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X Attachment and Generalized Anxiety Disorder

Jude Cassidy

Generalized Anxiety Disorder (GAD) is one of the least studied of the anxiety disorders, despite the fact that epidemiological studies reveal that it is one of the most common of these disorders (cf. Rapee, 1991). GAD is also a frequent secondary diagnosis to several other anxiety disorders and contains a central feature (chronic worry) pervasive throughout all anxiety disorders (Barlow, 1988). According to DSM-III-R and proposed DSM-IV criteria (American Psychiatric Association, 1987, 1993), GAD is characterized by the experience of chronic, intense, diffuse anxiety with a central component of worry. The chronic anxiety characteristic of GAD is not in response to "discrete and readily identifiable environmental triggers as in the case with the phobias, but rather to internal cognitive and/or somatic anxiety cues and to subtle external threat cues that are wide-ranging in their content" (Borkovec, Crnic, & Costello, 1993). GAD is also characterized by somatic symptoms of motor tension and autonomic hyperactivity, and most individuals with GAD have considerably more than the six symptoms required for diagnosis (Breslau & Davis, 1985).

It is understandable that the initial empirical attention given to this disorder has focussed on its diagnosis and treatment, as well as on attempts to understand the cognitive processes which may serve to maintain it. Little attention has been paid to exploration of the potential developmental origins of this disorder. Unlike other anxiety disorders, it appears to have a gradual onset; over 80% of GAD clients are unable to recall when symptoms first began (Rappee, 1985). GAD symptoms are similar to those of overanxious disorder in children, and DSM-III-R proposes that children with overanxious disorder may evolve into adults with GAD.

Only three studies have examined the childhood precursors of GAD, and all three are limited by the lack of a control group of nonanxious subjects. In one study, GAD subjects without panic attacks did not differ from GAD subjects with panic attacks on the Childhood Behavior Disturbance Scale (Hoehn-Saric, 1981). In another study, GAD subjects did not differ from panic disorder subjects on a

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variety of reported childhood events including abuse, separation, and separation anxiety (Raskin, Peeke, Dickman, & Pinsker, 1982). The panic disorder subjects did, however, report a more "grossly disturbed childhood environment." A third study examined several childhood problems (nightmares, various fears, parental divorce, separation) and again found no differences between these two groups, except that panic disorder subjects reported more chronic anxiety in childhood and the GAD subjects reported a greater incidence of parental loss before age 16 (Torgersen, 1986). As Rapee (1991) pointed out in his review of this literature, a strong theoretical base, the lack of which plagues all of these studies, is essential in future studies.

Attachment Theory

It is proposed here that Bowlby's attachment theory (1969/82, 1973, 1980) offers a theoretical framework within which the developmental antecedents of GAD can be considered. According to Bowlby, attachment processes are central to understanding anxiety. This proposition rests on his notions about the biological bases of attachment behavior. Attachment behavior (e.g., crying, grasping, following) is any behavior which has the predictable outcome of increasing infant-parent proximity. Bowlby proposed that during the time in which humans were evolving, genetic selection favored attachment behaviors because they increased the likelihood of such proximity, which in turn, increased the likelihood of infant survival from predators. Thus, for Bowlby, the infant's strong tie to the primary attachment figure (usually the mother) results from a biologically-based desire for proximity that arose through the process of natural selection.

The attachment behavioral system (a term Bowlby borrowed from the ethologists) can be fully understood only in terms of its complex interplay with other biologically-based behavioral systems. The fear behavioral system is thought to be closely linked to the attachment system, and Bowlby's (1973) theory of fear plays an important part in his explanations of anxiety disorders. This theory departs radically from that of both traditional psychoanalysts and social-learning theorists. Unlike Freud (1926), Bowlby proposed that fears other than those of known threats from external sources can be part of healthy development and are not to be considered neurotic. Unlike social learning theorists (e.g., Sears, 1963), he did not believe a painful experience with a person or object to be necessary before one can fear it. From an ethological perspective, Bowlby viewed certain fears as biologically adaptive. For Bowlby, these are fears of situations or events which, although not dangerous in themselves, bring with them an increased risk of danger. These include fears of unfamiliar objects and people, the dark, being alone, heights, loud noises, and sudden (particularly looming) movements. Because individuals who fear these are more likely to survive to pass on their genes, these fears are considered not to be neurotic, but to result from biological predispositions emerging from natural selection. It is in the presence of threat that the child's tendency to seek proximity to and protection from the attachment figure has the most survival value, and thus

humans have evolved with a tendency to seek the attachment figure particularly when frightened.

The availability and responsiveness of this figure are thought to be of great importance in reducing the child's fearfulness, and indeed there is considerable empirical evidence that this is so (Ainsworth, Blehar, Waters, & Wall, 1978; Carr, Dabbs, & Carr, 1975; Rheingold, 1969; Sorce & Emde, 1981). In fact, even photographs of the mother can calm a fearful infant, as can "security blankets" for children who are attached to such objects (Passman & Erck, 1977; Passman & Weisberg, 1975). Furthermore, the importance of the attachment figure for reducing fear is evident in animals as well as in humans (see Rajecki, Lamb, & Obmascher, 1978, for a review).

When considering individual differences in the tendency to become anxious, Bowlby (1973) recognized that infant characteristics make important contributions. He discussed the role of gender, minimal brain damage, childhood autism, and physical handicap. Based on the animal literature, he also hypothesized the existence of a genetic component in humans. During the two decades that have elapsed since the publication of Bowlby's (1973) major writings on anxiety, considerable information about the role of genetics in anxiety has emerged. Several family and twin studies have indicated that all of the DSM-III-R classified anxiety disorders, *except* for generalized anxiety disorder, appear to have a substantial genetic component (see Torgersen, 1988, for a review; see also True, Rick, Eiser, Heath, Goldberg, Lyons, & Nowak, 1993).

While acknowledging the important contributions of such factors as genetics and child temperament to the tendency to become anxious, Bowlby (1973) described a variety of experiences which could lead a child to be uncertain of the availability of the attachment figure and, in turn, lead to chronic anxiety. Major attachment-related trauma, such as serious illness of a parent or repeated extensive separations from a parent may cause a child to worry. Or if someone close to the child has died, the child may have increased worries that something may happen to the parent. A child's repeated daily experiences can also be influential. For instance, a child whose bids for comfort, particularly in times of stress, are ignored, mocked, or rejected, is expected to become anxious. Experiences with a parent resentful of being called upon to provide care and protection or so incompetent that she herself requires the child's care, leave the child hesitant about seeking care in times of threat. The parent may communicate her needs to the child in subtle ways, and major trauma is by no means necessary to lead to anxiety (Haft & Slade, 1989).

Particularly frightening to children are threats of abandonment. This is because, according to Bowlby, of children's biologically-based and adaptive fear of being alone. Thus, such threats, perhaps used as a means of controlling the child ("If you don't behave, I'll leave") or perhaps while exasperated ("You'll be the death of me") can lead to children's fears. Because children tend to take their parents' statements literally, such threats can be viewed as realistic experiential bases for fears of separation.

According to clinical observations (Bowlby, 1973) and to empirical work (Ainsworth et al., 1978), most children receive the kind of care which assures them

that the caregiver will be available if needed: they have an accessible and responsive caregiver whom they can use as a "secure base" from which to explore and to whom they can return as a "safe haven" should trouble arise. These children are considered to be securely attached. Conversely, children who cannot count on the availability of the caregiver are considered to be insecurely attached. Ainsworth's "strange situation," the classic infant attachment assessment, identifies three groups of insecure infants (Ainsworth et al., 1978; Main & Solomon, 1990).

It is important to note that although insecure attachment itself is not equated with psychopathology (Sroufe, 1988), certain psychopathologies may well be rooted in insecure attachment. According to Bowlby (1973), childhood phobias and intense separation anxiety are rooted in the child's uncertainty about the availability of the attachment figure. Bowlby suggested, for instance, that what is usually called "school phobia" may in fact be a form of separation anxiety. Bowlby pointed out that children who consistently refuse to attend school are only rarely truly frightened of school, but rather much more commonly are experiencing acute separation anxiety: fear of leaving home and the attachment figure. Some children who refuse to attend school are frightened that something terrible may happen to the parent while the child is away at school, and so remain home to protect the parent. Unlike the traditional psychoanalytic position (e.g., Freud, 1909) which states that such a child fears his/her own aggressive impulses toward the parent, Bowlby suggested that the child's actual experiences may have led him/her to realistically fear for the well-being of the parent. Bowlby (1973) described another form of school refusal which occurs when a parent unconsciously keeps the child at home to serve as a caregiver. The parent may subtly suggest that the child is too fragile or incompetent for school, and pretend that the child is staying home because he/she is unfit for the larger world. This is often viewed as the parent being overindulgent, when in fact the parent is placing a burden on the child by asking him/her to serve as a caregiver. These parents often did not receive care that they needed from their own parents as children, and now turn to their children for such care.

Although there is as yet no empirical research examining connections between early attachment relationships and childhood anxiety disorders, there is evidence that insecurity in infancy is associated with children's fearfulness. For example, in Ainsworth's original sample of white, middle-class infants, one group of insecure infants was over-represented among the babies who showed clear-cut fear during the early free-play portion of a laboratory visit (Ainsworth, 1992). In a Japanese middle-class sample of first-born infants, the behavior of 7-month-olds later identified as insecure was considered more fearful than was that of infants later identified as secure (Miyake, Chen, & Campos, 1985). Inhibited exploration of the environment and shy/withdrawn behavior during peer play have also been associated with infant insecure attachment (Hazen & Durrett, 1982; Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989). In a sample of British 2-year-olds from two-parent families covering the full range of SES levels, concurrent infant insecure attachment was found to be associated with a variety of forms of fearfulness in the laboratory (Stevenson-Hinde & Shouldice, 1991).

Although Bowlby did not specify in terms of contemporary diagnostic categories precisely which of the adult anxiety disorders might be related to insecure attachment, there are several reasons why one would expect the developmental roots of GAD to lie in insecure attachment. One set of reasons is based on the inherently interpersonal nature of GAD. For instance, the most frequent secondary diagnosis associated with GAD is social phobia; this is true for none of the other anxiety disorders (Barlow, 1988). In addition, worry, the central characteristic of GAD, is generally found to be most highly related to fears associated with interpersonal relationships (e.g., feeling self-conscious, meeting new people, being criticized; Borkovec, Robinson, Pruzinsky, & DePree, 1983). Furthermore, worry involves a predominance of thinking activity (Borkovec & Inz, 1990) and as such can be viewed as part of the verbal/linguistic system, which in turn is likely to have emerged both developmentally and evolutionarily as a social communicative device (Borkovec, Shadick, & Hopkins, 1991).

Second, the characteristically diffuse nature of GAD (Barlow, 1988) parallels the very type of anxiety that Bowlby proposed to be associated with insecure attachment. According to Bowlby, a pervasive anxiety and a generalized sense of danger arise because, *no matter what the source of the fear*, the individual lacks confidence that the attachment figure will be available in times of trouble.

Third, any indication that (a) GAD occurs within families yet (b) has no genetic component suggests that family social relationships (among which attachment is central) may be related to GAD. Two studies, both of which require replication, contribute to this picture. One study reported preliminary evidence of a family connection for GAD: first-degree relatives of GAD individuals were significantly more likely than first-degree relatives of nonanxious controls to have GAD themselves (Noyes, Clarkson, Crowe, Yates, & McChesney, 1987). In another study, Torgersen (1983) reported no genetic influence for GAD: the concordance rates were similar for monozygotic and dizygotic twins.

Finally, there is considerable theoretical (Beck & Emery, 1985; Clark, 1988; Clark & Beck, 1988) and empirical (Beck, Laude, & Bohnert, 1974; Borkovec & Inz, 1990; Butler, Cullington, Hibbert, Klimes, & Gelder, 1987; Hibbert, 1984) literature which indicates that the cognitive processes of individuals with GAD contribute to unrealistic perceptions of physical and/or psychological danger. These cognitive processes, which according to Bowlby (1973) arise from an insecurely attached child's experiences, are described in the next section.

Cognitive Processes Associated with GAD: Connections with Insecure Attachment

Much of the theoretical and empirical work related to GAD relates to the cognitive processing of information by individuals with this disorder. The striking extent to which the cognitive processing of individuals with GAD is similar to that of some insecurely attached individuals is reviewed below in relation to four

areas: (a) attentional biases, (b) task interference, (c) problematic cognitive beliefs, and (d) interpretation of ambiguous stimuli.

Attentional biases

A series of studies using information processing methodology suggests that individuals with GAD selectively attend to the environment by being particularly sensitive to cues signaling the possibility of future threat. The classic Stroop task has been used to compare the attentional processes of GAD subjects with nonanxious subjects. In this task, subjects are asked to name the ink colors in which each word in a list is written, without attending to the word meaning. It is assumed that when attention is directed to the word meaning, the subject will take longer to correctly name the ink color (see MacLeod, 1991, for a review of the Stroop literature). In a study by Mathews and MacLeod (1985), subjects were presented sets of threat words (both physical threat, e.g., "violence," and social threat, e.g., "criticized") as well as a set of non-threat words. Whereas nonanxious subjects showed no difference in color-naming times across sets of words, GAD subjects took significantly longer to name threat words. Results are interpreted as indicating that GAD individuals, but not nonanxious individuals, attend more to threat than nonthreat stimuli. These findings were replicated and extended in a later study in which threat words tapping content about which the subject particularly worried were especially interfering. Thus, anxious subjects who worried most about physical threat were most slowed by words such as "disease" and "cancer," whereas subjects who worried most about social threat were most slowed by words such as "failure" and "pathetic" (Mogg, Mathews, & Weinman, 1989).

Similar results emerged from a study using dichotic listening methodology (Mathews & MacLeod, 1986). Subjects were asked to shadow short passages in one ear and ignore word lists in the other ear, while simultaneously pressing a button when they recognized a visually presented target. Congruent with previous findings, GAD subjects but not nonanxious subjects had slower reaction times when the unattended word list contained threat as opposed to neutral words. These findings too are interpreted as indicating that anxious individuals direct attention to threat stimuli. It is important to note that even though the threat words caused task interference for the GAD subjects, these individuals were unable to recall or recognize any words from the unattended list.

Mathews and his colleagues interpreted the findings from this dichotic listening experiment as indicating that the attentional bias associated with anxiety operates at an automatic, pre-attentive stage. That is, "in anxious individuals, processing resources are automatically drawn towards negative or threatening information, even before that information has entered conscious awareness" (Mogg, Bradley, Williams, & Mathews, 1993, p. 304). Further examination of the validity of this proposal was not possible in the Stroop-task studies described above because subjects viewed the words long enough to identify them consciously. In order to address this issue, Mogg and her colleagues included a subliminal exposure condition into a study using a modified Stroop paradigm (Mogg et al., 1993). Words were presented

on a computer with patches of color behind the words. In the subliminal condition, words were presented for 1 millisecond. In the supraliminal condition, words were presented until the background color was named. In the supraliminal condition, matching previous work, GAD subjects, but not control subjects, experienced more interference with color-naming from negative words than from neutral words. More importantly, findings from the subliminal condition supported the proposition that attentional bias can occur nonconsciously: anxious subjects, but not control subjects, were again relatively slower in color-naming negative words.

Even though the converging data emerging from these studies are to be expected if GAD subjects do, in fact, attend more to threat stimuli, this is not the only possible explanation. GAD and control subjects may attend to threat stimuli equally, but the GAD subjects may be slowed by their greater distress in response to these stimuli. A study designed to address this issue used a paradigm in which subjects viewed word-pairs on a computer screen (MacLeod, Mathews, & Tata, 1986). Subjects were to indicate when they saw a small dot replace one of the words. GAD subjects, but not control subjects, noticed the dot more quickly when it replaced the threat word than when it replaced the non-threat word, indicating that they were more likely to be attending to the threat word. These findings were later replicated and extended in a study which also revealed some indication that anxious subjects particularly attend to threat words related to their predominant worry (Mogg, Mathews, & Eysenck, 1992).

Such vigilant monitoring of the environment in search of threat cues is also proposed by Bowlby to be true of insecurely attached individuals who lack a secure base from which to explore. Infant attention to mother and the monitoring of her whereabouts and behavior are implicit in the secure base phenomenon, an important component of attachment theory (Ainsworth et al. 1978). The baby using the mother as a secure base moves out to explore, yet keeps track of where his/her mother is and what she is doing. Even if the mother has not moved away or changed her behavior, the baby tends to return to her from time to time to "touch base" before leaving again. Although common to all babies, it is thought that individual variation in frequency and patterning of attention to mother is likely to be related to the history of experiences with the mother (Ainsworth et al., 1978; Bowlby, 1973). If uncertain about the availability of the attachment figure if needed, the infant must devote attention to monitoring her whereabouts. In this case, the "threat" is the possibility of losing access to the mother. If, on the other hand, the infant has a confident knowledge that the attachment figure will be available if needed, less monitoring is required.

Although few attachment studies have directly addressed the issue of infant attention to mother, several have found greater attention to be characteristic of one group of insecure infants, those classified insecure/ambivalent. No study has revealed discrepant findings. In one study of middle-class infants, social referencing was assessed during each minute of the third episode of the strange situation, an episode minimally important for classifying attachment (Dickstein, Thompson, Estes, Malkin, & Lamb, 1984). This 3-minute segment begins with the entrance of the stranger who sits silently for one minute, talks with the mother during the second minute, and plays with the baby during the third minute. Social referencing

was defined as the number of times the child looked to the mother directly after looking at the stranger, presumably to gain reassurance in the face of uncertainty. Insecure/ambivalent babies referenced their mothers significantly more than both secure and other insecure babies.

Dickstein et al.'s (1984) study provided evidence not only that insecure/ambivalent babies reference more frequently, but also that they display a qualitatively distinct pattern of social referencing. Whereas the referencing of other babies declined linearly from the first to the third minute of episode 3, the referencing of the insecure/ambivalent babies increased sharply at the second minute before declining in the third minute. Thus, the insecure/ambivalent babies referenced most when the stranger initiated interaction with the mother, not when the stranger initiated interaction with the baby. Perhaps what threatened these infants most was not the stranger herself, but the diversion of maternal attention from the baby as she began to talk with the stranger. It is conceivable that the infant, unsure that the mother's attention could be regained, felt it necessary to monitor her activities. Ainsworth (1992) made a similar interpretation in considering social referencing in her own sample: "the main issue for the infant seemed to be the availability of the mother rather than any information she might offer him that would resolve uncertainty about how to respond to the stranger" (p. 350).

Additional evidence of the insecure/ambivalent babies' relatively greater attention to their mothers in the beginning of the strange situation comes from a study of 18-month-olds gathered from several laboratories (Cassidy, 1983). Presence/absence of social referencing to mother following the stranger's initial entrance was noted. Insecure/ambivalent infants were significantly more likely to reference the mother than were other infants. In addition, total duration of looks to mother across both pre-separation episodes was examined. Compared to the secure toddlers, insecure/ambivalent toddlers spent significantly more time looking at their mothers.

Three additional studies have examined infant monitoring of the mother, and all provided data supportive of a link between the insecure/ambivalent pattern and heightened monitoring. Although findings were not always statistically significant, they are consistent and therefore noteworthy at this early stage of research. In the Miyake et al. (1985) inquiry of Japanese babies, there was a nonsignificant trend for insecure/ambivalent infants to interrupt their play more than secure babies. The authors noted that these breaks occurred "in the service of proximity seeking" (p. 293): these babies left their play to go to their mothers. Thus, this investigation highlights the mutually exclusive occurrence of attention to mother and attention to toys; for insecure/ambivalent infants, attention to mother took precedence. Similarly, in a study of firstborn, high-risk infants (Pastor, 1981), a nonsignificant trend emerged for insecure/ambivalent toddlers, compared to other toddlers, to be in close proximity to their mothers and to look most at their mothers in a laboratory free-play session with an unfamiliar playmate. Finally, in an investigation of white, middle-class children which used a procedure similar to Pastor's, 3-year-olds who had been insecure/ambivalent infants were significantly more likely than children who had been secure to interact with mother (Jacobson & Wille, 1986).

Task Interference

For individuals with GAD, the attention to threat cues is thought to interfere with other, supposedly independent, activities. According to Mathews, "...we assume that the processing of emotionally or personally relevant information is almost always biased, albeit in different ways. At an early stage of processing, pre-attentive bias can direct attention towards or away from threat cues, with both the direction and sensitivity of this process being associated with anxiety level. When such cues match a current concern or worry, the decision to ignore or process the information further must be made, and *this may cause interference with other tasks, such as color-naming.*" (italics added, 1990, p. 460)

This phenomenon of task interference is closely linked to the secure-base notion in the attachment literature (Ainsworth, Bell, & Stayton, 1971; Ainsworth et al., 1978; Bowlby, 1988). For infants, the "task" is exploration of the environment. Insecure attachment, resulting from a lack of confidence in the availability of the attachment figure, is thought to interfere with an infant's competent exploration of the environment. There is extensive empirical support for this proposition. Insecure infants have been found to play in a less focussed way (Main, 1973), to be persistent and effective in a laboratory problem-solving task (Matas, Arend, & Sroufe, 1978), to have greater difficulty negotiating the environment (Cassidy, 1988), to be less curious in preschool (Arend, Gove, & Sroufe, 1979) and to show restricted exploration in an unfamiliar setting (Hazen & Durrett, 1982). The importance of an available and responsive attachment figure in facilitating exploration is thought to continue throughout life (Bowlby, 1988).

Problematic Cognitive Beliefs

The cognitive model of GAD emphasizes the individual's interpretations of internal and external events (Beck & Emery, 1985; Clark, 1988; Clark & Beck, 1988). These individuals make a variety of logical errors which lead to unrealistic perceptions of physical and/or psychological danger. They view the world as a dangerous place, overestimating the probability and severity of feared events. They also have faulty beliefs about themselves, underestimating their own coping resources. These beliefs about the self especially have to do with acceptance, competence, responsibility, loss of control, and anxiety symptoms themselves. There is considerable empirical evidence of such negative cognitions among individuals with GAD (Beck et al., 1974; Butler et al., 1987; Hibbert, 1984), even in relaxed states (Borkovec & Inz, 1990).

According to Bowlby, beliefs such as these are based on the child's repeated daily experiences in relation to attachment. The child is thought to develop during the first year a set of expectancies, a set of mental representations which provide him/her with models of the workings, properties, characteristics, and behavior of attachment figures, the self, others, the world. These working models are thought to be strongly influenced by the child's repeated daily experiences in relation to attachment, "in fact far more strongly determined by a child's actual experience throughout childhood than was formerly supposed" (1979, p. 117). These models

are similar to cognitive maps that permit successful navigation of an organism's environment. Unlike maps, however, working models are not static images but are flexible and adaptable representations. Thus, the concept of these models is similar to Piaget's object concept, in that both are active constructions rather than static representations. Bowlby relates working models to the ability to plan, and asserts that it is within the framework of these working models that the child can assess the situation and plan his/her behavior. Thus, these models are thought to be central influences on the organization of the child's attachment behavior.

Working models are thought to influence, in addition to behavior, feelings, attention, memory, and cognition as well (Bowlby, 1969/82; Main, Kaplan, & Cassidy, 1985). They are thought to become so deeply ingrained in the individual that the ways in which they influence feelings and behavior may become automatic. This situation carries with it both advantages and disadvantages. Working models can serve a useful purpose for the child, making unnecessary the construction of a new set of expectations for each situation. This automatic use of existing models to appraise and guide behavior in new situations increases efficiency. For example, a baby who has a working model of his/her mother as available when needed may spend less time monitoring her movements than he/she might otherwise. When models become inaccurate or outdated, however, their automatic nature may be a disadvantage because it is difficult to update them if they are not conscious.

Attachment theory emphasizes the important influence of early experience on later development, and working models are thought to be central to explaining the nature of this influence. For instance, a child whose early experiences have led him/her to develop a working model that his/her needs will be attended to may be likely to patiently wait for a turn with a desired toy in the preschool. In this case, the working model that others are responsive may be part of the process through which early sensitive care predicts later social competence (Sroufe, 1983). Although Bowlby viewed working models as remaining to a certain extent open to new input, he believed that with development, working models, particularly working models that are unconscious, become increasingly resistant to change.

The working model of the self differs from other working models only in that its object is the self. In other ways, it is similar to working models in general: it is an active construction which, because it guides behavior, perception, and feelings, can serve a useful purpose; yet its automatic and unconscious nature renders it resistant to change, and thus potentially pathological when the model becomes outdated or inaccurate. For Bowlby (1973), there is an inextricable intertwining of the working model of the attachment figure and the working model of the self. Over time, the child comes to believe that his/her mother will behave in certain predictable ways. Based on these experiences, the child simultaneously develops a complementary view of the self. For example, if the child is loved and valued, he/she develops a working model of the parent as accepting and responsive, and a complementary model of the self as lovable, valuable, and special. If, however, the child is neglected or rejected, he/she comes to feel worthless and of little value. Furthermore, a child unable to attain comfort in times of threat may come to feel vulnerable. Bowlby stated that this intertwining exists despite the fact that it may not be valid:

An unwanted child is likely not only to feel unwanted by his parents but to believe that he is essentially unwanted, namely unwanted by anyone. Conversely, a much-loved child may grow up to be not only confident of his parents' affection but confident that everyone else will find him lovable too. Though logically indefensible, these crude overgeneralizations are none the less the rule. Once adapted, moreover, and woven into the fabric of working models, they are apt henceforward never to be seriously questioned. (1973, pp. 204-205)

For further discussion of internal working models, see Bretherton (1985, 1990), Main et al., (1985), and Sroufe & Fleeson, (1986).

It is important to note that even though the idea of internal working models emphasizes the behavior of the attachment figure, Bowlby (1979) acknowledges the contribution of child characteristics. For Bowlby, as well as for other attachment researchers and theorists (e.g., Sroufe, 1985), quality of attachment represents the history of mother-child interactions and the extent to which these interactions give the baby confidence in his/her mother's accessibility and responsiveness. Sufficient maternal availability and responsiveness for a baby with one temperament may be insufficient for a baby with another. It is, for Bowlby, the infant's confidence derived from the interplay of both maternal and infant contributions which influences attachment quality. Although Bowlby devotes considerable attention to the parent's contribution to the infant's working model, he does not delineate as explicitly the expected contribution of infant characteristics.

Findings from several investigations of young children have found that the threat-related cognitive beliefs of young children relate in theoretically predicted ways to their attachment histories. In these studies, threat can take one of several forms: a threat from the environment, a threat from an attachment figure, or a threat to the disruption of the attachment relationship itself. Attachment theory proposes that the securely attached child, confident of the availability of the attachment figure if needed, will not view the world as particularly threatening. If threat should arise, the secure child will have confidence in his/her ability to competently cope with this threat or to turn to others appropriately for help. Results from all of these studies supported these propositions. Furthermore, these results suggested that the threat-related beliefs of insecurely attached children are similar to those characteristic of adults with GAD: both groups appear to view the world as a dangerous place and themselves as incompetent in dealing with threat.

One study investigated the nature of children's responses to threat (Cassidy, 1988). Fifty-two six-year-olds from white, middle-class families were presented with small dolls, toy scenery, and props. The experimenter acted out the beginning of stories involving threat and then asked the child, "What happened next?" Two stories involved a conflict or threat from outside the family. In one, the child discovers his/her bicycle has been stolen and sees an unfamiliar child riding it off down the street, and in the other, the child is awakened by a loud noise in the middle of the night. Two stories involved threat emerging from conflict with the attachment figure. In one, the child did not like what is served for dinner, and in the other, the child is told by the mother to do the one thing he/she most hates

doing. Each story was accompanied by a series of probes. Codings, which varied according to the specifics of the story, were made from verbatim transcripts by two reliable coders blind to all other information about the child. Quality of attachment to mother at age six was assessed with Main & Cassidy's (1988) procedure. Securely attached children were more likely than others to demonstrate open negotiation and a sense of fair play in stressful situations related to the mother and an ability to turn to the mother for safety and protection in stressful situations related to an external source. Conversely, insecurely attached children told stories in which (a) the existence of conflict was denied in stressful situations stemming from both within and without the family, as was the need for help or (b) resolutions, if successful, were brought about entirely by the child alone, involved the protagonist in violent, hostile, negative, or bizarre behavior, or the relationship with the mother was disorganized.

A second study also showed that greater competence in dealing with threat was significantly associated with greater security (Bretherton, Ridgeway, & Cassidy, 1990). Dolls and props were used to tell five attachment-related story beginnings to 29 three-year-olds whose attachment to mother had been assessed in infancy. Children were then asked to complete the story. Four of the five stories dealt with some form of threat. The first threat involved a potential conflict with the attachment figure in an authority role (a spilled juice story). In the second story, the threat involved physical pain (the hurt knee story). The third story examined threat in the form of a fear-inducing situation (the monster in the bedroom story). The fourth story examined threat to the disruption of the attachment relationship itself: separation (the parental departure story). Verbatim transcripts made from videotapes were scored by a coder with no knowledge of the child's attachment classification. Coding particulars varied according to the nature of the story. Stories of securely attached children were more likely to involve acknowledgement of the threat (e.g., pain or fear), a competent seeking of help or comfort, a responsive caregiver, and a successful resolution. Stories of insecurely attached children tended to involve either avoidance of the story content or incoherent and disorganized responses. (Similar findings have more recently been reported by Endriga, Greenberg, Speltz, & DeKlyen, 1991.)

Finally, Main and her colleagues (1985) focussed on threat to the disruption of the attachment relationship by administering an adaptation of Hansburg's Separation Anxiety Test (Klagsbrun & Bowlby, 1976) to a sample of 40 6-year-olds from white, middle-class families for whom infant attachment data were available. This assessment contains six photographs of children undergoing increasingly stressful separations from the parents, ranging from a parent saying goodnight to the child to the the parents leaving for two weeks. Following presentation of each picture, children were asked first what the child in the picture would feel and then what the child in the picture would do on separation. Agreement between two independent raters blind to additional information about the child was strong. One set of findings related to the child's emotional openness in responding to these threats (Kaplan, 1984). Secure children provided reasoned descriptions of the child in the photograph as sad or angry. They completed the task with minimal resistance, withdrawal, or stress. Insecure children either could not respond, became overtly

depressed, made irrational responses, or became disorganized. Another set of findings related to children's descriptions of what the child would do in response to the most serious threat to disruption of the relationship (the two-week separation). High scores were given to children who took active and competent steps to address or deal with the threat to the relationship. Lower scores were given to children with more passive and less competent strategies, and the lowest score was given when a response was given that would result in decreasing the accessibility of the attachment figure (e.g., killing the self or the parents, locking oneself away). Results indicated a significant association between responses to this threat and security of attachment to mother in infancy. (Similar findings were later reported by Slough & Greenberg, 1990.)

Interpretation of Ambiguous Stimuli

A great many environmental cues are ambiguous, and a frequent cognitive demand involves their interpretation in terms of threat: Are they threatening, or are they benign? Most of these frequent interpretations are likely to occur at a nonconscious level. For individuals with GAD, threatening interpretations are thought to predominate (Beck & Emery, 1985; Clark & Beck, 1988). Clinical observations have supported this notion, as have results from several studies. In one study, GAD and nonanxious subjects were presented a series of ambiguous scenarios, and asked to choose between two possible interpretations (one threatening interpretation and one neutral interpretation). For instance, subjects were asked to imagine that they heard a loud noise elsewhere in the house; they were then asked whether they would interpret the noise as an intruder or as an unlatched window. GAD subjects were significantly more likely to choose the threatening interpretation than were nonanxious subjects. It is interesting to note that this interpretive bias was particularly likely to occur when the scenario was interpreted in terms of the self rather than in terms of someone else (Butler & Mathews, 1983).

Even stronger support for the proposal that GAD subjects have an interpretive bias of increased threat comes from two studies which directly examined subjects' choices rather than relying on their self-reports. One used a paradigm in which subjects wrote a list of verbally presented words (Mathews, Richards, & Eysenck, 1989). Some of these were nonambiguous filler words, but some were homophones which had both threat and neutral meanings (e.g., dye/die, pane/pain, grown/groan). As expected, GAD subjects were more likely than control subjects to interpret the words they heard as having threatening meanings. Responses of a group of recovered GAD subjects fell between those of the other two groups.

Finally, in another study, subjects were presented with ambiguous sentences which could again be interpreted as either threatening or benign (e.g., "The two men watched as the chest was opened."). The nature of the interpretation was assessed by noting whether, when later asked to complete a recognition task, subjects endorsed as familiar similar sentences clarified to indicate one of the interpretations (e.g., "The two men watched as the patient's chest was cut open."). As expected, unrecovered GAD subjects were more likely than both recovered

GAD and nonanxious subjects to interpret ambiguous stimuli in threatening ways (Eysenck, Mogg, May, Richards, & Mathews, 1991).

Similar interpretive biases are thought to be associated with insecure attachment. For instance, an individual with expectations that others will be rejecting or unavailable to him/her is expected to interpret ambiguous situations as indicative of such treatment. Thus, an individual may interpret someone's nonresponsiveness not as a sign of not being heard but as a sign of deliberate rejection. Evidence that insecurely attached children interpret ambiguous stimuli as threatening emerged from a study of six-year-olds (Cassidy, Kirsh, Scolton, & Parke, 1994). Thirty-seven children from white, working- and middle-class families were presented with five scenarios (taken from Dodge, 1980), all of which asked the child to imagine the self in some sort of threatening situation (e.g., getting hit in the back on the playground; having his new toy broken while he was out of the room). Six questions followed each scenario: (e.g., "Why did the child do what he did?" "Did he do it on purpose or was it an accident?" "How did he feel after it happened?"). Responses to questions were coded by two reliable coders who were unaware of attachment classification as reflecting either a positive, basically trustworthy schema, or a negative, hostile schema. Attachment was assessed at age six with Main & Cassidy's (1988) attachment procedure. Insecurely attached children were significantly more likely than secure children to interpret the ambiguous event in ways reflecting a negative, hostile schema.

Empirical Investigations of the Connection Between GAD and Attachment

Two recent studies have found empirical support for an association between GAD and childhood attachment experiences (Cassidy, Lichtenstein, Borkovec, & Thomas, 1994). In one study, the role of childhood attachment as a precursor of GAD was examined in an analogue population of undergraduate college students. GAD was assessed with a self-report questionnaire measure of DSM-III-R and proposed DSM-IV GAD. Reliability studies on the GAD questionnaire have shown good agreement with diagnosis by the Anxiety Disorder Interview Schedule-Revised (ADIS-R; Di Nardo & Barlow, 1988) (Roemer, Borkovec, Posa, & Lyonfields, 1991). Attachment was assessed with the Inventory of Adult Attachment (INVAA; Lichtenstein & Cassidy, 1991), a measure based on work by Main & Goldwyn (in press-a). The INVAA was designed to assess an individual's perceptions of his/her early childhood experiences with mother as well as the individuals' present state of mind with respect to attachment. In a validation study, principal components analysis revealed five theoretically-based scales tapping both childhood experiences of (a) rejection and (b) role-reversal/enmeshment, as well as current state of mind in relation to attachment: (c) angry/vulnerable, (d) dismissing, and (e) lacking in memory for childhood. Evidence of construct validity,

good test-retest reliability, and high internal consistency emerged for all scales (Lichtenstein & Cassidy, 1991).

Comparisons between the 64 subjects who met all criteria for GAD and 64 subjects who did not endorse any symptoms of GAD supported theoretically-based expectations. The 2 (GAD/nonGAD group) $\times$ 2 (male/female) multivariate analysis of variance (MANOVA) using scales tapping childhood experience was significant for GAD group status, $F(2, 123) = 25.57, p < .001$. Univariate analyses of variance (ANOVAs) revealed that the two groups differed significantly on both scales. GAD subjects reported childhood experiences higher in both rejection, $F(1, 124) = 11.93, p < .001$, and role-reversal/enmeshment, $F(1, 124) = 24.01, p < .001$, than did nonanxious subjects. The 2 $\times$ 2 MANOVA using scales tapping current state of mind was significant for GAD group status, $F(3, 122) = 8.78, p < .001$ and for gender, $F(3, 122) = 3.05, p < .05$. Follow-up ANOVAs revealed that greater feelings of anger and vulnerability related to the mother were more likely to be reported by GAD than by nonGAD subjects, $F(1, 124) = 24.59, p < .001$, and by women than by men, $F(1, 124) = 5.07, p < .05$.

Based on these findings with an analogue population, GAD clients were also expected to report attachment-related difficulties in childhood. To explore this possibility, a second study was initiated by including the INVAA in the questionnaire packet completed by the (pre-therapy) GAD clients (assessed by ADIS-R) and by the nonanxious control subjects in an ongoing study (Borkovec, 1990). Thirty-two GAD clients and 32 control subjects participated. Findings partly replicated those of the analogue study. The MANOVA examining childhood experiences was not significant. One of the two ANOVAs, however, was significant. GAD subjects reported greater role-reversal/enmeshment than did control subjects, $F(1, 62) = 4.00, p < .05$. The MANOVA examining current state of mind was significant, $F(3, 60) = 5.29, p < .003$. Univariate ANOVAs revealed that, compared to control subjects, GAD subjects reported greater feelings of anger/vulnerability toward their mothers, $F(1, 62) = 5.87, p < .05$, and greater lack of memory, $F(1, 62) = 8.97, p < .01$. There was also a tendency for GAD subjects to be less dismissing of attachment than control subjects, $F(1, 62) = 3.70, p = .06$ (Cassidy, et al., 1994).

Although the INVAA is psychometrically promising, it is a new measure requiring extensive validation. Furthermore, it does not provide secure/insecure attachment classifications. Nonetheless, findings from these studies underscore the possibility that further and more sensitive examination of the connection between attachment and GAD would prove a valuable course.

To this end, Cassidy and Borkovec have recently begun a more extensive investigation of the connection between GAD and attachment. It is hypothesized that GAD subjects will be more likely to be classified insecure than will nonanxious control subjects. Empirical examination of this hypothesis, given the low prevalence of GAD, is most feasible with a retrospective study of adult GAD subjects.

Potential GAD subjects are first screened during a 40-minute telephone interview. Subjects are then screened by psychiatric assessors following revised procedures of Albany's Anxiety Disorder Interview Schedule-Revised (ADIS-R; cf. DiNardo & Barlow, 1988). This structured psychiatric interview was developed

using DSM-III-R categories, and includes the Hamilton Anxiety and Depression Scales (Hamilton, 1959, 1960). The interview allows for differential diagnosis among DSM-III-R anxiety disorders, and the ruling out of psychosis, substance abuse, and major affective disorders. Because of the relatively low diagnostic agreement for GAD (Barlow, 1988), diagnosis by two independent psychiatric assessors conducting separate ADIS-R interviews is required before the subject is accepted.

Inclusion/exclusion criteria for GAD subjects are:

1. Formal primary diagnosis of GAD (excessive or unrealistic anxiety and worry about two or more life worries unrelated to other Axis I disorders, minimum duration of 6 months, and minimum of 6 of 18 DSM-III-R GAD symptoms) by both assessors, or consensus diagnosis among assessors and a third experienced clinician in case of discrepancy. Additional diagnosis of any other anxiety disorder is allowed, except for panic disorder with or without agoraphobia, as long as GAD is the most severe and thus primary.
2. Assessor global severity rating of 4+ on the 0-8 -point ADIS-R scales of severity of GAD anxiety-related symptomatology.
3. Absence of substance abuse, psychosis, medical conditions underlying anxiety, and currently diagnosable major depressive episode or severe depression (25+ on Hamilton Depression Scale). Subjects are advised to have a physical exam if physical causes of the anxiety (e.g., hypothyroidism, caffeine intoxication, hypoglycemia) have not been ruled out by such exam within the last year.
4. Not currently in psychotherapy and has not received cognitive/behavioral treatments in the past.

Nonanxious controls are matched to GAD subjects on sex, age, race, and education, are obtained through media announcements, and have no diagnosable disorder.

Attachment is assessed with the Adult Attachment Interview, a measure designed by Mary Main and her colleagues to tap adult representations of early relationships with their attachment figures (George, Kaplan, & Main, 1985; Main & Goldwyn, 1984, in press-a). This 90-minute 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 separations and losses. Additional questions ask whether subjects' parents were ever threatening or rejecting toward them; why parents may have acted as they did; and whether these attachment-related experiences have affected subjects' adult personality. Subjects are asked to provide general descriptions ("semantic memories") of their relationship with each parent and to integrate specific instances ("episodic memories") with these more general descriptions.

Assessments are made from repeated study of verbatim interview transcripts. The coding system is extensive and complex (Main & Goldwyn, in press-b). Ratings are first made on nine 9-point scales. Some of these scales rate probable childhood experiences with parents (loving, rejecting, neglecting, role-reversing, pressuring to achieve) and others rate "current state of mind" (coherency, idealization, preoccupying anger, lack of memory, lack of resolution of mourning). Based on an integrated consideration of both actual childhood experiences and current

state of mind, subjects' "current state of mind with regard to attachment" is then identified by classification into one secure and three insecure groups.

Individuals classified as *secure/autonomous* value attachment relationships and consider them to be influential, yet can reflect on them with objective autonomy. When describing their early experiences, these individuals either (a) present a convincing portrait of the parent as providing security, or (b) they coherently and thoughtfully discuss their unsupportive parent without either derogating or idealizing him/her. Individuals classified as *dismissing of attachment* dismiss the importance of attachment relationships both to themselves as children and to themselves as adults. They may describe themselves as having been raised in a family characterized by distance and neutrality or even in one characterized by rejection. In either case, these subjects dismiss the importance of these negative pasts, denying any dissatisfaction or negative impact on the self. Some of these individuals may make global statements about their perfect childhoods and their saintly mothers, yet (seemingly unknowingly) contradict these portraits when asked for descriptions of specific events, providing instead descriptions of rejection. In this case, what is dismissed is the importance of specific (negative) attachment-related events in the creation of global memory. Individuals are classified as *preoccupied with attachment* who, although preoccupied with attachment, are unable to discuss their relationships in an objective or coherent way. These individuals may be angry at their parents and may continue to fight with them, yet they oscillate between quite positive and quite negative descriptions. Their childhood experiences are generally marked by incompetent parenting, not infrequently involving role-reversal. Finally, individuals classified as *unresolved* have experienced an attachment-related childhood trauma (loss or abuse) which they have been unable to successfully resolve. They may become incoherent or confused when discussing the event or may feel unreasonably to blame.

The representations of attachment tapped by the AAI are hypothesized to guide the adult's perceptions, beliefs, feelings, and behavior. Although research using this measure has only recently begun, there is striking and convergent support for parts of this hypothesis. For instance, in relation to behavior, several studies have found associations between mothers' AAI classifications and their behavior toward their children: mothers classified secure have been found to be more helpful, supportive, sensitive, and accepting than mothers classified insecure (Crowell & Feldman, 1988; Grossmann, Fremmer-Bombik, Rudolph, & Grossmann, 1988; Haft & Slade, 1989; Van IJzendoorn, Kranenburg, Zwart-Woudstra, von Busschbach, & Lambermon, 1991). Furthermore, of particular relevance to the proposed investigation are two studies which have revealed associations between AAI classifications and emotion regulation. In one, secure adolescents were rated by peers as less anxious, less hostile, and more ego-resilient than insecure adolescents (Kobak & Sceery, 1988). In another study, the affect regulation of secure adolescents during problem-solving with their mothers was more competent than was that of insecure adolescents (Kobak, Cole, Ferenz-Gillies, & Fleming, 1993).

In addition to these predictive validity data, other data which suggest that the AAI has good psychometric properties are beginning to be reported. For example, evidence of good discriminant validity has emerged; AAI classifications have been

found to be independent of IQ, general autobiographical memory, and social desirability (Bakermans-Kranenburg & Van IJzendoorn, 1993). In addition, interrater reliability for attachment group placement is typically high ($>.80$; Ainsworth & Eichberg, 1991; Crowell & Feldman, 1988; Fonagy, Steele, & Steele, 1991; Main & Goldwyn, in press-a). Furthermore, one study of test-retest reliability over a 2 month period ($n=83$) has revealed a 78% classification group stability rate (Bakermans-Kranenburg & Van IJzendoorn, 1993).

Thus, although the AAI is a relatively new measure, data are converging to suggest that it is a reliable and valid assessment of a construct theoretically predicted to relate to GAD. Furthermore, there are two ways in which the use of the AAI in this study is particularly advantageous. First, because the AAI can provide data both about the individual's early attachment-related experiences as well as about his/her current representations of these experiences, the relative importance of each in association with GAD can be examined independently. A second advantage relates to the fact that extensive theoretical and empirical support exists for concordance between adult attachment classifications and those of infants (Ainsworth & Eichberg, 1991; Fonagy et al., 1991; Main & Goldwyn, in press-a; Van IJzendoorn et al., 1991; Zenah, Benoit, Barton, Regan, Hirshberg, & Lipsitt, 1993). No study which has failed to demonstrate this link; it is striking that in one of these studies, prenatal maternal attachment classifications were significantly related to infant attachment classifications over a year later (Fonagy et al., 1991). Although considerable care is required when making assumptions about parallels between different developmental levels, identification of which attachment patterns are associated with GAD will make available extensive theoretical and empirical literature about the developmental trajectories of individuals with that attachment history (Ainsworth et al., 1978; Belsky & Cassidy, 1994; Bretherton, 1985; Cassidy, 1994; Cassidy & Berlin, 1994; Cassidy & Kobak, 1988; Main, 1981). Careful consideration of this literature may be useful both in prevention and treatment of GAD as well as in exploration of experiential contributions to intergenerational transmission of anxiety (cf., Rosenbaum, Biederman, Bolduc, Hirshfeld, Faraone, & Kagan, 1992).

If connections between attachment quality and GAD status emerge in this study, one explanation for this connection may be that current mood influences the nature of reports of the past. Although there is some indication that this is true for depression, it is noteworthy that several studies converge to indicate that anxiety, even though influencing attention to threat stimuli, does not influence memory (Eysenk, MacLeod, & Mathews, 1987; Mathews & MacLeod, 1986; Mogg, Mathews, & Weinman, 1987). Furthermore, studies using retrospective reports may be less problematic than previously assumed (Brewin, Andrews, & Gotlib, 1993). Nonetheless, investigators must be sensitive to this issue. Thus, the Cassidy and Borkovec study includes a component which will permit direct examination of the possibility that group differences in attachment responses between GAD subjects and controls are due to differences in current mood rather than to differences in attachment: attachment is examined in a group of recovered GAD subjects. Recovered GAD subjects are thought to have had childhoods similar to those of current GAD subjects, yet because they are not currently anxious, their descrip-

tions cannot be assumed to reflect current anxious mood. Thus, it is expected that current and recovered GAD groups will not differ in terms of attachment. Support for this expectation comes from a study of social phobics whose descriptions of childhood were found not to change from pre- to post-treatment, despite symptomatic improvement (Gerlsma, Kramer, Scholing, & Emmelkamp, 1991). Furthermore, given the nature of the intervention that the recovered GAD subjects received, it is also unlikely that their current state of mind with regard to attachment will have changed from pre-treatment. Recovered GAD subjects had been once diagnosed as having GAD, have completed a 14-week course of therapy 6-12 months previously, and do not currently meet criteria for GAD based on recent ADIS-R. These subjects are also matched to GAD subjects on sex, age, race, and education.

To further understand the association between GAD and attachment, the present study also examines a secondary research question: Within the group of GAD subjects, are there attachment-related differences in the nature and extent of anxiety? Although it is expected that most GAD subjects will be insecurely attached, it is not expected that all will be. It is hypothesized that GAD subjects who are insecure will be more anxious than will those who are secure.

Finally, these data permit examination of the association between anxiety and attachment within the control group as well. High levels of anxiety can interfere with the health and well-being of people not diagnosed as having GAD. It is predicted that insecure adults, like insecurely attached children and adolescents (Ainsworth, *in press*; Kobak & Sceery, 1988; Stevenson-Hinde & Shouldice, 1991) will be more anxious than secure adults.

Concurrent measures of anxiety are collected with a multi-method, multi-reporter approach. Reporters are both the clinical interviewer and the subjects themselves. First, interviewer-based ratings are based on information collected in the ADIS-R. Second, self-reports of daily anxiety are collected for two weeks. Third, several self-report questionnaires measuring anxiety are administered: (a) the trait version of the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970), a widely used measure of anxiety proneness and the most commonly used questionnaire measure in the GAD therapy outcome literature; (b) the Relaxation-Induced Anxiety Questionnaire, designed to assess variables related to relaxation-induced anxiety, a construct particularly related to GAD (Heide & Borkovec, 1983); and (c) the Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990).

Conclusions and Future Directions

Investigation of the connections between insecure attachment and Generalized Anxiety Disorder can make a unique contribution to knowledge of the relations among emotion, cognition, and representation. GAD, with its intense, diffuse anxiety, can be viewed as a failure of emotion regulation. An emotion-cognition

link is at the heart of considerable theory about the causes of anxiety (Beck & Emery, 1985; Clark & Beck, 1988), and a large body of research indicates that the cognitive processes of individuals with GAD differ from those of others (MacLeod, 1990; Mathews, 1990). According to attachment theory, both emotion regulation and cognitive processes are linked to children's representations of the attachment figure and the self (Bowlby, 1980; Cassidy, 1994; Izard & Kobak, 1991; Main et al., 1985). Anxiety is thought to result from experience-based representations of the attachment figure as unavailable, and the cognitive processes characteristic of individuals with GAD are the very cognitive processes that arise from an insecurely attached child's experiences. Initial investigations appear to support this proposition (Bretherton et al., 1990; Cassidy, 1988; Cassidy, et al., 1994; Main et al., 1985). Thus:

1. Individuals in both groups may attend more than others to threat stimuli.
2. For both, this attention may interfere with performance on other, supposedly independent, tasks.
3. Both groups of individuals appear to have negative cognitive beliefs (or "working models") of the world as threatening and of the self as incompetent to deal with this threat.
4. Both groups of individuals may interpret ambiguous stimuli in threatening ways.

Within the past decade, interest in examining the cognitive processes associated with attachment quality has greatly increased. The relatively small amount of attention devoted to examining the connection between attachment and cognitive processes before that time is understandable because attachment could only be assessed in infants. In addition, attachment researchers were initially interested in examining the correlates of attachment quality at the behavioral level. The development of new assessments of attachment for use with children, adolescents, and adults has greatly facilitated this focus on cognition (Cassidy & Marvin, 1992; George et al., 1985; Main & Cassidy, 1988; Waters & Deane, 1985).

One reason that cognitive processes are of such interest within attachment theory is that they are thought to play an important role in the links between early experience and later developmental outcome. Thus, examination of the cognitive processes associated with different attachment histories can illuminate different developmental pathways, addressing why, for instance, different types of insecure attachments might contribute to different types of psychopathologies. Similarly, such study also can help us understand why equivalent problematic early experiences are associated with poor outcomes for some children but not for others. The information processing methodology used by anxiety researchers can be quite useful in this endeavor.

In turn, attachment theory and research can contribute to the study of GAD. There has been little empirical work examining the developmental precursors of GAD. Attachment theory provides a theoretical framework which previously has been lacking. Greater understanding of the attachment histories of individuals with GAD could prove highly useful in both prevention and treatment of this disorder. If precursors of GAD can be identified, then individuals at risk for developing GAD can be targeted for preventive intervention. Furthermore, knowledge

of attachment-related precursors may be useful in planning the most successful forms of prevention. Treatment of individuals with GAD may benefit from understanding of both childhood attachment experiences and current state of mind with regard to attachment. It is possible, for instance, that some GAD patients are unaware that they lacked a secure base in childhood. Therapy leading to a recognition of this lack and discussion of the ways it may might contribute to GAD could be useful in helping patients identify a realistic basis for their anxiety (Bowlby, 1988). Patients may become aware that current "logical errors" and "faulty beliefs" may, in fact, have once been accurate perceptions of their childhood environment. This recognition may help to relieve anxiety: One thing that GAD patients worry about is the anxiety itself (Borkovec, 1994). In addition, if current state of mind with regard to attachment is related to GAD, treatments designed to specifically address that state of mind could be implemented.

Not only can the attachment literature contribute to the study of GAD, and the GAD literature contribute to attachment research, but investigation in both areas and of the link between the two can be enhanced by a developmental psychopathology perspective. As one of the chief proponents of the field of developmental psychopathology, Cicchetti has long articulated the importance of the cross-fertilization of the fields of developmental and clinical psychology (e.g., Cicchetti, 1984, 1989; see also Sroufe & Rutter, 1984). This perspective incorporates a transactional framework (Sameroff & Chandler, 1975) within which the link between attachment and psychopathology can be readily considered. This model is characterized by several major components. First, within this scheme, the fact that insecure attachment does not lead inevitably to psychopathology is emphasized. Second, insecure attachment, when it does lead to psychopathology, may lead to a variety of disorders. Pathological outcome takes different forms in different individuals. Third, some forms of insecure attachment may be more likely than others to lead to particular forms of psychopathology. Fourth, some secure individuals develop psychopathology. In relation to all four of these components, a variety of factors, which can be either enduring or transient in nature, are viewed as serving to either increase or decrease the likelihood of psychopathology. Within a transactional framework, a model is proposed that "places attachment in the context of a large array of biological and experiential factors that affect risk" for psychopathology (Cummings & Cicchetti, 1990, p. 356). These factors include biological foundations (including temperament), non-attachment aspects of parent-child interaction, larger familial relationships, the wider social network, stressful life events, socioeconomic status, competence (in work and other activities), and coping skills. It is the interplay of all these individual, familial, social, and larger environmental factors which is important. Insecure attachment is thought to increase a child's vulnerability to psychopathology by leaving him/her with few coping skills with which to deal with stressors, and by leaving him/her with a decreased ability to develop relationships which would serve as a protective social support network during times of stress.

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