Attachment Theory and Affect Regulation: The Dynamics, Development, and Cognitive Consequences of Attachment-Related Strategies[1]

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Attachment theory (J. Bowlby, 1982/1969, 1973) is one of the most useful and generative frameworks for understanding both normative and individual-differences aspects of the process of affect regulation. In this article we focus mainly on the different attachment-related strategies of affect regulation that result from different patterns of interactions with significant others. Specifically, we pursue 3 main goals: First, we elaborate the dynamics and functioning of these affect-regulation strategies using a recent integrative model of attachment-system activation and dynamics (P. R. Shaver & M. Mikulincer, 2002). Second, we review recent findings concerning the cognitive consequences of attachment-related strategies following the arousal of positive and negative affect. Third, we propose some integrative ideas concerning the formation and development of the different attachment-related strategies.

KEY WORDS: attachment; affect regulation; personality development.

In the last two decades, attachment theory (Bowlby, 1982/1969, 1973) has become one of the most important conceptual frameworks for understanding the process of affect regulation. Bowlby (1982/1969, 1973) highlighted the anxiety-buffering and physical protection functions of close relationships, conceptualized proximity seeking as an alternative to instinctive fight–flight responses, and emphasized the importance of interpersonal experiences as a source of individual differences in affect regulation over the life span. Specifically, Bowlby (1973)

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delineated different attachment-related strategies of affect regulation which result from different patterns of interactions with significant others. In this article we focus on these attachment-related strategies and elaborate on a recent model (Shaver & Mikulincer, 2002) that explains the dynamics and functioning of these strategies. We also present recent findings concerning the cognitive consequences of these strategies and propose some integrative ideas concerning their formation and development.

ATTACHMENT THEORY AND AFFECT REGULATION: BASIC CONCEPTS

In his classic trilogy, *Attachment and Loss*, Bowlby (1982/1969, 1973, 1980) developed an ethological theory concerning the regulatory functions and consequences of maintaining proximity to significant others. He argued that infants are born with a repertoire of behaviors (*attachment behaviors*) aimed at seeking and maintaining proximity to supportive others (*attachment figures*). In his view, proximity seeking is an inborn affect-regulation device (*primary attachment strategy*) designed to protect an individual from physical and psychological threats and to alleviate distress. Bowlby (1988) claimed that the successful accomplishment of these affect-regulation functions results in a sense of attachment security—a sense that the world is a safe place, that one can rely on protective others, and that one can therefore confidently explore the environment and engage effectively with other people.

According to Bowlby (1982/1969), proximity-seeking behaviors are parts of an adaptive behavioral system (*attachment behavioral system*). This system emerged over the course of evolution because it increased the likelihood of survival of human infants, who are born with immature capacities for locomotion, feeding, and defense. Because infants require a long period of care and protection, they are born with a repertoire of behaviors that maintain proximity to others who are able to help regulate distress. Although the attachment system is most critical during the early years of life, Bowlby (1988) assumed that it is active over the entire life span and is manifested in thoughts and behaviors related to support seeking.

Bowlby (1982/1969) also delineated the provisions a relationship partner should supply, or the functions this person should serve, if he or she is to become an attachment figure (see also Hazan & Shaver, 1994; Hazan & Zeifman, 1994). First, attachment figures are targets of *proximity maintenance*. Humans of all ages tend to seek and enjoy proximity to their attachment figures in times of need and to experience distress upon separation from these figures. Second, attachment figures provide a physical and emotional *safe haven*; they facilitate distress alleviation and are a source of support and comfort. Third, attachment figures provide a *secure base* from which people can explore and learn about the world and develop their

own capacities and personality. By accomplishing these functions, a relationship partner becomes a source of attachment security.

Beyond describing universal aspects of the attachment system, Bowlby (1973) delineated individual differences in the functioning of the system. Interactions with significant others who are available in times of need, sensitive to one's attachment needs, and responsive to one's bids for proximity (*attachment-figure availability*) facilitate the optimal functioning of the system and promote the formation of a sense of attachment security. As a result, positive expectations about others' availability and positive views of the self as competent and valued are formed, and major affect-regulation strategies are organized around these positive beliefs. However, when significant others are unavailable or unresponsive to one's needs, proximity seeking fails to relieve distress, and a sense of attachment security is not attained. As a result, negative representations of self and others are formed (e.g., worries about others' good will and doubts about self-worth), and strategies of affect regulation other than proximity seeking are developed (*secondary attachment strategies*). In other words, attachment-figure availability is one of the major sources of variation in strategies of affect regulation.

Most empirical tests of these theoretical ideas have focused on a person's *attachment style*—the systematic pattern of relational expectations, emotions, and behavior that results from internalization of a particular history of attachment experiences and consequent reliance on a particular attachment-related strategy of affect regulation (Fraley & Shaver, 2000; Shaver & Mikulincer, 2002). Initially, research was based on Ainsworth, Blehar, Waters, and Wall's typology of attachment styles (Ainsworth, Blehar, Waters, & Wall, 1978) in infancy—secure, anxious, and avoidant—and Hazan and Shaver's conceptualization of parallel adult styles in the romantic relationship (adult pair-bonding) domain (Hazan & Shaver, 1987). However, subsequent studies (e.g., Bartholomew & Horowitz, 1991; Brennan, Clark, & Shaver, 1998) revealed that attachment styles are best conceptualized as regions in a two-dimensional space. The dimensions defining this space, *attachment anxiety* and *attachment avoidance*, can be measured with reliable and valid self-report scales (Brennan et al., 1998) and are, in line with Bowlby's theory (Bowlby, 1982/1969), associated with relationship functioning and affect regulation (see Mikulincer & Shaver, 2003; Shaver & Clark, 1994; Shaver & Hazan, 1993, for reviews).

In this two-dimensional space, what was formerly called the "secure style" is a region where both anxiety and avoidance are low. This region is defined by a sense of attachment security, comfort with closeness and interdependence, and reliance on support seeking and other constructive means of coping with stress. What was called the "anxious style" refers to a region in which anxiety is high and avoidance is low. This region is defined by a lack of attachment security, a strong need for closeness, worries about relationships, and fear of being rejected. What was called the "avoidant style" refers to a region in which avoidance is high.

This region is defined by a lack of attachment security, compulsive self-reliance, and preference for emotional distance from others. Both the anxious and avoidant styles are characterized by the failure of proximity seeking to relieve distress and the consequent adoption of secondary attachment strategies. In Ainsworth et al.'s original diagram of the two-dimensional space (Ainsworth et al., 1978), avoidant infants occupied mainly the region where avoidance was high and anxiety was low. In adult attachment research, Bartholomew and Horowitz (1991) drew a distinction between "dismissing avoidants" (who are high on avoidance and low on anxiety) and "fearful avoidants" (who are high on both avoidance and anxiety).

In summary, Bowlby (1982/1969, 1973) viewed proximity seeking as a primary inborn strategy for regulating affect. Moreover, he proposed that the interaction of the attachment system with a particular history of attachment experiences results in the development of other strategies of affect regulation. In the next section, we delineate the dynamics and functioning of the major attachment-related affect-regulation strategies.

THE DYNAMICS OF ATTACHMENT-RELATED STRATEGIES

In attempting to characterize the affect-regulation strategies associated with the functioning of the attachment system, we rely on Shaver and Mikulincer's model of the activation and dynamics of the attachment system (Shaver & Mikulincer, 2002). This model integrates recent findings with the earlier theoretical proposals of Bowlby (1982/1969, 1973), Ainsworth (1991), and Cassidy and Kobak (1988), and Fraley and Shaver (2000).

The model (Fig. 1) includes three major components. The first involves monitoring and appraisal of threatening events; it is responsible for activation of the primary attachment strategy—proximity seeking. The second component involves monitoring and appraisal of the availability of external or internalized attachment figures; it is responsible for individual differences in the sense of attachment security and the development of what we call *security-based strategies*. The third component involves monitoring and appraisal of the viability of proximity seeking as a means of coping with attachment insecurity and distress. This component is responsible for individual differences in the development of specific secondary attachment strategies (*hyperactivating versus deactivating strategies*). The new model includes excitatory and inhibitory pathways that result from recurrent use of secondary attachment strategies; these pathways in turn affect the monitoring of threatening events and attachment figures' availability.

Attachment-System Activation and the Primary Attachment Strategy

Shaver and Mikulincer (2002) assume that the monitoring of unfolding events results in activation of the attachment system when a potential or actual threat is
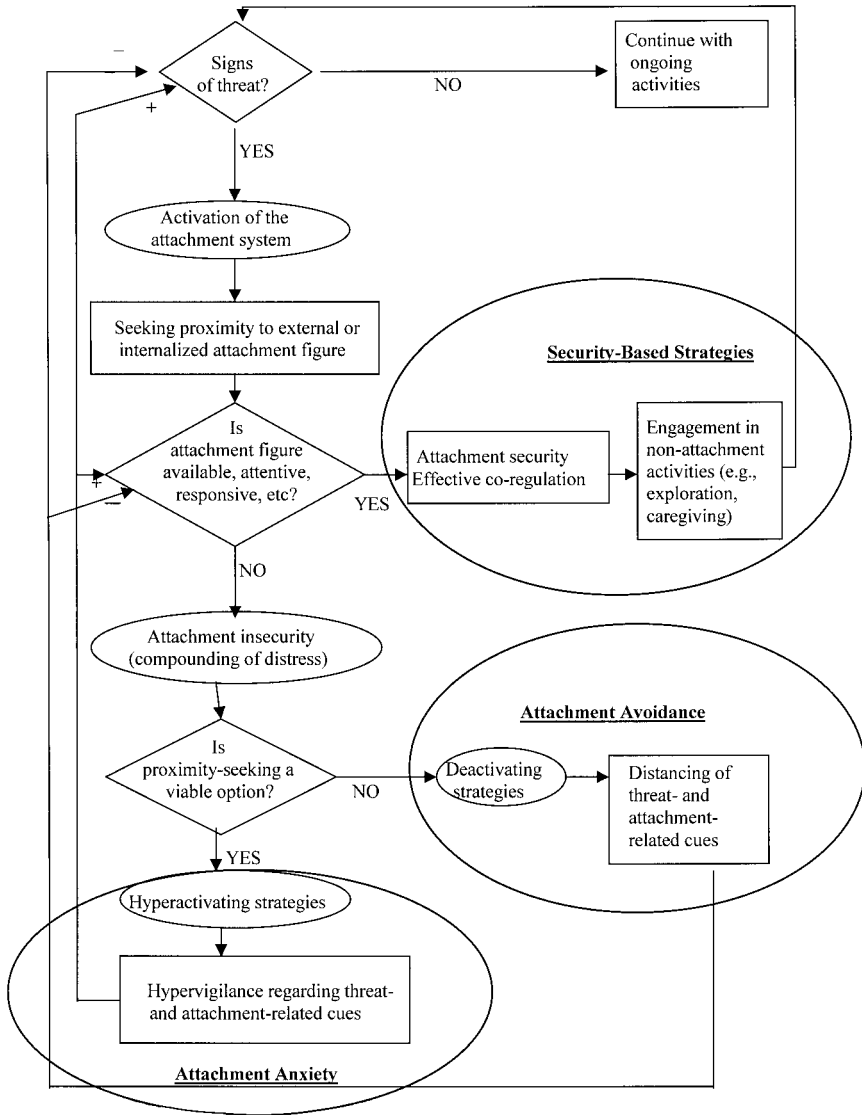
Fig. 1. An adaptation of Shaver and Mikulincer's integrative model of the activation and dynamics of the attachment system (Shaver & Mikulincer, 2002).

perceived. This idea follows Bowlby's statement that "A child seeks his attachment-figure when he is tired, hungry, ill, or alarmed and also when he is uncertain of that figure's whereabouts" (Bowlby, 1982/1969, p. 307). That is, during encounters with physical or psychological threats, the attachment system is activated and the

primary attachment strategy is set in motion. This strategy leads people to turn to internalized representations of attachment figures or to actual supportive others, and to maintain symbolic or actual proximity to these figures. We assume that age and development result in an increased ability to gain comfort from symbolic representations of attachment figures, but like Bowlby (1982/1969, 1988) we also assume that no one of any age is completely free of reliance on others.

This first part of our model has received extensive empirical support. In times of need, infants show a clear preference for their caregiver, engage in proximity-seeking behaviors, and are soothed by the caregiver's presence (e.g., Ainsworth, 1973, 1991; Heinicke & Westheimer, 1966). Conceptually parallel research with adults has shown that the departure of a relationship partner heightens the overt display of proximity-seeking behaviors (Fraley & Shaver, 1998) and that people are likely to affiliate with an available other while awaiting some noxious event (see Shaver & Klinnert, 1982, for a review) and to turn to others for assistance and support while, or immediately after, encountering stressful events (e.g., Kobak & Duemmler, 1994; Lazarus & Folkman, 1984).

Recent studies have also shown that thoughts related to proximity seeking as well as mental representations of internalized attachment figures tend to be activated even in minimally threatening situations. For example, Mikulincer, Birnbaum, Woddis, and Nachmias (2000) found that subliminal priming of a threat word (e.g., failure) led to heightened cognitive accessibility of attachment-related thoughts, indicated by faster identification of proximity-related words (e.g., love, closeness) in a lexical decision task. In a related set of studies, Mikulincer, Gillath, and Shaver (2002) found that this priming procedure heightened the accessibility of the names of a person's attachment figures, but not the names of other people, including some with whom they were closely involved.

Attachment-Figure Availability and Security-Based Strategies

Once the attachment system is activated, an affirmative answer to the question, Is the attachment figure literally or symbolically available?, results in a sense of attachment security and in what we call *security-based strategies* of affect regulation. These strategies are aimed at alleviating distress and bolstering personal adjustment through constructive, flexible, and reality-attuned mechanisms. Moreover, they create what we, following Fredrickson (2001), call a "broaden and build" cycle of attachment security, which builds a person's resources for maintaining mental health in times of stress and broadens his or her perspectives and capacities. As a person gains experience and develops cognitively, more of the role of a security-enhancing attachment figure can be "internalized" and become part of personal strength and resilience. In adulthood, the question about literal attachment-figure availability becomes transformed into a question about

the adequacy of internal as well as external attachment-related resources for coping with stress. In many cases, internal resources are likely to be sufficient, but when they are not, the person with a secure attachment history is willing and able to depend on actual attachment figures for support.

Security-based strategies consist of declarative and procedural knowledge about the self, others, and affect regulation. The declarative knowledge consists of optimistic beliefs about distress management, a sense of trust in others' goodwill, and a sense of self-efficacy in dealing with threats (Shaver & Hazan, 1993). These beliefs are the core components of the sense of attachment security and result from positive interactions with attachment figures. During these interactions, individuals learn that distress is manageable and external obstacles can be overcome. Moreover, they learn about others' good intentions and about the control one can exert over the course and outcome of threatening events.

The procedural knowledge involved in security-based strategies of affect regulation consists of a set of rules embodied in what Waters, Rodriguez, and Ridgeway (1998) called the "secure base script." This hypothetical script is organized around three main coping strategies: acknowledgment and display of distress, support seeking, and engagement in instrumental problem solving. The "emotion-focused coping" components of this script (Lazarus & Folkman, 1984)—acknowledging and expressing feelings and seeking emotional support—work in the service of down-regulating distress so that "problem-focused coping" components—seeking instrumental support and solving problems—can proceed successfully. Again, these tendencies seem to stem from recurrent confirmation that proximity seeking results in protection, support, and relief of distress. Relatively secure individuals have learned that acknowledgment and display of distress elicit supportive responses from others. They have also learned that their own actions are often able to reduce distress and remove obstacles, and that turning to others when threatened is an effective route to enhanced coping.

These tendencies are the ones that Epstein and Meier (1989) called constructive ways of coping—active attempts to remove the source of distress, manage the problematic situation, and restore emotional equanimity without creating negative socioemotional side effects. The building of these constructive capacities can also inhibit the activation of other maladaptive means of coping, including ruminative and passive emotion-focused strategies, withdrawal and escapist strategies, and primitive defense mechanisms that distort perceptions and generate interpersonal conflicts (see Mikulincer & Shaver, 2003, for a review).

Beyond building a person's resources, the sense of attachment security contributes to the broadening of perspectives, capacities, and skills. According to Bowlby (1982/1969), disruption of the sense of attachment security inhibits activation of other behavioral systems, such as exploration, affiliation, and caregiving. Insecure individuals, or anyone suffering from a moment or period of insecurity, are occupied or preoccupied with confronting the distress-eliciting situation and

thus have fewer resources available for exploring the environment, having fun with others, or attending to others' needs. Only when relief is attained and security is restored can people direct energy to activities that broaden their perspectives and skills. Moreover, with confidence that support is available when needed, people can take risks and engage in autonomy-promoting activities. In other words, security-based strategies facilitate the development of autonomy and individuality and promote self-actualization.

Security-based strategies are characteristic of people who score relatively low on both attachment anxiety and avoidance dimensions (securely attached people). Research has shown that low scores along the anxiety and avoidance dimensions are related to optimistic beliefs about distress management, positive views of the self and others, and maintenance of mental health and effective functioning in times of stress (e.g., Collins & Read, 1994; Mikulincer, 1995; Mikulincer & Florian, 1998). Low attachment anxiety and avoidance scores have also been related to acknowledgment and disclosure of emotions (Fuendeling, 1998), seeking support in times of need, reliance on constructive means of coping (see Mikulincer & Florian, 1998, for a review), exploration of new stimuli and environments, and revision of one's knowledge base following receipt of new evidence (e.g., Mikulincer, 1997; Mikulincer & Arad, 1999). Recent findings also indicate that people scoring low on attachment anxiety and avoidance are less hostile to out-group members and more empathic toward people in need (Mikulincer et al., 2001; Mikulincer & Shaver, 2001).

Proximity-Seeking Viability and Secondary Attachment Strategies

Attachment-figure unavailability results in attachment insecurity, which compounds the distress anyone might experience when encountering a threat. Shaver and Mikulincer (2002) claimed that this state of insecurity forces a "decision"—conscious and/or unconscious—about the viability of proximity seeking as a means of self-regulation, which in turn leads to activation of a specific secondary attachment strategy. The appraisal of proximity seeking as a viable option can result in very energetic, insistent attempts to attain proximity, support, and love. In the literature on attachment, these active, intense secondary strategies are called *hyperactivating strategies* (Cassidy & Kobak, 1988); they require constant vigilance, concern, and effort until an attachment figure is perceived to be available and a sense of security is attained. Hyperactivating strategies include a strong approach orientation toward relationship partners, attempts to elicit their involvement, care, and support through clinging and controlling responses, and cognitive and behavioral efforts aimed at minimizing distance from them (Shaver & Hazan, 1993). These efforts at closeness can be aimed at establishing not only physical contact but also perceived self-other similarity, intimacy, and "oneness" (Mikulincer & Shaver, 2003). These strategies are also indicated by overdependence on relationship

partners as a source of protection (Shaver & Hazan, 1993) and perception of oneself as helpless and incompetent at affect regulation (Mikulincer & Florian, 1998).

According to Shaver and Mikulincer (2002), hyperactivating strategies involve excitatory pathways that increase the monitoring of threats to the self and of attachment-figure unavailability. These strategies result in a tendency to detect threats in nearly every transaction with the physical and social world and to exaggerate the potential negative consequences of these threats. They also intensify negative emotional responses to threatening events and heighten mental rumination on threat-related concerns, keeping them active in working memory. Since signs of attachment-figure unavailability and rejection are viewed as important threats, hyperactivating strategies foster anxious, hypervigilant attention to relationship partners and rapid detection of possible signs of disapproval, waning interest, or impending abandonment. Hyperactivating strategies produce a self-amplifying cycle of distress in which chronic attachment-system activation interferes with engagement in nonattachment-related activities and makes it likely that new sources of distress will mingle with old ones, thereby creating a chaotic and undifferentiated mental architecture.

Hyperactivating strategies are characteristic of people who score relatively high on the attachment anxiety dimension. Research shows that attachment anxiety is associated with exaggeration of the appraisal of threats, negative views of the self, and pessimistic, catastrophic beliefs about transactions with other people and the nonsocial world (e.g., Bartholomew & Horowitz, 1991; Mikulincer, 1995; Mikulincer & Florian, 1998). People who score high on attachment anxiety tend to react to stressful events with intense distress and to ruminate on threat-related worries (see Mikulincer & Florian, 1998, for a review). They also have ready access to painful memories and exhibit an automatic spread of negative emotion from one remembered incident to another (e.g., Mikulincer & Orbach, 1995). Moreover, their representations of attachment figures and attachment-related worries are activated even when there is no external threat (Mikulincer et al., 2000; Mikulincer, Gillath, & Shaver, 2002).

The appraisal of proximity seeking as a nonviable option can result in deactivation of proximity seeking, inhibition of the quest for support, and active attempts to handle distress alone. These secondary strategies of affect regulation are called *deactivating strategies* (Cassidy & Kobak, 1988), because their primary goal is to keep the attachment system deactivated so as to avoid frustration and further distress caused by attachment-figure unavailability. This goal leads to the denial of attachment needs; avoidance of closeness, intimacy, and dependence in close relationships; maximization of cognitive, emotional, and physical distance from others; and strivings for self-reliance and independence. With practice and experience, these deactivating strategies often broaden to include literal and symbolic distancing of oneself from distress whether it is directly attachment-related or not.

According to Shaver and Mikulincer (2002), this distancing involves active inattention to threatening events and personal vulnerabilities as well as inhibition and suppression of thoughts and memories that evoke distress and feelings of vulnerability. Some of these coping strategies, such as motivated inattention, have been characterized as "preemptive" (Fraley, Garner, & Shaver, 2000), because they avoid or short-circuit the experiences of vulnerability and distress, whereas others, such as suppression and repression, are "postemptive," because they are aimed at minimizing perceived threats and vulnerabilities that have already been encoded. We view these temporally distinct strategies as similar to two lines of defense: A preemptive strike is preferred when its use is viable; the postemptive strategies are called upon if the preemptive approach fails or the defensive system is attacked from behind, so to speak—for example, when a memory is aroused by association and is experienced as threatening in a particular context. These strategies also foster disengagement from challenging activities and avoidance of new information, because challenges and novelty can all be sources of threat. Moreover, extreme self-reliance may encourage the denial of personal imperfections, because personal weaknesses suggest threats in one's only source of protection (Mikulincer, 1995).

Deactivating strategies are characteristic of people scoring relatively high on the attachment avoidance dimension. Research shows that attachment avoidance is associated with low levels of intimacy and emotional involvement in close relationships, suppression of painful thoughts, repression of negative memories, lack of cognitive accessibility to negative self-representations, projection of negative self-traits onto others, failure to acknowledge negative emotions, and denial of basic fears (e.g., Dozier & Kobak, 1992; Fraley & Shaver, 1997; Mikulincer, 1995; Mikulincer, Florian, & Tolmacz, 1990; Mikulincer & Horesh, 1999; Mikulincer & Orbach, 1995). Recent findings indicate that high scores on attachment avoidance are associated with lack of mental access to attachment-related worries (Mikulincer et al., 2000) and deactivation of representations of attachment figures following reminders of separation (Mikulincer, Gillath, & Shaver, 2002).

In summary, each attachment-related strategy has a specific regulatory goal, and cognitive and affective processes are shaped to facilitate goal attainment. Whereas the goals of security-based strategies are to alleviate distress, build a person's resources, and broaden his or her perspectives, the goals of secondary attachment strategies are to manage attachment-system activation and reduce or eliminate the pain caused by frustrated proximity-seeking attempts. For secondary strategies, distress-regulation stops being the main regulatory goal and instead hyperactivation or deactivation of the attachment system becomes the goal. Hyperactivating strategies keep the attachment system chronically activated, constantly on the alert for threats, separations, and betrayals; deactivating strategies keep the attachment system in check, with serious consequences for cognitive and emotional openness.

ATTACHMENT-RELATED STRATEGIES AND THE
AFFECT-COGNITION LINK

Having outlined the dynamics of attachment-related strategies, we wish now to provide a concrete illustration of the regulatory action of these strategies. We have chosen to focus on the affect-cognition link—in particular, the cognitive consequences of arousal of negative and positive emotions—and review recent findings concerning the role played by attachment-related strategies in moderating this link. If these strategies are essentially affect-regulation devices, they should be set in motion by the arousal of affective states and should shape the cognitions that result from regulation of these states.

Cognitive Consequences of Negative Affect

There is extensive evidence that negative affect can influence cognitions in different ways. Whereas several studies have documented a mood-congruent pattern of cognitions—that is, more negative cognitions under emotionally negative than neutral conditions, other studies have revealed a mood-incongruent pattern (see Forgas, 1995, for a review). In two recent studies, Pereg (2001) hypothesized that attachment-related strategies would participate in the regulation of negative affect, and then shape the pattern of cognitive responses to this affect. She hypothesized that these cognitive responses would be molded in line with the main goals of each attachment-related strategy.

In both studies, participants who had previously completed a self-report scale tapping attachment anxiety and avoidance were randomly assigned to a negative affect condition (reading an article about a car accident) or a neutral affect condition (reading about how to construct something using a hobby kit). Following this affect induction, incidental recall or causal attributions were assessed. In the first study, all of the participants read a booklet with positive and negative headlines, and then, without prior warning, were asked to recall as many of the headlines as possible. In the second study, participants were asked to list the causes of a hypothetical negative relationship event ("your partner disclosed something you asked him to keep secret").

Pereg (2001) predicted that persons differing in attachment style would differ in their cognitive reactions to induced negative affect. Specifically, persons scoring relatively low on both attachment anxiety and avoidance were expected to show a mood-incongruent pattern of cognitions—less negative memories and attributions following negative than neutral affect. In contrast, persons scoring relatively high on attachment anxiety were expected to show a mood-congruent pattern of cognitions—more negative memories and attributions following negative than neutral affect. Pereg (2001) also predicted that people who scored high on attachment avoidance would not exhibit a significant difference between their

patterns of memories and attributions in negative as compared with neutral affect conditions. The findings were in line with predictions, indicating that attachment style moderates the link between negative affect and cognitions.

The induction of negative affect, as compared with a neutral condition, led participants who scored relatively low on both attachment anxiety and avoidance to recall more positive headlines and fewer negative headlines and to attribute a negative event to less global and stables causes. This mood-incongruent pattern of cognition seems to be a direct reflection of the "building" feature of security-based strategies. These constructive strategies are likely to inhibit the spread of negative affect throughout working memory and to activate competing positive cognitions (positive headlines, attributions that maintain a positive view of the partner). These cognitions work against the pervasive effects of negative affect and contribute to attainment of the main goal of security-based strategies—distress alleviation.

In contrast, induced negative affect, as compared with a neutral condition, led participants who scored relatively high on attachment anxiety to recall fewer positive headlines and more negative headlines and to attribute a negative relationship event to more global and stables causes. This mood-congruent pattern of cognitions seems to reflect the underlying action of hyperactivating strategies. These strategies, which heighten attentional focus on negative emotions and mental rumination on negative thoughts, favor the spread of negative affect throughout working memory and facilitate the processing of congruent negative cognitions (negative headlines, attributions that elicit doubts about a partner's good will). These negative cognitions can exacerbate negative mood, negative views of a relationship partner, and fears of rejection and abandonment, and thus contribute to continued activation of the attachment system.

Importantly, the findings indicated that hyperactivating strategies ended up negatively biasing attributions about a relationship partner even when the partner was not the source of the negative affect. That is, negative cognitions about a partner can be triggered not only when a partner behaves in a relationship-threatening manner but also when negative affect is elicited by other relationship-irrelevant sources. As a result, hyperactivating strategies can heighten negative views of a partner even when the partner's behavior does not signal rejection or abandonment. This finding is important for attachment research, because many studies of attachment and emotion regulation focus specifically on negative emotions that are triggered by attachment-related issues, such as fear of abandonment, which leaves the global emotion-regulatory functions of the attachment system unexplored.

The findings also indicated that the recall and causal attribution patterns of people who scored relatively high on attachment avoidance were not significantly affected by induced negative affect. It seems that deactivating strategies weaken the links between negative affect and cognitions. Deactivating strategies, which inhibit the experience of aversive emotional states and exclude these states from awareness, seem to block acknowledgment of negative experience and prevent the use of inner-state information in cognitive processing. This process causes

negative affect to lose its power to influence cognitions, thereby serving the goal attachment-system deactivation.

Cognitive Consequences of Positive Affect

A plethora of social psychological studies indicate that induced positive affect influences information processing (Isen, 1987). Specifically, positive affect influences people to make more unusual associations between cognitions and to use broader mental categories (Isen, 1987). For example, Isen and Daubman (1984) reported that induced positive affect, as compared with control conditions, improved creative problem-solving performance (Isen, Daubman, & Nowicki, 1987) and led people to sort items into more inclusive categories.

In a recent series of studies, Mikulincer and Sheffi (2000) hypothesized that, although attachment-related strategies were originally developed to regulate distress, they can also shape a person's cognitive responses to positive affect. On the one hand, the "broadening" feature of security-based strategies can facilitate engagement in playful exploration and enjoyment of cognitive activities when no threat is present. On the other hand, the chronic focus on threat-related cognitions created by hyperactivating strategies as well as the aversion to novel and uncertain information resulting from deactivating strategies can prevent relaxed and creative exploration even when there are external signals that the environment is safe and all is going well.

In three separate studies, Mikulincer and Sheffi (2000) exposed participants to positive or neutral affect inductions and assessed breadth of mental categorization and ability to solve problems creatively. The beneficial effects of positive affect induction on creative problem solving and category breadth were observed only among people who scored relatively low on attachment anxiety and avoidance. These secure individuals reacted to positive affect by adopting more liberal and inclusive criteria when categorizing semantic stimuli and by performing better on a creative problem-solving task. For individuals who scored relatively high on attachment avoidance, no significant difference was found between positive and neutral affect conditions. For individuals who scored relatively high on attachment anxiety, a reverse effect was found which resembled the typical effects of *negative* affect induction: Anxious individuals reacted to a positive affect induction with impaired creativity and a narrowing of mental categories.

According to Schwartz and Bohner (1996), the induction of positive affect signals that "all is going well" and that one can explore unusual stimuli and associations in a relaxed and playful manner. In our view, the sense of attachment security facilitates the appraisal of this signal as a relevant input for cognitive processing, because it promotes openness to affective cues (Fuendeling, 1998). Furthermore, this inner sense facilitates creative exploration and the consequent broadening of one's perspectives, because it heightens confidence that one can deal effectively

with uncertainty, novelty, and any confusion that the broadening of knowledge might create (Mikulincer, 1997).

The findings for attachment avoidance are compatible with previously documented reactions to negative affect (Pereg, 2001). Persons scoring relatively high on attachment avoidance seem not regard affect, either positive or negative, as a relevant input for information processing. This reaction may be a fundamental feature of deactivating strategies: defensive exclusion of affective material (Dozier & Kobak, 1992). Whereas dismissal of negative affect can prevent attachment-system activation, dismissal of positive affect prevents creative exploration that might result in uncertainty and confusion, which in turn might reactivate the attachment system. After prolonged and repetitive use, this defensive strategy of deflecting attention from emotions and attempting not to become emotional at all may result in a general disregard for emotional experience.

The findings for attachment anxiety reveal the extent of the chronic, undifferentiated openness to negative cognitions that results from prolonged and repetitive use of hyperactivating strategies. For people scoring high on attachment anxiety, apparently, the spread of activation across negative cognitions can begin even with positive affect. Perhaps such people at first experience a positive state, but then become reminded of the down side of previous experiences that began positively and ended painfully. Once attuned to the negative memories and possibilities, the anxious mind may suffer from a spread of negative associations that interferes with creative and flexible cognitive processing. Even in an experimental situation intended to induce positive affect, these hyperactivating strategies prevent participants from feeling safe and thinking creatively. An alternative explanation is that the emotion disregulation associated with attachment anxiety extends to all emotions, not just negative emotions. In other words, any emotional activation may be experienced as unmanageable and aversive.

Summary

In summary, security-based strategies lead people to deal actively and constructively with negative affect and to take advantage of the enhanced creativity made possible by positive affect. This enhanced creativity may help secure people find new and unusual ways to deal with events, enjoy task performance, and maintain a positive mood. Deactivating strategies seem to distance people from their own emotions, averting the painful experience of negative affect but also foregoing the beneficial effects of positive affect. Hyperactivating strategies seem to elicit cognitive responses that exacerbate negative affect, preclude the sustained experience and psychological benefits of positive affect, and cause continued attention to real and imagined threats.

One might wonder why the hyperactivating strategy is sustained if it hurts so much. Why does the anxious person seem immune to feedback indicating that the

strategy does not succeed in reducing distress and attaining a feeling of security? One answer is that the strategy does sometimes succeed in getting relationship partners' attention and temporarily producing a sense of closeness and security. That is, anxious individuals' refusal to give up their proximity-seeking efforts may sometimes result in a momentarily increased sense of security when relating to an available and responsive partner. This kind of partial reinforcement schedule is thought to be the link between inconsistent parenting and the creation of the anxious attachment pattern in the first place (see next section for a further discussion of this point). A second answer is that schematic processing—either persisting in seeing what one expects to see or influencing events so that they confirm one's expectations—is often self-sustaining. Like other cognitive schemas, the declarative knowledge associated with hyperactivating strategies is automatically activated in threatening conditions and tends to bias cognitive processes in a self-sustaining manner. A third answer is that expressing pain and maintaining a self-conception of helplessness and vulnerability can sometimes attract the kind of compassion and closeness that the anxious person desires (Mikulincer & Shaver, 2003). Anxious individuals' sense of helplessness can be viewed as an interpersonal tactic aimed at eliciting love, support, and protection.

THE DEVELOPMENT OF ATTACHMENT-RELATED STRATEGIES

In this section, we explore ideas and research findings concerning the formation and development of attachment-related affect-regulation strategies. We seek to deepen our understanding of the path running from attachment-figure availability to the formation of security-based strategies. In addition, we want to analyze situational and personal antecedents that might contribute to the adoption of hyperactivating or deactivating strategies in response to attachment-figure unavailability.

The Development of Security-Based Strategies

In Shaver and Mikulincer's model (Shaver & Mikulincer, 2002), formation of security-based strategies depends on the availability of an attachment figure and his or her responsiveness to the individual's proximity-seeking attempts. Here, we want to refine this proposition and suggest that attachment-figure availability sets in motion a two-stage developmental sequence of security-based strategies. In Fig. 2, we present the two stages of this developmental sequence—consolidation of *coregulation* and consolidation of *self-regulation*—and the psychological mechanisms that enable a passage from coregulation to self-regulation. The first stage consists of broadening and enrichment of the primary attachment strategy—proximity seeking—and consequent improvement in affect regulation accomplished with the help of available attachment figures (coregulation). The second stage consists of the passage from coregulation to self-regulation and the establishment of the self
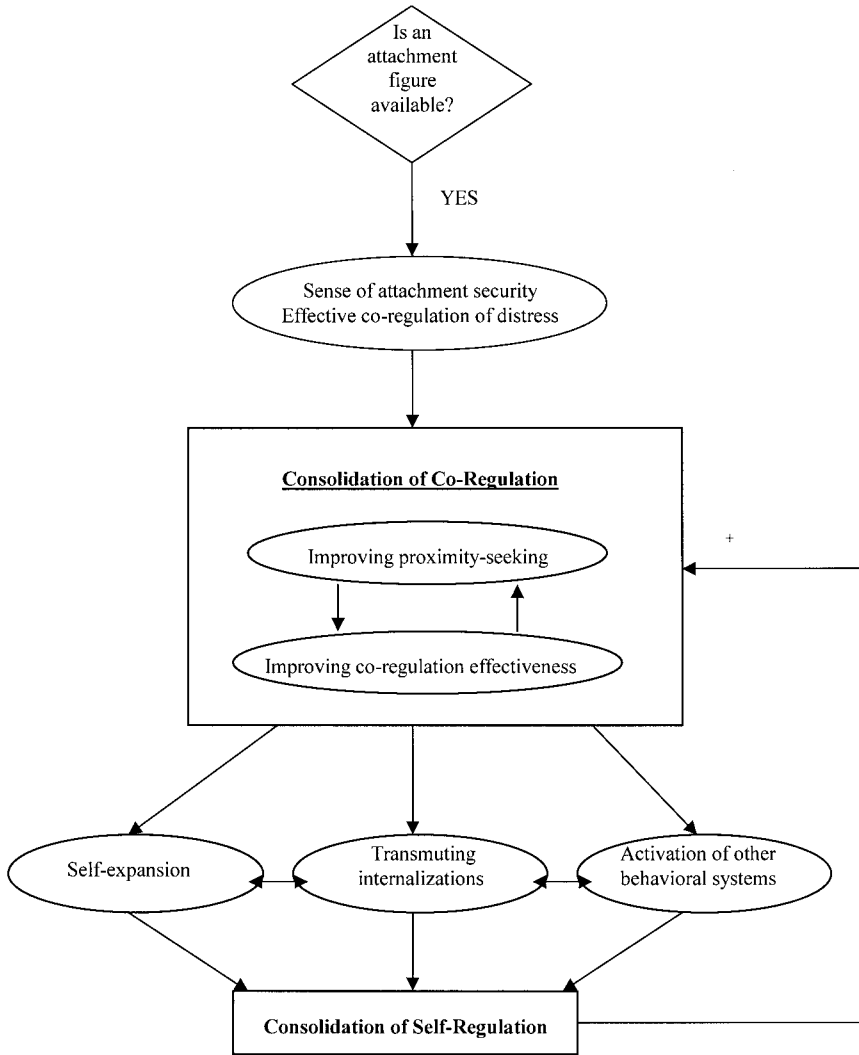
Fig. 2. Flowchart illustrating the development of security-based strategies.

as the main executive agency of security-based strategies. We also propose three mechanisms that facilitate the passage from coregulation to self-regulation—the broadening of a person's perspectives and capacities, expansion of the self, and internalization of functions that were originally accomplished by attachment figures. This model helps to explain how attachment style eventually becomes somewhat independent of any particular relationship context.

During the first year of life, success of the primary attachment strategy—proximity seeking—depends on the ability and willingness of relationship partners (mother, father, or other people to whom an infant may be attached) to collaborate with the infant in coregulating distress. Presumably, positive responses from attachment figures reinforce reliance on proximity seeking and engagement in coregulation attempts as effective ways of coping. Furthermore, they encourage the infant to learn new skills and behaviors that improve the effectiveness of future coregulation episodes. With practice, operant reinforcement, and improved cognitive abilities, the infant gradually acquires more diverse, refined, flexible, and reality-attuned ways of displaying distress and turning to others for support.

According to Waters, Posada, Crowell, and Lay (1994), with the emergence of a sense of attachment security and the use of one or more caregivers as a secure base at the end of the first year, the child is prepared to diversify his or her attachment behaviors and adjust them to reality constraints. (Attachment researchers—following Bowlby's, 1982/1969, claim that there can be a "hierarchy" of attachment figures, often with one being preferable if available—believe that most children and adults have multiple attachment figures. See Fraley & Davis, 1997, for a brief review.) Secure infants go on to become more tolerant of temporary separations from attachment figures (between 12 and 30 months of age), improve their skills for turning to others for support and using them as a base to explore the environment (from early to middle childhood), and become more active and responsible partners in the coregulation of distress (from middle childhood on). During adolescence and young adulthood, attachment behaviors become more directed toward special peers (best friends, romantic partners), and a person can serve as a secure base for his or her partner, thereby consolidating more equalitarian and reciprocal patterns of coregulation.

Although effective coregulation of distress can be viewed as the optimal outcome of attachment-system activation, it is only the first step in the development of security-based strategies. In fact, beyond support seeking, security-based strategies include a strong sense of mastery, agency, and self-directedness in dealing with stress as well as problem-focused coping strategies (see Mikulincer & Shaver, 2003, for a review). Moreover, one of the main goals of these strategies is to build a person's resources for maintaining mental health even in situations where the attachment figure is absent or the provision of support is blocked. We therefore propose that the second stage of developing security-based strategies, beginning in the second year of life, consists of the acquisition and consolidation of self-regulation skills.

The Passage From Coregulation to Self-Regulation

Three different but related mechanisms mediate the development of self-regulation. The first mechanism is the activation of other behavioral systems following attainment of a sense of attachment security. Activation of what Bowlby

(1982/1969) called the exploration system leads children and adolescents to distance themselves to an extent from their parents and explore the environment on their own. In this way, they learn new things about the world and the self that enrich their regulatory skills. At the same time, they also learn that they can be in the world alone and do new things without others' help. Activation of what Bowlby called the caregiving system allows children and adolescents to learn how to help regulate others' distress. This learning strengthens their sense of mastery and can be applied to the regulation of their own distress. Overall, the activation of these behavioral systems broadens the regulatory skills and infuses children and adolescents with confidence in the effectiveness of their own resources for handling distress.

A related process is what Aron and Aron (1997) called "self-expansion." These authors claimed that one important cognitive consequence of close relationships is inclusion of a partner's resources and strengths in one's self-concept. We believe this process of self-expansion can be set in motion by attachment-figure availability at any age. During effective episodes of coregulation, a partner's responses are synchronized with a person's needs and the partner can be experienced as part of the self. As a result, the person can incorporate the partner's resources into the self, which in turn facilitates the development of a sense of mastery and a belief that the self has capacities for handling distress alone.

A third process, which also occurs across the lifespan but especially during childhood and adolescence, is what Kohut (1971) called "transmuting internalization." This involves the internalization of regulatory functions, especially mirroring of affects and celebratory approval, which were originally performed by the attachment figure, with the individual gradually acquiring the capacity to perform these functions self-reflectively and autonomously. This internalization process results from a dynamic interplay between coregulation and the development of a stable sense of self-worth. On the one hand, effective coregulation of distress fosters the development of positive beliefs about one's worth and efficacy (Bowlby, 1973). On the other hand, the consolidation of a stable sense of self-worth and self-efficacy makes coregulation less necessary, because people (of whatever age) become more confident of their ability to handle distress alone.

Our analysis does not imply that self-regulation is the opposite of coregulation. Rather, the development of self-regulation depends on attachment-figure availability. Without effective coregulation of distress, activation of other behavioral systems, expansion of the self, and transmuting internalization are blocked and the development of self-regulation is disrupted. Hence, this analysis does not imply that the enthronement of the self as the main regulatory agent completely inhibits coregulation. Rather, the self can still activate coregulation when needed. For example, support seeking can occur during life transitions or traumatic experiences that disrupt a person's sense of self-worth and deplete inner resources. Furthermore, cognitive representations of attachment figures can be automatically activated during encounters with threats, which increases a person's confidence that

protection is available when needed, thereby facilitating self-regulation. In fact, there is evidence that threats activate mental representations of attachment figures (Mikulincer, Gillath, & Shaver, 2002), which in turn infuses even formerly neutral stimuli with positive affect (Mikulincer, Hirschberger, Nachmias, & Gillath, 2001) and fosters confident engagement in self-regulatory actions. Moreover, Solomon et al. (1998) found that ex-prisoners of war who were relatively low on attachment anxiety and avoidance had actively dealt with the threat and helplessness of captivity by activating mental representations of their attachment figures. In our view, the integration of coregulation within the repertoire of self-regulation skills constitutes the highest level in the developmental of security-based strategies.

The Development of Secondary Attachment Strategies

In Shaver and Mikulincer's model, both deactivating and hyperactivating strategies are viewed as defensive responses to the thwarting of a sense of attachment security (Shaver & Mikulincer, 2002). Moreover, the adoption of one of these strategies rather than the other seems to depend on the extent to which proximity seeking is perceived as a viable regulatory option. The main question, then, is, what are the situational and personal factors that contribute to the perception that proximity seeking is viable?

To delineate the sources of these strategies, we have created a hierarchical causal framework in which both proximal and distal factors determine the adoption of a specific strategy (see Fig. 3). Proximal factors are specific states of mind produced by attachment-figure unavailability and the consequent fears and threats that the person must deal with. We assume that attachment-figure unavailability can be experienced in different ways and result in different fears, which are the direct antecedents of adopting a specific secondary attachment strategy. Distal factors refer to external factors (e.g., patterns of interaction with attachment figures) and internal factors (e.g., temperament) that shape a person's state of mind during episodes of attachment-figure unavailability and thereby contribute indirectly to adoption of either hyperactivating or deactivating strategies.

A phenomenological analysis of attachment-figure unavailability reveals two kinds of mental pain: (a) the pain derived from frustration of attachment needs and failure to maintain proximity to the attachment figure, and (b) the pain derived from ineffective coregulation of distress and the recognition that one remains alone and vulnerable in dealing with threats. Although these two kinds of painful feelings are strongly related, their relative strength may vary across situations, relationships, and people. Furthermore, each of these feelings can produce a state of mind that fosters the adoption of a specific strategy.

One state of mind is based on the failure of attachment behaviors to achieve a positive result (closeness, love) and the receipt of punishment (inattention, rejection, anger) following these behaviors. In this state of mind, proximity to the attachment figure is experienced as a condition of nonreward or punishment, and
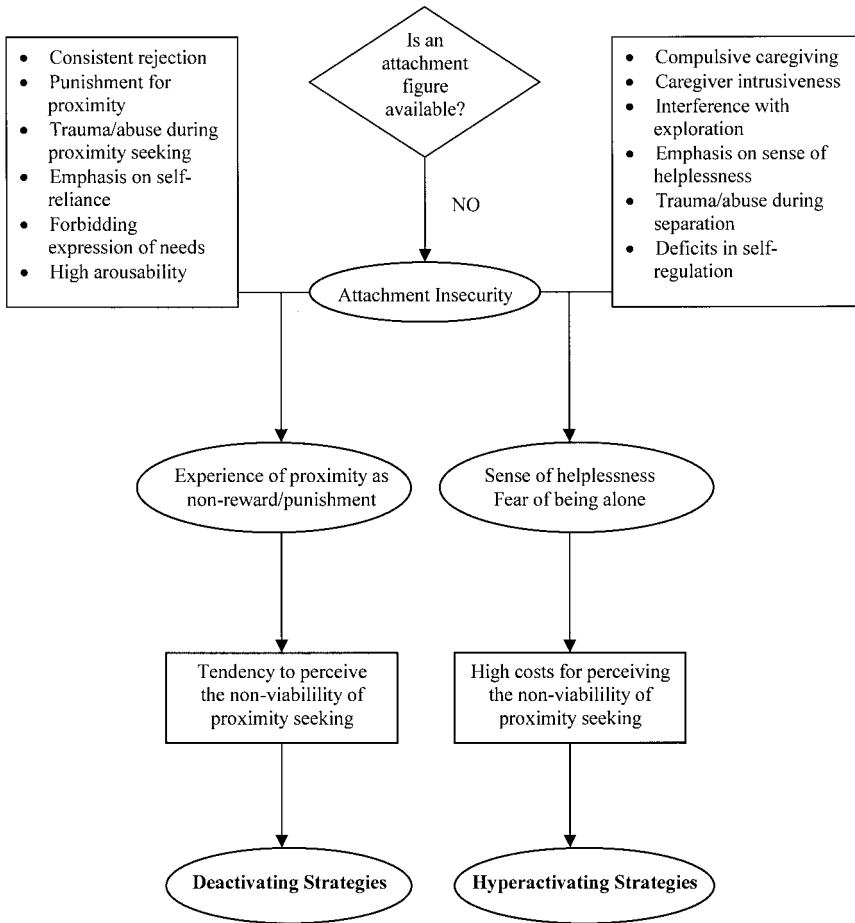
Fig. 3. Flowchart illustrating the formation of secondary attachment strategies.

the individual becomes afraid of failure and punishment in future proximity-seeking attempts. Moreover, reversing the normative situation, in which an attachment figure protects and soothes a person, the main threat here is proximity to the attachment figure; the predominant fears concern the aversive outcomes that proximity can elicit; and the person is forced to adopt a strategy that minimizes the experience of nonreward/punishment—that is, a deactivating strategy.

A very different state of mind emerges from failure to coregulate distress and the need to deal with threats alone. This state of mind is constructed around beliefs that attachment-figure unavailability, inconsistency, or insufficiency leaves one helpless and vulnerable in a threatening world; that one has no secure base to rely

on in times of need; and that one must try harder to work out a protective relationship with one's attachment figure. In such cases, distance from the attachment figure is experienced as dangerous, and the person becomes full of doubts about his or her ability to handle distress. Moreover, the person becomes afraid of the aversive outcomes that may result from attempts to regulate distress without the help of attachment figures, forcing the person to adopt a strategy that addresses the sense of helplessness and fear of being alone—that is, a hyperactivating strategy.

In other words, we believe that something like these two states of mind underlie the adoption of the two major secondary attachment strategies. The subjective construction of attachment-figure unavailability as a nonreward/punishment situation favors the adoption of deactivating strategies. In this case, proximity to attachment figures is experienced as aversive and one is required to deal with the aversive outcomes of proximity-seeking behaviors. As a result, one perceives proximity seeking as an undesirable option and attempts to minimize aversive outcomes by distancing oneself from the source of pain—attachment figures. This results in what Bowlby (1982/1969) called compulsive self-reliance.

In contrast, overemphasis on others' unreliability and one's own helplessness in situations of attachment-figure unavailability favors the adoption of hyperactivating strategies. In this case, distance from attachment figures is experienced as aversive and the person focuses on the aversive aspects of being alone. Such a person is biased to perceive proximity seeking as viable: The psychological cost of recognizing the nonviability of proximity seeking is so great that the person searches for even minimal signals of availability or interest and either pleads or expresses anger when they are not forthcoming.

Most likely, a broad array of external and internal factors contributes to the relative strength of each of these two states of mind. On the one hand, any pattern of interaction with the frustrating attachment figure that strengthens the link between proximity seeking and negative affectivity should contribute to the construction of unavailability as a nonreward/punishment condition and to the consequent adoption of deactivating strategies. These patterns of interaction include, for example, (a) consistent inattention, rejection, or angry responses of the attachment figure to proximity seeking, (b) threats of punishment for the display of attachment behaviors, (c) traumatic/abusive experiences during proximity-seeking attempts, and (d) explicit or implicit messages from an attachment figure that encourage self-reliance and prohibit overt expressions of neediness and vulnerability. This state of mind should also be affected by internal factors that intensify the emotional reactions to attachment-figure unavailability, such as arousability/reactivity and intolerance of frustration. Some of these factors are likely to be temperamental rather than rooted solely in experience.

On the other hand, any pattern of interaction with a frustrating attachment figure that prevents the development of self-regulation skills should strengthen a person's sense of helplessness and contribute to the adoption of hyperactivating

strategies. These interactions include, for example, (a) a compulsive pattern of caregiving that is unrelated to the individual's requests or need for help, (b) attachment figures' intrusiveness which prevents the learning of self-regulation skills and punishes the person for engaging in autonomy-oriented activities, (c) explicit or implicit messages from an attachment figure that emphasize a person's helplessness, incompetence, or weakness, and (d) traumatic/abusive experiences encountered while one is separated from attachment figures. All of these kinds of interactions create an ambivalent state in which approaching the attachment figure is painful but avoidance of this figure seems still more dangerous. In this case, inconsistent rebuffing of attachment behaviors leaves some hope for coregulation and can reinforce the adoption of hyperactivating strategies. This state of mind can also be exacerbated by temperamental deficits in self-regulation (Rothbart & Ahadi, 1994) and consequent problems in the control of attention, memory, and behavior.

Although the framework proposed in Fig. 3 has not been empirically tested as a whole, many correlational findings provide initial support for it. For example, adult attachment studies have shown that the attachment avoidance dimension is associated with perception of intimacy as an aversive state and distress arousal during highly interdependent interactions with relationship partners (see Shaver & Clark, 1994; Shaver & Hazan, 1993, for reviews). These studies also indicate that the attachment anxiety dimension is associated with a sense of helplessness, negative beliefs about the self, and deficits in instrumental behavior (see Mikulincer & Florian, 1998, for a review). Moreover, attachment anxiety tends to be associated with problems in the regulation of affect and cognition, as manifested by the autonomous spread of activation of negative emotions and memories and the chaotic organization of self-representations (e.g., Mikulincer, 1995; Mikulincer & Orbach, 1995).

Our analysis of the social causes of deactivating strategies is also consistent with Ainsworth et al.'s findings that caregivers of avoidant infants consistently rebuffed or deflected their infant's attachment behaviors (Ainsworth et al., 1978). Specifically, mothers of these infants were found to be angrier than mothers of infants who received other attachment classifications, less comfortable with physical contact, less expressive of positive emotion, and less tolerant of their infants' expressions of vulnerability and neediness. Ainsworth et al. (1978, p. 320) said, for example: "Avoidance short circuits direct expression of anger to the attachment figure, which might be dangerous, and it also protects the baby from reexperiencing the rebuff that he has come to expect when he seeks close contact with his mother."

Findings concerning the characteristics of the caregivers of anxiously attached infants are also consistent with our analysis of the social causes of hyperactivating strategies. These caregivers tend to be inconsistently responsive to their infant's needs, being sometimes unavailable and at other times intrusive, overprotective, and interfering with their children's engagement in exploration (see Cassidy &

Berlin, 1994, for a review). Cassidy and Berlin (1994) suggested that whereas caregivers of anxious infants are unavailable when their infants seek attention, they are more involved when their infants are engaged in autonomous play. Accordingly, Isabella and Belsky (1991) described these caregivers as ". . . not only underinvolved but also tend[ing] to exhibit poorly timed interactive bids" (p. 381). This pattern of caregiving may reflect the caregiver's own anxiety and inability to separate his or her needs from those of the infant, which in turn might impair the infant's ability to separate from the caregiver.

The evidence for temperamental contributions to attachment strategies is, so far, less coherent and consistent than the evidence for social contributions (Vaughn & Bost, 1999), but the effects of temperament on adult attachment strategies deserve further study. The attachment field still lacks large-scale twin studies of individual differences in attachment and is still awaiting exploration of the brain processes underlying differences in attachment. Such studies could be very important because if some infants are predisposed to be hyper-reactive to threats to begin with (e.g., by having a low threshold for activation of circuits in the amygdala), then the level of unresponsive caregiving necessary to promote hyperactivating strategies may be much less than for infants who are less temperamentally reactive. Similarly, it is possible that a certain degree of avoidance and self-reliance is attributable to temperament.

CONCLUDING REMARKS

Two decades of empirical work confirm that attachment theory is a useful framework for understanding affect regulation. In this article we focus on individual variations in affect regulation derived from different patterns of relationships with attachment figures, and we attempt to delineate the dynamics, development, and consequences of the various attachment-related strategies.

This conceptualization of attachment-related strategies is, in our opinion, an important but still preliminary step in understanding the implications of these strategies for affect regulation. Researchers should examine in greater depth how these strategies affect the development of self-regulation skills and how they are involved in motivational, emotional, and cognitive processes related to goal completion in social and instrumental achievement settings. Researchers should also attempt to delineate the psychophysiological manifestations of these strategies and their neural patterns of activation. More longitudinal research is needed to map the transition from coregulation to self-regulation during childhood and adolescence, and to illuminate the development of secondary attachment strategies. Dyadic research could be useful in examining whether and how the developmental sequences depicted in Fig. 2 and 3 help to explain the formation of within-relationship patterns of affect regulation resulting from specific patterns of interaction with a relationship partner. Cross-cultural research could also contribute to understanding cultural differences in the developmental trajectories of coregulation and self-regulation and

the primacy of intrapersonal versus interpersonal strategies of affect regulation. Finally, researchers should examine the conditions under which secondary attachment strategies seem to work sufficiently well to avoid severe psychopathology. We still do not know why some insecurely attached individuals function within the normal range whereas others require clinical intervention.

Our conceptualization of attachment-related strategies has important implications for psychotherapy. According to our framework, the main therapeutic goal is to restore a sense of attachment security and facilitate the formation of security-based strategies of affect regulation. Moreover, therapeutic strategies should be designed to fit the habitual secondary attachment strategies of particular clients. Whereas therapeutic work with anxiously attached clients should be directed at their sense of helplessness and fear of being alone and should strengthen their self-regulatory skills, therapeutic work with avoidant clients should be directed at their construal of proximity as a nonreward/punishment situation and at restoring contact with their emotions. Appropriately designed therapies can provide clients with a justifiable sense of hope and a range of coping skills that allow them to pursue fulfilling relationships, confront life's adversities, and develop what is best in their unique personalities.

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