from their peers on math grades, but not on language arts grades or overall IQ. These researchers offered two possible explanations for these deficits in tasks requiring deductive and abstract reasoning processes seen among disorganized children. First, they noted that the deficits may reflect disorganized children's low academic self-esteem, given evidence that low self-estimates of one's academic ability have been linked to poor math performance in particular. Second, they suggested that the deficits may reflect the generally poor mother-child collaboration seen among disorganized children, given research showing that parental support is especially important in mathematical learning.

Disorganization and Functioning in Adolescence and Adulthood

Few studies have examined the relation between disorganization in infancy and functioning in adolescence and young adulthood, yet attachment theory provides a developmental perspective on understanding why adolescents and adults can vary markedly in their ability to successfully cope with trauma. It is believed that individuals who have a history of unsolvable fear are at risk, through mechanisms still not fully understood, for dealing poorly with threat later in life. Indeed, recent findings in neuroscience and animal science suggest that humans need experiences in which fears are solvable to build up the brain structures that help regulate anxiety and develop organized responses in frightening situations (Siegel, 1999).

Experiences with unsolvable fear in childhood may adversely affect later functioning at a number of levels. At the representational level, children with these experiences do not form schemas of themselves as competent in deal-

ing with threat. As these children grow into adults, their low self-efficacy may make them less apt to face and effectively cope with adversity and challenging developmental tasks. At the level of emotion regulation, children who face unsolvable fear do not receive a caregiver's help with regulating their fears because the caregiver is the source of the fear. Thus, these children may develop into adults who lack the benefit of having learned how to soothe and steady themselves in difficult or frightening circumstances. At the behavioral level, disorganized children do not learn a repertoire of skills for effectively coping with threatening situations later in life (Jacobvitz & Hazen, 1999). Finally, at the information-processing level, the experience of unsolvable fear may lead children to develop incompatible, parallel cognitive processes for negotiating threat that correspond to the competing approach-avoidance impulses that the child experiences in the presence of a frightening caregiver (Main & Hesse, 1992). Such incompatible attentional approaches may prevent disorganized individuals from effectively coping with difficult circumstances by temporarily derailing conscious awareness and by activating contradictory behavioral strategies that effectively nullify each other. Consequently, as adults, these individuals may be less able than others to use challenging life experiences as opportunities to develop increasingly mature coping strategies over time.

Most of the attachment research on trauma and psychopathology in adolescents and adults does not consist of longitudinal outcome studies of infant attachment, but rather has examined the degree to which trauma is predictive of psychological problems as a function of current attachment classification. According to much of this research, the consequences of a traumatic experience depend on whether or not it has been resolved: When trauma or loss has not been resolved, there is an increased risk of psychopathology. For example, the importance of resolution of trauma was evident in a study on the relation between attachment status and suicidality in a sample of adolescents from inpatient and outpatient clinics (Adam, Sheldon-Keller, & West, 1996). Although exposure to attachment-related trauma did not differ for suicidal and nonsuicidal patients, significantly more of the suicidal patients were unresolved with regard to trauma (73% vs. 44%). Patients who were unresolved with regard to trauma had higher rates of preoccupation than other patients. A total of 77% of these preoccupied and unre-

solved patients were suicidal. This suggests that the disorganized thought processes associated with lack of resolution combined with the hyperactivated attachment system associated with preoccupation may strongly increase adolescents' risk of suicidal ideation or behavior.

The association of lack of resolution with psychopathology is further underscored by data on the relative frequency with which the AAI classification of "unresolved" appears in nonclinic and clinic populations. According to van IJzendoorn and Bakermans-Kranenburg (1996), who summarized findings across a number of adolescent and adult samples, only 19% of the nonclinic participants were classified as unresolved, whereas this figure was 40% for the clinic participants. This finding is striking, given that the classification of unresolved is usually based on a brief lapse in monitoring over the course of an interview. Furthermore, unresolved adult attachment status has been found to be disproportionately represented among persons with psychiatric disorders (Fonagy et al., 1996; see Dozier, Stovall, & Albus, 1999, for a review). Dozier et al. noted, however, that this strong association between lack of resolution and psychopathology may be more meaningful for some disorders than for others. For example, individuals who suffer from psychotic disorders such as schizophrenia may be classified as unresolved on the AAI because of a pervasive disorganization of thought rather than a lack of resolution with regard to trauma or loss.

Although few consistent relations have been found between adult attachment classification and specific psychiatric disorders (Dozier et al., 1999), Fonagy and his colleagues (1996) provided evidence of an association of unresolved attachment status with both anxiety disorders and borderline personality disorder. It is not surprising that individuals with borderline personality disorder should be insecurely attached, given that the essential features of this disorder include instability of interpersonal relationships and desperate efforts to avoid real or imagined abandonment (APA, 1994). The specific association of the disorder with unresolved attachment, however, makes sense in light of evidence that borderline states have been linked to a history of childhood maltreatment (Herman, Perry, & Kolk, 1989), especially sexual abuse (Paris & Zweig-Frank, 1992). Indeed, Fonagy et al. (1995) found that, relative to patients with other personality disorders, those with borderline status were more likely to report histories of sexual abuse (92% vs. 40%). Not sur-

prisingly, these patients were also more likely to lack resolution of abuse but not loss. These authors also provided evidence that patients with borderline disorder were more likely to lack the ability to self-reflect about their mental states.

Research has uncovered other parallels between borderline personality disorder and disorganized attachment. For example, the early memories of borderline patients often feature representations of malevolent or unhelpful caregivers (Nigg, Lohr, Westen, Gold, & Silk, 1992; Nigg et al., 1991; Westen, Lohr, Silk, Gold, & Kerber, 1990), similar to the representations of caregivers seen in the play narratives of disorganized children. Another parallel is found in a study in which the quality of narratives on the Thematic Apperception Test (TAT) was investigated in borderline patients, major depression patients, and nonpatients (Westen et al., 1991). TAT narratives of those with borderline personality disorder were more likely than others to feature grossly illogical or non-causal reasoning with regard to psychological or interpersonal events. Such problems with logic are similar to the lapses in monitoring of reasoning found in the AAI narratives of adults who are unresolved with regard to trauma or loss.

Based on such findings, Fonagy and colleagues (1995) proposed a developmental model of borderline states. In this model, which begins with severe childhood maltreatment, a crucial factor in determining future psychiatric status is whether maltreated children have a relationship with an attachment figure through which they can develop the ability to self-reflect about their mental states. If the child does have such a relationship, then she or he will have the "mentalizing" capacity to resolve the abuse. Such a child may be prone to episodic Axis I disorders (e.g., depression, anxiety) as an adult, but she or he will not develop the disorganized interpersonal and intrapsychic life and self-destructive tendencies characteristic of individuals with borderline personality disorder. Children who lack an attachment relationship through which they develop the ability to self-reflect on mental states, however, will be unlikely to resolve the abuse. According to this model, the lack of resolution will increase the likelihood of developing borderline symptomatology.

Interest in possible connections between disorganized attachment and dissociative disorders has grown recently. Liotti (1992, 1999a, 1999b) suggested that constant expo-

sure to the contradictory pressures of seeking and fleeing from the attachment figure might increase a child's vulnerability to altered states or dissociative disorders (e.g., fugues, trance states, multiple personality disorder, experiences of depersonalization, and ideas of possession). Support for this proposal comes from an impressive prospective study of children from birth to age 17 (Carlson, 1998; Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997). Infants classified as disorganized at 12 and 18 months showed more evidence of teacher-reported dissociation in both elementary school and high school. At age 17, these individuals also had higher self-reported dissociative symptoms on the widely-used Dissociative Experience Scale. Perhaps most telling were findings based on dissociation data collected from these same individuals at age 19. The researchers examined three groups: (a) adolescents who had been disorganized infants and who experienced later trauma, (b) adolescents who had been disorganized infants but who did not experience later trauma, and (c) adolescents who had not been disorganized infants. The highest dissociation scores were found in the first of these three groups, suggesting that the combination of disorganized attachment in infancy and later trauma is a specific risk factor for dissociation in late adolescence.

These findings are complemented by those from several other studies. One study of psychiatric patients provided evidence that individuals with dissociative disorders were most likely to report having had mothers who had suffered the loss of a person important to them during the time of the patient's birth (Liotti, 1992). Other studies have provided evidence of similar links among unresolved loss, attachment, and dissociation by focusing on propensity for absorption in nonclinical populations. *Absorption*, as measured in these studies, represents an openness to "absorbing and 'self-altering' experiences" (Tellegen & Atkinson, 1974, p. 268). Although absorption is considered to be a commonplace phenomenon observable in normal populations, the disposition to enter states of high absorption can reflect dissociative tendencies (Roche & McConkey, 1990). Thus, given the discussion above, a strong propensity to absorption might be expected to be associated with unresolved traumatic loss. Indeed, Hesse and van IJzendoorn (1998) showed that higher than average levels of absorption were found among undergraduate students whose parents had experienced familial loss within 2 years of the participant's birth. Also, Hesse and

van IJzendoorn (1999) provided evidence that students classified as unresolved reported higher levels of absorption than others, and that the degree of unresolved status was related to level of absorption. Possible mechanisms underlying these intriguing connections between disorganization and dissociation are discussed extensively by Main and Hesse (1992) and Liotti (1999a).

Important new data are becoming available on ways in which unintegrated and contradictory mental representations may be associated with types of trauma not discussed here, such as perpetration of violence and revictimization in the context of adult romantic relationships (Lyons-Ruth & Jacobvitz, 1999). These studies indicate the potential relevance of unresolved attachment and the rare “cannot classify” attachment category to the dynamics of criminal violence and sexual abuse. (An AAI is given the designation of cannot classify when a person exhibits multiple insecure states of mind with regard to attachment [Hesse, 1996].) Thus, data on the unresolved and cannot classify categories of attachment may provide insight into the intrapersonal and relational mechanisms underlying the initiation, maintenance, and termination of cycles of abuse. Based on the compelling and complex findings reviewed in this section, it seems likely that attachment phenomena may help deepen our understanding of why some people are more likely than others to experience trauma, cause traumatic reactions in others, and have pathological responses to traumatic events.

Finally, it is worth noting that additional evidence for links between attachment and psychopathology has been provided by a type of attachment theory research that has been relatively distinct from the type reviewed in this article. In contrast to the research discussed thus far, which has largely been conducted by developmental and clinical psychologists, this other tradition of research has come mostly from the laboratories of social and personality psychologists (Bartholomew & Shaver, 1998). This tradition has featured a focus on self-reported attachment in the context of adult romantic relationships. The main attachment variables assessed in this type of attachment research are anxiety (i.e., fear of abandonment, preoccupation with relationships) and avoidance (i.e., discomfort with intimacy, closeness, and interdependence). Findings from this tradition generally support the relevance of attachment perspectives to the study of trauma and psychopathology. For example, Mickelson, Kessler, and Shaver (1997) found that anxiety and avoidance were both associ-

ated with greater likelihood of having experienced a range of interpersonal traumas (e.g., serious assault, physical abuse, rape, parents violent to each other) and psychiatric disorders (e.g., major depression, panic disorder, PTSD), using a large, nationally representative sample of American adults. Such findings indicate that the study of trauma may benefit by a focus on dynamics and representations related to romantic attachment.

This section has focused on ways in which unsolvable fear and unresolved trauma may serve as risk factors for psychopathology. These forms of disorganization are characterized by contradictions and lack of integration at the behavioral, cognitive, affective, and motivational levels. The research reviewed here suggests that such disorganization, and the lapses in working memory and attention that are associated with it, may interfere with optimal development in multiple spheres of functioning. This may be particularly true when disorganization is combined with an underlying insecure attachment pattern.

IMPLICATIONS FOR INTERVENTION WITH DISORGANIZED CHILDREN, ADOLESCENTS, AND ADULTS

Despite the growing body of knowledge on relations between disorganization and psychopathology, little attention has been given to the implications of this knowledge for clinical intervention. The lack of empirical and theoretical literature focused explicitly on treatment of disorganized individuals precludes a systematic, research-based review of intervention issues. Thus, our discussion of treatment considerations requires a shift from the focus of the previous sections in that this final section is largely speculative in nature. Our main goals in this section are to (a) highlight aspects of research and theory on disorganization that may be useful to clinicians who wish to incorporate an attachment theory perspective, (b) describe some of the emerging literature on treatment issues related to disorganized attachment, and (c) address topics that may stimulate interest in research on intervention with disorganized individuals. We focus our discussion on the attachment literature, but it is important to note that many of the considerations and questions we raise have parallels in other theoretical literatures (e.g., object relations, family systems) as well as literatures focused on treatment of specific clinical problems (e.g., sexual abuse, bereavement difficulties, borderline personality disorder, dissociative disorders). Work is clearly needed to clarify

what an attachment theory approach can offer clinicians above and beyond these established literatures.

Intervention with Children

A Focus on Secure Base Behavior. Although clinical assessment of children requires attention to multiple domains of psychosocial functioning, clinicians who work from an attachment perspective are especially attuned to children's use of the caregiver as a secure base from which to explore (Lieberman & Zeanah, 1999). When, for a variety of reasons including trauma and abuse, children have been unable to devise an organized strategy for using the parent as a secure base, there is a finite set of ways in which this inability can be manifested. The child can either not explore, or explore without using the parent as a base, in which case he or she either uses no base or serves as his or her own base. Consideration of the ways in which these behavior patterns relate to fear, protection, and attachment may provide a useful framework for therapists. Lieberman and Pawl (1990) proposed that these patterns are fundamental distortions in children's secure base behavior that represent defensive ways of dealing with overwhelming fear and a nonprotective parent. Each of these three patterns is described briefly below.

The first pattern involves severe inhibition of exploration, accompanied by restricted affect, hypervigilance and fearfulness, and extensive immobility (Lieberman & Pawl, 1990). This behavioral description parallels the description of freezing which, when it occurs on reunion with the parent in the strange situation procedure, is a criteria for classification as insecure/disorganized. The second pattern involves the child's exploration without the use of a base and is characterized by child recklessness and accident proneness. The child typically enters situations that contribute to risk or actual harm; this may include the young child's tendency to leave the mother and wander away, as well as the older child's engagement in self-destructive behavior. According to Lieberman and Pawl (1990),

In attempting to delineate the boundaries of what they will be allowed to endure, the children are simultaneously exploring the limits of their own fear, struggling to defy and ultimately master the sources of danger and anxiety. [This] process of "testing the limits" . . . occurs in the context of a deactivation of the attachment behavior system which normally keeps it in a safe balance. (p. 382)

The third pattern involves child exploration where the child reverses roles with the parent and takes initiative for staying close in unfamiliar settings. According to Lieberman and Pawl (1990),

by internalizing the protective function, the child gains an illusion of safety through premature self-reliance. A secure base distortion may be inferred because the child does not rely on the mother as the primary source of protection but incorporates into his or her own behavior substantial portions of the mother's normal role as the secure base. (p. 382)

For case studies of children in all three groups and related treatment plans, see Lieberman and Pawl (1990).

Fostering Feelings of Safety. For children whose attachment is classified as insecure/disorganized, there has been a failure to derive a strategy for obtaining basic protection from the parent. An important focus of intervention with these children, therefore, is work related to themes of fear, protection, and safety. In this section, we describe two basic approaches to intervening with parents to increase their availability as a secure base for their disorganized children. One of these is work to help the parent feel safe; in Bowlby's terms, this involves the therapists' serving as a secure base for the parent. Once the parent feels safe, she or he is better able to help the child feel safe. The second approach is direct work to support the parent in helping the child feel safe; this involves helping the parent learn to serve as a secure base for the child. Although we describe these two approaches separately, they can be used simultaneously in interventions for disorganized children.

Helping the parent feel safe is, according to Bowlby (1988), always a crucial task for the therapist. Safety in the therapeutic relationship allows the parent to use the therapist as a secure base from which to explore challenging or painful issues. When necessary, the therapist may need to help the parent find ways to provide for her own current physical safety, as well as to mourn the lack of it in the past. Help in planning active, competent steps to ensure the parent's safety will help the parent learn, in turn, to do this for her children. Help in resolving any unresolved trauma or loss so that these experiences do not continue to frighten the parent (and therefore the child) may also be useful. Because parental fear of the child is also, as noted earlier, frightening to the child, assessment of the

extent to which the parent may be afraid of the child and treatment of those fears may also be appropriate. A partial list of ways in which the parent may fear the child includes fear of aspects of the self observed in or projected onto the child (e.g., the “bad” part of the self); fear of losing the child; fear of being overwhelmed; fear that the child will reject, abandon, or not love the parent; fear of the parent’s own aggressive impulses; and fear of the child as a reincarnation of a dangerous person from the parent’s past (for discussion of treatment of such parental fears, see Brazelton & Cramer, 1990; Fraiberg, 1980).

A more direct intervention approach for parents of disorganized children is to foster their capacity to help the child feel safe. Helping parents understand children’s fears is a good foundation. An approach based in attachment theory views fears as understandable responses (to some extent biologically based) to particular stimuli, as outlined earlier in this paper. When parents learn to understand the sources of children’s fears, they may be less likely to ignore or ridicule their children. Similarly, when parents are able to feel empathy for their children’s feelings of fear, parents may be better able to protect their children from experiencing fear because empathy allows parents to anticipate and prevent situations that their children will perceive as frightening (Fraiberg, 1980).¹

Helping parents understand the meaning of behavior—both their child’s and their own—can also be productive. Parents may not realize that child behavior which they view as problematic may reflect the child’s attempts to cope with fear (Lieberman & Pawl, 1990; Perry, 1999). The therapist can also help parent come to understand their own behavior and to recognize how it may frighten the child. Parents, for instance, may not realize that even threats, especially those about leaving or abandoning the child, are frightening (Bowlby, 1988). It may be useful to help the parent understand the causes of her own frightening behavior, learn to recognize its approach, and learn to develop strategies for controlling it. Furthermore, it may prove useful for the therapist to remind the parent that different types of parental behavior may be required to ensure the child’s protection at different times. Protection sometimes means protecting the child from himself: that is, the parent must learn to set limits, take charge, and make decisions. At other times, protection means protection from the parent: the parent must come to understand the causes of her frightening behavior and learn to form strategies for preventing it.

Pervasive frightening experiences are associated with feelings of being overwhelmed, incompetent, and helpless (Seligman, 1975), and adults with unresolved loss or trauma may experience such feelings in their parental role. Solomon and George (1999b), in fact, reported that mothers of disorganized children “evaluated themselves as helpless to protect their children (and often themselves) from threats and danger; their discussion of caregiving and their children brought out strong themes of inadequacy, helplessness, and losing control” (p. 662); Solomon and George described these mothers as having “abdicated” their caregiving role. Because these parents are likely not to recognize their capacities for providing care or protecting their children, competence-based therapeutic approaches (e.g., Waters & Lawrence, 1993) may be particularly successful. Therapists can show parents that they can calm the child’s fears and that doing so will change the child’s behavior. Additional aspects of competence-based approaches could also be useful with parents for building their sense of optimism and empowerment. For instance, therapists can (a) help parents build on their strengths and create a vision for a better future, (b) assume that parents possess a basic striving for health and a desire to be a good caregiver, (c) redirect parents’ efforts to be better aligned with their goals, (d) increase parents’ recognition that they possess skills for understanding the child and can work to develop their abilities further, and (e) teach parents that exercising their competence in protecting the child will help them feel good about being a parent (Cooper, Hoffman, Marvin, & Powell, 2000; Erickson & Kurz-Riemer, 1999; McDonough, 1993; Waters & Lawrence, 1993). Finally, given the association of disorganized attachment with parent–child role reversal, it may be useful to use therapeutic approaches that emphasize the importance of altering maladaptive patterns of family interaction, such as structural family therapy (Minuchin, 1974). Therapists can show parents that parental attempts to use the child as a source of comfort must at some level be frightening to the child. Techniques that help the parent take appropriate responsibility and leadership in the parental role may not only help parents feel more confident, but may also reassure the child that he or she is not needed to assume the role of protector.

Intervention with Adolescents and Adults

Despite the virtual absence of empirical work on intervention with disorganized adolescents and adults, the

research we have reviewed in previous sections has made several facts clear: (a) Individuals who lack resolution with regard to loss or trauma constitute a population that is diverse in level and type of psychopathology, (b) unresolved attachment is a risk factor for psychopathology, and (c) a sizable proportion of individuals receiving psychological treatment can be classified as unresolved. Thus, lack of resolution is a phenomenon in adolescents and adults that is both clinically relevant and complex.

One potentially useful source of information on treatment of unresolved patients is the body of knowledge that has accumulated on treatment of clinical disorders and issues that often involve lack of resolution as a core feature (e.g., borderline personality disorder, dissociative disorders, anxiety disorders, disordered bereavement, problems due to childhood sexual abuse). For example, Briere (1996) described therapeutic approaches for working with the in-session dissociative lapses of patients who are survivors of childhood sexual abuse. In addition to these well-established bodies of knowledge, a number of attachment theorists have begun to present theoretical papers and case studies on the treatment of patients with unresolved attachment (e.g., Diamond et al., 1999; Fonagy, 1997; Liotti, 1995; Liotti & Intreccialagli, 1998; Muscetta, Dazzi, De Coro, Ortu, & Speranza, 1999). In the remainder of this section, we discuss portions of this emerging literature.

Bowlby (1988) viewed the development of a therapeutic alliance as a prerequisite for engaging in the challenging and often painful process of helping patients explore and restructure their working models of attachment. Although the development of the alliance may feature commonalities across diverse patients (e.g., therapeutic bond, agreement on therapeutic tasks and goals; Bordin, 1976), it is worth considering the special meanings and challenges that these elements may present for disorganized patients. For example, the very prospect of coming to use a person as a secure base may be alien or threatening to a disorganized patient, given that disorganization is associated with frightening/frightened caregivers and with distortions in secure base behavior. Ironically, a therapist's expression of warmth and care may initially frighten disorganized patients because of their fears of coming to rely on yet another overwhelming caregiver.

Liotti (1999b) has described a number of phenomena that may affect the development of the therapeutic alliance with disorganized patients. For example, he noted that disorganized patients may have learned to inhibit

their attachment system to avoid the confusing and painful experience of activating contradictory representational models. He proposed that such individuals may accomplish this by routinely activating other behavioral systems (e.g., the sexual system, the caregiving system) whenever an event threatens to activate the attachment system. For example, disorganized patients who sexualize the therapist may do so out of fear of facing painful attachment-related feelings and memories or of experiencing attachment needs in the context of therapy. Another potentially important consideration regarding the therapeutic relationship is disorganized patients' vulnerability to rapid shifts in representations of the self and other between the roles of persecutor, victim, and rescuer. For example, individuals whose disorganization resulted from a caregiver who was frightened by the child might be expected to shift easily from representations of the self as persecutor (e.g., "I am a bad, dangerous person because I frighten my caregiver") to those as rescuer ("I must help my caregiver feel safe to gain his/her protection and love") and victim (e.g., "I am helpless to gain protection and guidance from my caregiver"). Such dynamics have been amply discussed by object relations theorists (e.g., Kernberg, 1975). The development of a good working alliance may be challenged by transference dynamics involving enactments of these roles (Liotti, 1995, 1999b), and a good alliance is likely a critical factor in successfully negotiating such dynamics.

Fonagy (1991, 1997) has offered an interesting formulation of clinical work with disorganized adults that focuses on fostering patients' meta-cognitive skills (which he also refers to as "mentalizing ability" and "reflective functioning"). His approach is based on a developmental theory of mind and meta-cognition that draws from object relations and self psychology theories. From Fonagy's perspective, the "fundamental need of every infant is to find his mind, his intentional state, in the mind of the other" (1997, p. 187). Children of abusive or frightened caregivers are placed in the position of facing an intolerable vision of themselves as reflected by their caregiver (e.g., a vision of themselves as hated or harmful). When caregivers are unable to help their children process such overwhelming experiences, as is often the case with disorganized caregivers, then children may attempt to cope by suspending their ability to process the content of their caregivers' mind. According to Fonagy, this traumatic disruption in the child-caregiver connection contributes to the formation of inconsistent and segregated working models of attachment relationships. Although

the inhibition of meta-cognitive functioning may help children manage their experiences with frightening or frightened caregivers, it also may reduce their chances of gaining the experiences necessary to develop a mature capacity for reflecting on their own and others' mental states. These deficits in mentalizing ability may, in turn, put these individuals at greater risk for future trauma, poor response to future trauma, and compromised capacity for healthy relationships.

Fonagy (1997) noted that therapy can provide disorganized adults with an opportunity to safely "find their mind" reflected in the mind of a caring person who is neither abusive nor frightened. In this light, a major therapeutic goal with such patients is to articulate, examine, and make sense of the mental states of the patient and therapist, including states related to patient disorganization (e.g., lapses in monitoring of reasoning or discourse). When the therapist is able to remain responsive, sensitive, and empathic during the patient's lapses in self-monitoring, then, over time, the patient can link traumatic experiences with accessible representations of self and other rather than split off such experiences in the form of segregated representational systems. Thus, disorganized patients can find a vision of themselves in their therapists' eyes that is tolerable, cohesive, and based in their own experience. Fonagy proposed that this therapeutic process may help such patients lift their prohibition of reflective functioning and develop an increasing ability to think about and act upon their representational worlds.

One question regarding this model of change is whether a successful outcome is contingent on the therapist directly addressing a disorganized patient's dissociative lapses and segregated systems. Although research is needed to answer this question, recent clinical writings suggest that disorganized patients' gains in reflective functioning are not always identical to the resolution of loss or trauma. For example, Diamond et al. (1999) described a case of psychotherapy with a disorganized man in which the patient's attachment discourse increased in coherence after the first year of treatment but continued to feature lapses in monitoring of reasoning regarding trauma. Diamond et al. (1999) explained this finding as a result of the here-and-now focus of the treatment, which limited the patient's opportunities to reflect upon and integrate unresolved trauma-related memories. Thus, the resolution of unresolved attachment may require therapists to help patients identify and work through their dissociated losses and traumas.

It is important to recognize, however, that disorganized patients may not have suffered easily identifiable losses or traumas. As discussed earlier, disorganization in infants of non-maltreating parents can reflect second-generation effects whereby the parents exhibit anomalous fear or fear of the infant (Hesse & Main, 1999). Psychotherapy case studies have documented such second-generation effects in disorganized adolescents and adults (e.g., Liotti, 1995; Muscetta et al., 1999). Such patients may experience inexplicable fear, confusion, dread, or sense of evil, with no memories of overt abuse or traumatic loss. Because of this possibility, therapists working with disorganized patients should attempt to learn more about losses or traumas that patients' parents may have experienced (particularly in the years just preceding and following the patients' birth), in addition to the patients' own losses and traumas.

We end this section by noting that, although the literature provides some general considerations for work with disorganized patients, research suggests that the treatment implications of unresolved attachment cannot be understood without considering additional factors related to a patient's personality, mental health, and life history. For example, we have described studies indicating that an individual's underlying attachment pattern (i.e., secure, dismissing, preoccupied) may affect the degree to which lack of resolution is linked to suicidal ideation and parenting problems. These findings underscore the potential complexity that clinicians face in understanding the role of unresolved attachment in patients' lives. We believe that the clinical expression of unresolved attachment will likely depend on such factors as patients' underlying attachment pattern, history of loss and trauma, the nature of the loss or trauma related to the unresolved attachment (e.g., sexual abuse vs. physical abuse), relational history, culture, and socioeconomic status. Research is clearly needed to investigate the role of such variables in the treatment of unresolved patients. It seems likely, however, that intervention with such patients will be facilitated to the degree that they are able to form secure attachment relationships and that they have had a stable, predictable, and comfortable childhood that was free of major abuse.

SUMMARY

In this article, we have tried to demonstrate ways in which attachment theory can provide insight into dynamics underlying early trauma, the mechanisms by which poor

responses to trauma may be transmitted between generations, and risk factors for poor adjustment to trauma in children, adolescents, and adults. When children face trauma, either directly or through the unresolved trauma of a parent, they are at risk for disorganized attachment, which in turn places them at risk for later psychopathology (see Solomon & George, 1999b). For adults, too, unresolved trauma is a risk factor for psychopathology (Dozier et al., 1999). Much remains to be learned about factors that determine both the strength of the relation between disorganization and psychopathology and the type of psychopathology expected to develop as a result of disorganization. Possible candidates for such factors may include individuals' underlying attachment pattern (i.e., secure vs. insecure), the specific nature of individuals' experiences with loss and trauma, and individuals' socioeconomic status. Furthermore, it may be important to focus on disorganized individuals' multiple attachment relationships (Cassidy, 1999). For example, an infant who is able to develop organized attachment strategies in relation to one caregiver, despite a disorganized attachment to another caregiver, may be less at risk for psychopathology than infants with exclusively disorganized attachment relationships.

The research and theory we have described in this article represent the beginning of an important line of investigation into the role of attachment in individuals' responses to traumatic experiences. A number of interesting and important questions remain to be addressed in future research. Why is it that some children who experience trauma and disorganization develop serious problems whereas others do not? How do different patterns of attachment predict individual differences in both coping with trauma and risk for experiencing future trauma? What are the neurological, chemical, and hormonal mechanisms through which trauma contributes to later difficulties, and how is disorganization expressed at this biological level? In what ways are parents' experience and resolution of trauma related to their children's psychological functioning? How is lack of resolution expressed in the context of adult romantic relationships? What approaches to treatment best help the diverse population of disorganized infants, adolescents, and adults? We are confident that the next decade will provide fascinating and important insights into these questions and that these insights will help to guide efforts to develop increasingly effective approaches to the treatment and prevention of pathological responses to trauma.

NOTE

1. Fraiberg (1980) further noted that the parent's ability to feel empathy stems from his or her memory of childhood pain and fear in threatening situations (see also Main & Goldwyn, 1984). This thinking again suggests a reason that helping the parent to feel safe—in this case, to feel safe enough in therapy to recall painful feelings—will help the child.

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