Boosting Attachment Security to Promote Mental Health, Prosocial Values, and Inter-Group Tolerance

Mario Mikulincer [a]; Phillip R. Shaver [b]
[a] Bar-Ilan University, Ramat-Gan, Israel [b] University of California, Davis

PLEASE SCROLL DOWN FOR ARTICLE

TARGET ARTICLE

Boosting Attachment Security to Promote Mental Health, Prosocial Values, and Inter-Group Tolerance

Mario Mikulincer
Bar-Ilan University, Ramat-Gan, Israel

Phillip R. Shaver
University of California, Davis

In this article, we conceptualize the sense of attachment security as an inner resource and present theory and research on the broaden and build cycle of attachment security generated by the actual or symbolic encounter with external or internalized loving and caring relationship partners. We also propose that the body of research stimulated by attachment theory offers productive hints about interventions that might increase positive experiences and prosocial behavior by bolstering a person's sense of security. On this basis, we review recent experimental studies showing how interventions designed to increase attachment security have beneficial effects on mental health, prosocial behavior, and intergroup relations, and discuss unaddressed issues concerning the mechanism underlying the beneficial effects of these interventions, the temporal course of these effects, and their interaction with countervailing forces.

Personality and social psychologists have recently broadened their conception of human beings and interpersonal relations to include positive elements and processes, such as empathy, generosity, and prosocial virtues (Aspinwall & Staudinger, 2003; Seligman, 2002). Until recently, most of social psychology, and most of psychology in general, was oriented toward negative emotions and destructive behaviors, such as selfishness, defensive self-enhancement, ethnocentrism, and violence. Unfortunately, to date the effort to create a "positive psychology" has been fragmented, ad hoc, and lacking in integrative theory (Mikulincer & Shaver, 2005). We believe that attachment theory (Bowlby, 1982) offers a demonstrably generative and empirically validated framework in which both positive and negative aspects of human behavior and experience can be conceptualized. Moreover, the body of research stimulated by attachment theory offers productive hints about interventions that might increase positive experiences and prosocial behavior by bolstering a person's sense of security. In the present article we outline attachment theory briefly and show how interventions designed to increase attachment security have benefi-

cial effects on mental health, prosocial behavior, and intergroup relations.

Attachment Theory: Basic Concepts

Attachment theory is based on the fundamental idea that human behavior is organized by innate behavioral systems, such as attachment, exploration, caregiving, and sexual mating. Bowlby (1982) and his associates (e.g., Ainsworth, Blehar, Waters, & Wall, 1978) focused primarily on attachment, caregiving, and exploration, because their primary interest was attachment behavior in infancy, its effects on parental caregiving, and the effects of optimal and nonoptimal parental caregiving on the functioning of the exploration system. The latter behavioral system was conceptualized as the generator of curiosity and exploratory behavior, which facilitates the acquisition of life-enhancing knowledge and skills (including social and emotion-regulatory skills). Only in the context of effective parental care and support could the child develop a stable sense of attachment security, which was viewed

as the foundation of optimal development of the exploration system.

According to Bowlby (1982), the presumed biological function of the attachment system is to protect a person (especially during infancy and early childhood) from danger by assuring that he or she maintains proximity to caring and supportive others (who are called *attachment figures* in the theory). In Bowlby's (1982) view, the need to seek out and maintain proximity to attachment figures (whom he called "stronger and wiser" caregivers) evolved in relation to the prolonged helplessness and complete dependence of human infants, who are unable to defend themselves from predators and other dangers. According to Bowlby's evolutionary reasoning, infants who maintained proximity to a supportive caregiver were more likely to survive and eventually reproduce, causing genes that fostered proximity seeking and other attachment behaviors in times of danger to be selected for and passed on to subsequent generations.

Although the attachment behavioral system is most evident and perhaps most important early in life, Bowlby (1988) assumed it is active over the entire life span and is manifested in thoughts and behaviors related to seeking proximity to attachment figures in times of threat or need. He specifically argued against the idea that dependence on others is immature or pathological at any age, or that grieving a loss is pathological or undesirable. He understood that even fully mature and relatively autonomous adults—especially when they are threatened, in pain, lonely, or demoralized—benefit from seeking and receiving other people's care. He also argued that mature autonomy is attained partly by internalizing positive interactions with attachment figures. In other words, the ability to self-soothe is based largely on having been comforted by caring attachment figures earlier in life (see Mikulincer & Shaver, 2004, for empirical evidence that this is the case even in adulthood).

Bowlby (1982) also rejected psychoanalytic and Pavlovian conceptualizations of social attachment as a secondary effect of being fed by a parent, which Freud and Pavlov attributed to drive reduction and classical conditioning. In line with "object relations" approaches to psychoanalysis (reviewed by Greenberg & Mitchell, 1983), Bowlby viewed human beings as inherently relationship seeking, naturally oriented to seek what Harlow (1959) called "contact comfort" (in his well-known studies of infant monkeys' attachments to and reliance on real and cloth-surrogate mothers), and naturally inclined to seek proximity to familiar, comforting figures in times of threat, pain, or need. That is, Bowlby viewed proximity to and contact with affectionate, trusted, and supportive attachment figures as a natural and functional human phenomenon, and he viewed the loss of such proximity and contact as a natural source of distress and psychological dysfunction. In

this article, we show that successful bids for proximity and the attainment of felt security are important aspects of maintaining and promoting mental health, interpersonal functioning, satisfying close relationships, and psychological growth.

During infancy, primary caregivers (usually one or both parents, but also grandparents, older siblings, day-care workers) are likely to serve as attachment figures. Research has shown that when tired or ill, infants seek proximity to a primary caregiver (e.g., Ainsworth, 1973) and are noticeably reassured and soothed in that person's presence (e.g., Heinicke & Westheimer, 1966). In later childhood, adolescence, and adulthood, a wider variety of relationship partners can serve as attachment figures, including siblings, other relatives, familiar co-workers, teachers or coaches, close friends, and romantic partners. There may also be context-specific attachment figures—real or potential sources of comfort and support in specific milieus, such as therapists in therapeutic settings or leaders in organizational settings (e.g., business organizations or the military). Moreover, groups, institutions, and symbolic personages (e.g., God) can become targets of proximity seeking and sources of security. There is evidence that many young children have imaginary friends (e.g., Gleason, 2002); that some married adults who suffer the death of a spouse continue to experience the spouse's presence and seek his or her assistance and support in times of need (e.g., Klass, Silverman, & Nickman, 1996); and that many adults believe they can and do obtain protection and comfort from gods, angels, saints, and the spirits of deceased ancestors (e.g., Fraley & Shaver, 1999; Kirkpatrick, 2005).

Bowlby (1982) also specified the set-goal of the attachment system and described the typical cycle of attachment-system activation and deactivation. The goal of the system is a sense of protection or security (called by Sroufe & Waters, 1977, "felt security"), which normally terminates the system's activation. This goal is made particularly salient by encounters with actual or symbolic threats and by appraising an attachment figure as not sufficiently near, interested, or responsive. In such cases, the attachment system is activated and the individual is driven to seek and reestablish actual or symbolic proximity to an external or internalized attachment figure. When the set-goal of security is attained, proximity bids are terminated and the individual calmly returns to other non-attachment activities.

In infants, attachment-system activation includes non-verbal expressions of neediness and desire for proximity, such as crying and pleading, as well as active behaviors aimed at reestablishing and maintaining proximity, such as moving toward the caregiver and clinging (Ainsworth et al., 1978). In adulthood, the primary attachment strategy does not necessarily entail actual proximity-seeking behaviors. Instead, felt

security can be attained by the activation of soothing, comforting mental representations of relationship partners who regularly provide care and protection or even self-representations associated with these partners (Mikulincer & Shaver, 2004). Mental representations of the self come to include 'incorporated' or 'introjected' traits of security-providing attachment figures, so that self-soothing and soothing by actual others become alternative means of regulating distress. These cognitive representations help people deal successfully with threats and allow them to continue pursuing non-attachment goals without having to interrupt these activities to engage in actual proximity bids. Of course there are times—during painful illnesses or injuries or in the midst of traumatic events—when these strategies are insufficient, and then even generally secure adults often seek immediate, actual proximity to an attachment figure.

In addition to conceptualizing the normative (species universal) aspects of attachment-system activation and functioning, attachment theorists, beginning with Bowlby (1973), identified major individual differences in attachment security and various forms of insecurity, which arise in response to particular caregiving environments. Interactions with attachment figures who are available and responsive in times of need facilitate the optimal functioning of the attachment system and promote a sense of connectedness and security. When a person's attachment figures are not reliably available and supportive, however, a sense of security is not attained, and strategies of affect regulation other than proximity seeking (*secondary attachment strategies*) are developed.

In extensions of the theory to adolescents and adults, secondary attachment strategies are conceptualized in terms of two major dimensions, attachment-related anxiety and avoidance (Brennan, Clark, & Shaver, 1998). The first dimension, *avoidance*, reflects the extent to which a person distrusts relationship partners' goodwill and strives to maintain behavioral independence and emotional distance from partners. The second dimension, attachment-related *anxiety*, reflects the degree to which a person worries that a partner will not be available in times of need. People who score low on these two dimensions are said to be secure or securely attached. An adult's location on these orthogonal insecurity dimensions can be assessed with either self-report questionnaires or coded clinical interviews (Crowell, Fraley, & Shaver, 1999).

People's positions on the attachment dimensions are fairly stable over time and tend to result from interactions with primary caregivers during early childhood, as a large body of research has shown (Cassidy & Shaver, 1999; Mikulincer & Shaver, 2007), but Bowlby (1988) claimed that memorable interactions with others throughout life can alter attachment-system functioning and move the person from one region of the two-dimensional space to another. Moreover, although attachment style is often conceptualized as a single global orientation toward close relationships, and can definitely be measured as such, a person's attachment orientation is actually rooted in a complex cognitive and affective network that includes many different episodic, context-related, and relationship-specific, as well as fairly general attachment representations (Mikulincer & Shaver, 2003). In fact, research shows that attachment style can change, subtly or dramatically, depending on context and recent experiences (e.g., Baldwin, Keelan, Fehr, Enns, & Koh Rangarajoo, 1996; Mikulincer & Shaver, 2001).

Personality and social psychologists who have extended attachment theory and research into the realm of adulthood have found predictable and reliable differences in emotion regulation and social behavior whose roots lie in a person's attachment history (see reviews by Mikulincer & Shaver, 2003, 2007). They have also found that theory-guided interventions designed to make a person feel more secure have predictable and beneficial effects on emotion regulation, which is central to mental health and social adjustment, and also on social attitudes and values, which are central to prosocial behavior. In the present article we review some of the security interventions that have been tried to date and summarize their beneficial effects and the theoretical reasons for these effects. As explained below, we view these effects as examples of the ways in which a person's "attachment style" is initially formed and can change as a result of experience.

The Broaden and Build Cycle of Attachment Security

We have summarized the adult attachment literature in terms of a three-phase, or three-component, model of attachment-system activation and dynamics. The first component concerns the monitoring and appraisal of threatening events and is responsible for activation of the attachment system. The second component involves the monitoring and appraisal of the availability and responsiveness of attachment figures and is responsible for variations in the sense of attachment security. The third component concerns the monitoring and appraisal of the viability of social proximity seeking as a means of coping with attachment insecurity and is responsible for variations in the use of hyperactivating (anxious) or deactivating (avoidant) coping strategies. The three components can be summarized in three if-then propositions. First, if threatened, seek proximity and protection from an attachment figure (or some temporarily equivalent stronger, wiser, and supportive person or personage, such as God). Second, if an attachment figure is available and supportive, relax, enjoy, and appreciate the feeling of being loved and

comforted, and confidently return to other activities. Third, if an attachment figure is unavailable or unresponsive, either intensify efforts to achieve proximity and comfort (i.e., hyperactivate the attachment system) or deactivate the attachment system, suppress thoughts of vulnerability or need, and rely steadfastly on oneself.

In experimental studies designed to assess the effects of activating security-related mental representations, viewed as sources of a sense of security, we have focused on the second component of this model—the cognitive, emotional, and behavioral effects of the actual or symbolic availability of attachment figures. In this component, an affirmative answer to the question posed by the activated attachment system—"Is an attachment figure available?"—contributes to a sense of attachment security, a sense that the world is generally safe, that attachment figures are helpful when called upon, and that it is possible to explore the environment curiously and confidently and to engage rewardingly with other people. This sense can be measured in various ways and its presence implies that one's attachment system is functioning well and that proximity seeking has generally been a reliable and effective emotion-regulation strategy. While attaining a sense of attachment security, a person acquires important procedural knowledge about distress management, which becomes organized around the relational if-then script mentioned earlier (also see Waters, Rodrigues, & Ridgeway, 1998). The resulting *secure-base script* includes something like the following if-then propositions: "If I encounter an obstacle and/or become distressed, I can approach a significant other for help; he or she is likely to be available and supportive; I will experience relief and comfort as a result of proximity to this person; I can then return to other activities." Attachment-figure availability also fosters what we, following Fredrickson (2001), call a "broaden and build" cycle of attachment security, which increases a person's resilience and expands his or her perspectives, coping flexibility, and skills and capabilities. When carried to its full potential, this process is equivalent to what early humanistic psychologists (e.g., Maslow, 1971; Rogers, 1961) called personal growth and self-actualization.

A person's typical answer to the question about attachment-figure availability depends on subjective appraisals and can therefore be biased by prior attachment-related experiences. For example, individuals who score high on the attachment-anxiety dimension tend to intensify their vigilance concerning attachment figures' availability and responsiveness and slant their perceptions toward noticing or imagining insufficient interest, availability, or responsiveness. As a result, the likelihood of detecting real or imagined signs of distance, rejection, and unavailability is increased, because an attachment figure cannot always be immediately available and totally at a needy partner's

disposal. Individuals who score high on the avoidant-attachment dimension tend to ignore or dismiss the availability or unavailability and responsiveness or unresponsiveness of attachment figures, which restricts their coping options.

These cognitive biases are amplified when attachment-related mental representations are preconsciously activated by real-life situations or laboratory manipulations. At a preconscious level, expectations concerning attachment-figure availability depend entirely on the kind of internalized figure, available or unavailable, one tends to be reminded of. Insecurely attached people tend to give a negative answer to the question of attachment-figure availability because they have overly ready access to mental representations of unavailable figures. More securely attached people, in contrast, tend to answer this question positively because they have many mental representations of available and supportive attachment figures.

Despite these cognitive biases, however, reality is still quite important in the appraisal of attachment-figure availability. The actual presence of a responsive attachment figure or contextual factors that activate representations of an available figure (factors such as being instructed, in one of our experiments, to think about a person's most supportive experiences or attachment figures; e.g., Mikulincer & Shaver, 2001) can yield an affirmative answer to the question of attachment-figure availability. These contexts, mainly when they are clear-cut, personally meaningful, and repeated over time and situations, can counteract even insecure people's tendencies to doubt the availability of attachment figures, and can thus set in motion a "broaden and build" cycle of attachment security. In other words, an insecure person can be helped to function more securely, both temporarily (as in some of the experiments we describe later in this article) and chronically (as in successful psychotherapy or other kinds of transformative relationships).

The "broaden and build" cycle of attachment security is a cascade of mental and behavioral events that enhances emotional stability, personal and social adjustment, satisfying close relationships, and autonomous personal growth. The most immediate psychological effect of attachment-figure availability is effective management of distress and restoration of emotional equanimity. According to attachment theory, interactions with available and supportive attachment figures, by imparting a pervasive sense of safety, assuage distress and arouse positive emotions (relief, satisfaction, gratitude). Secure people can therefore remain relatively unperturbed during times of stress and experience longer periods of positive affectivity, which contribute to sustained emotional well-being and mental health.

Experiences of attachment-figure availability also contribute to a reservoir of core cognitive

representations, which play a central role in maintaining emotional stability and personal adjustment. The first set of beliefs concerns the appraisal of life problems as manageable, which helps a person maintain an optimistic and hopeful stance regarding distress management. These beliefs are a result of positive interactions with sensitive and available attachment figures, during which individuals learn that distress is manageable, external obstacles can be overcome, and the course and outcome of most threatening events are at least partially controllable. Adult attachment studies provide extensive support for a connection between mental representations of attachment security and hopeful, optimistic beliefs. Specifically, secure individuals, as identified by self-report measures, are consistently found to appraise a wide variety of stressful events in less threatening terms than insecure people, either anxious or avoidant, and to hold more optimistic expectations about their ability to cope with sources of distress (e.g., Berant, Mikulincer, & Florian, 2001; Mikulincer & Florian, 1995; Radecki-Bush, Farrell, & Bush, 1993). Another set of security-related beliefs concern positive representations of others' intentions and traits. Again, these positive representations are a result of interactions with available attachment figures, during which individuals learn about the sensitivity, responsiveness, and goodwill of their primary relationship partners. Numerous studies have shown that individuals who score low on attachment anxiety and avoidance (i.e., securely attached persons) possess a relatively positive view of human nature (e.g., Collins & Read, 1990; Hazan & Shaver, 1987), describe relationship partners using positive trait terms (e.g., Feeney & Noller, 1991; Levy, Blatt, & Shaver, 1998), perceive partners as supportive (e.g., Davis, Morris, & Kraus, 1998; Ognibene & Collins, 1998), and feel trusting toward partners (e.g., Collins & Read, 1990; Hazan & Shaver, 1987). In addition, securely attached people have positive expectations concerning their partners' behavior (e.g., Baldwin et al., 1993, 1996) and tend to explain a partner's negative behavior in relatively positive terms (e.g., Collins, 1996).

Security-enhancing interactions with attachment figures can also sustain a background sense of personal worth, competence, and mastery. During these interactions, individuals learn to view themselves as active, strong, and competent, because they can effectively mobilize a partner's support and overcome threats that activate attachment behavior. Moreover, they can easily perceive themselves as valuable, lovable, and special—thanks to being valued, loved, and regarded as special by a caring attachment figure. Research has consistently shown that such positive self-representations are characteristic of securely attached persons. Compared to anxiously attached persons, secure people report higher self-esteem (e.g., Bartholomew & Horowitz, 1991; Mickelson, Kessler, & Shaver, 1997), view themselves as competent and efficacious (e.g., Brennan & Morris, 1997; Cooper, Shaver, & Collins, 1998), describe themselves in positive terms, and exhibit small discrepancies between actual-self representations and self-standards (e.g., Mikulincer, 1995).

A relatively secure person's possession of rich resources for dealing with stress makes it less necessary to rely on psychological defenses that distort perception, limit coping flexibility, and generate interpersonal conflict. Such a person can devote mental resources that otherwise would be employed in preventive, defensive maneuvers to other behavioral systems and to growth-oriented activities. Moreover, being confident that support is available when needed, a person can take calculated risks and accept important challenges that contribute to the broadening of his or her perspectives and facilitate the person's pursuit of self-actualization.

Security Priming, Mood, and Mental Health

The perception of attachment-figure availability reduces distress and maintains or restores positive mood. This kind of perception can be encouraged simply by having a person think about responsive and supportive attachment figures or retrieve memories of warm and comforting interactions with these people. Temporarily activating mental representations of attachment figures (which we will call "security priming") can make these figures symbolically available, augment a person's sense of felt security, and thus maintain a person's emotional balance and adaptability, even under fairly stressful circumstances.

In our experiments we have used well-validated social-cognition research techniques to experimentally activate mental representations of supportive attachment figures and measure their emotional effects (e.g., Mikulincer, Hirschberger, Nachmias, & Gillath, 2001; Mikulincer, Gillath, et al., 2001; Mikulincer, Gillath, et al., 2003; Mikulincer & Shaver, 2001). These research techniques include subliminal presentation of pictures suggesting attachment-figure availability (e.g., a Picasso drawing of a mother cradling an infant in her arms; a couple holding hands and gazing into each other's eyes); subliminal presentation of the names of people who were designated by participants as security-enhancing attachment figures; guided imagery concerning the availability and supportiveness of an attachment figure; and visualization of the faces of security-enhancing attachment figures. We compared the effects of these primes with the effects of emotionally positive but attachment-unrelated stimuli (e.g., pictures of a large amount of money, the names or faces of acquaintances who are not attachment figures) or emotionally neutral stimuli (e.g., pictures of furniture, neutral words) and consistently found that portrayals of attachment-figure availability improved participants'

143

moods, and generally did so more reliably and powerfully than other positive stimuli.

Mikulincer, Hirschberger, et al. (2001) also found that priming representations of supportive attachment figures infused formerly neutral stimuli with positive affect, even when the priming was done subliminally. For example, subliminal presentation of the names of people who were designated by participants as security-enhancing attachment figures, compared with the names of close others or mere acquaintances who were not nominated as attachment figures, led to greater liking of previously unfamiliar Chinese ideographs. Moreover, subliminally priming mental representations of available attachment figures induced more positive evaluations of neutral stimuli even in threatening contexts, and eliminated the detrimental effects that threats otherwise had on liking for neutral stimuli. Thus, temporary priming of mental representations of security-enhancing attachment figures appears to have a calming, soothing effect similar to the effects of actual interactions with available and responsive relationship partners.

Given these findings, we (Mikulincer, Shaver, & Horesh, 2006) wondered whether the soothing effects of security priming might mitigate the emotional damage often caused by traumatic experiences, such as war, acts of terrorism, hurricanes, rape, and witnessing violent domestic disputes. An extreme form of such emotional damage is posttraumatic stress disorder (PTSD), which is characterized by repeatedly reexperiencing the traumatic event (i.e., suffering from the unwanted intrusion of trauma-related thoughts, images, and dreams), emotional numbing (reduced responsiveness to or involvement with the outside world, termed trauma-related avoidance), and autonomic, affective hyperarousal (American Psychiatric Association, 1994).

Attachment security plays an important role in determining the extent to which PTSD symptoms develop following exposure to trauma (e.g., Dekel, Solomon, Ginzburg, & Neria, 2004; Dieperink, Leskela, Thuras, & Engdahl, 2001; Fraley, Fazzari, Bonanno, & Dekel, 2006; Mikulincer, Florian, & Weller, 1993; Zakin, Solomon, & Neria, 2003). A secure person's implicit or explicit cry for help during trauma often results in mobilization of internal representations of security-providing attachment figures or actual external sources of social support, which in turn sustain optimistic and hopeful beliefs and constructive strategies of affect regulation. On the opposite side of the coin, attachment insecurities can interfere with restoration of emotional equanimity following trauma and thereby increase the chances of PTSD symptoms. In such cases, a traumatized person may fail to access inner representations of security or external sources of support, which then interferes with distress regulation and prevents resolution of the trauma.

This support for attachment theory's conceptualization of the impact of trauma has been mainly correlational, but recently Mikulincer et al. (2006) conducted an experiment to determine whether security priming could mitigate the cognitive and emotional responses to trauma caused by Palestinian terrorist attacks on Israeli cities. These implicit responses to trauma were assessed in a Stroop color-naming task, in which various words, including ones related to terrorism, appeared on a computer screen printed in various colors, and mental accessibility was operationalized by the time taken to name the color in which a trauma-related word (e.g., car bomb, Hamas) was printed. The longer the latencies for naming the word colors, the greater the accessibility of trauma-related thoughts was inferred to be, because such salient thoughts interfered with color naming. (Previous studies, reviewed by Emilien et al., 2000, and McNally, 1998, had already shown that longer reaction times for naming the colors of trauma-related words were related to PTSD.)

In the first session of the study, Israeli undergraduates filled out a self-report scale assessing the severity of PTSD symptoms, during the previous month, related to Palestinian terrorist attacks. Two groups of participants were then selected: the PTSD group, consisting of those who scored above the 75th percentile on the PTSD scale, and the non-PTSD group, consisting of those who scored below the 25th percentile. Two to three weeks later, these participants were invited to an experimental session in which they performed a computerized Stroop task. The target words included 10 terror-related words, 10 negatively valued words that were not specifically related to terrorist attacks (e.g., theft, illness), and 10 neutral words (e.g., table, picture). Each of the words was printed, on separate trials, in one of four different colors (green, blue, yellow, or red) and was randomly presented in 12 trials (for a total of 360 trials). On each trial, participants were subliminally primed with an attachment-security word (the Hebrew word for "being loved"), a positively valenced but attachment-unrelated word (success), or a neutral word (hat).

The results replicated previous findings concerning the accessibility of trauma-related thoughts among people suffering from PTSD symptoms. Participants in the PTSD group produced longer color-naming latencies for terror words (indicating greater automatic accessibility of the words) than participants in the non-PTSD group. More important, this effect was qualified by security priming. The effect of PTSD status (many or few PTSD symptoms) was significant only when participants were primed with a neutral or positive word. The effect was not significant following the priming of an attachment-security representation. That is, symbolic mobilization of attachment-security representations ("being loved") during the Stroop task had a soothing effect, lowering the accessibility of

trauma-related thoughts and eliminating differences between PTSD and non-PTSD groups in color-naming latencies for terror-related words. These findings support the hypothesis that increasing felt security during traumatic and posttraumatic periods reduces the intensity of PTSD symptoms, which helps to explain why chronically secure people are less likely than their insecure counterparts to develop PTSD.

Although Mikulincer et al.'s (2006) findings imply that traumatized individuals respond favorably to an experimental enhancement of their sense of attachment security, it is important to remember that none of the study participants was clinically diagnosed as suffering from PTSD, and none had been hospitalized because of this disorder. That is, a question remained as to whether security priming could mitigate psychopathological reactions in clinically diagnosed patients. To address this question, Admoni (2006) assessed the healing effects of security priming in a sample of women hospitalized for eating disorders. Eating disorders, including both anorexia nervosa and bulimia nervosa, are prevalent among adolescent and young adult women in modern Western societies. Anorexia is characterized by a compulsive drive for thinness, fears of becoming fat, and attempts to reduce body weight (e.g., through prolonged fasting); bulimia is characterized by binge eating and attempts to compensate for bingeing by purging (e.g., vomiting) and taking laxatives (American Psychiatric Association, 1994).

From an attachment perspective, eating disorders are viewed as resulting from frustrating interactions with rejecting attachment figures and are associated with insecure working models and problems in the regulation of distress and the management of interpersonal relations (e.g., Cole-Detke & Kobak, 1996; O'Kearney, 1996; Ward, Ramsay, & Treasure, 2000). This hypothesis has received ample empirical support in correlational studies. For example, several studies found that female patients with a clinical diagnosis of anorexia or bulimia were less secure (according to self-report measures of attachment to parents) than an age-matched group of healthy women (e.g., Chassler, 1997; Kenny & Hart, 1992; Orzolek-Kronner, 2002). Using the Adult Attachment Interview (e.g., Hesse, 1999), other studies found more insecure states of mind among women clinically diagnosed as suffering from eating disorders than among control women (e.g., Cole-Detke & Kobak, 1996; Ramacciotti et al., 2001; Ward et al., 2001). Similar findings were obtained in different countries (England, Israel, Italy, Sweden, the US) using self-reports of attachment anxiety and avoidance in close relationships (e.g., Broberg, Hjalmes, & Nevonen, 2001; Hochdorf, Latzer, Canetti, & Bachar, 2005; Mallinckrodt, McGreary, & Robertson, 1995; Troisi, Massaroni, & Cuzzolaro, 2005).

To pursue the implications of these findings experimentally, Admoni (2006) conducted two laboratory experiments assessing the potential effects of security priming on two frequently observed cognitive aspects of eating disorders: heightened preoccupation with food and the body (e.g., Ben Tovim & Walker, 1991) and distorted body image (e.g., Wolszon, 1998). In one study, inpatient women diagnosed with eating disorders and a control group of age-matched healthy women performed a Stroop task while Admoni measured color-naming latencies for words related to food and body shape. In the other study, a second sample of eating disordered inpatient women and age-matched healthy controls performed a computer-based task assessing body-image distortions (Harari, Furst, Kiryati, Caspi, & Davidson, 2001). Participants were presented with a pictorial simulation of lifelike weight changes in a picture of them taken in a previous research session, and they were asked to adjust their body shape, using a graphical interface, until the image seemed accurate. In both studies, participants were subliminally primed with either a security-promoting stimulus (the name of a security-enhancing attachment figure provided by the participant in a previous session) or the name of a close person or acquaintance who did not fulfill attachment-figure functions (providing what Bowlby, 1982, called a safe haven or secure base).

Replicating previous findings, Admoni noted heightened access to thoughts about food and body shape (longer color-naming latencies in the Stroop task) and more severe distortions of body image in the eating disordered groups than in the control groups. In addition, attachment anxiety and avoidance (assessed with the Experience in Close Relationships scale; Brennan et al., 1998) were associated with longer color-naming latencies for words related to food and body shape and more body-image distortions among patients diagnosed with eating disorders, emphasizing the association between attachment insecurities and cognitive aspects of eating disorders. More important, as compared to neutral priming conditions, subliminal priming with security-related names reduced these dysfunctional cognitive responses in eating disordered patients and dramatically reduced the differences in performance between them and control women. These findings support a causal interpretation of the linkage between attachment insecurity and eating disorders. Combined with previous findings reviewed in this section, they suggest a generally healing, soothing, or protective role for the temporary activation of mental representations of attachment security.

Security Priming and Representations of the Self and Relationship Partners

In this section, we want to review experimental evidence on the effects of security priming on cognitive representations of self and relationship partners.

A core proposition of attachment theory is that actual or anticipated interactions with available, caring, and loving attachment figures in times of need constitute a primary source of an authentically positive sense of self-worth (Mikulincer & Shaver, 2005). People can find enough reassurance, indications of personal worth, and signs of acceptance in these positive interactions to reduce or eliminate the need to defensively inflate their self-esteem or reject negative information about themselves. That is, people with security-supporting mental representations of attachment experiences tend to feel generally safe and protected without having to activate defensive strategies. In fact, defensive self-enhancement indicates that a person doesn't have an adequate sense of security and has to struggle for a sense of self-worth while harboring doubts about being competent and lovable (Mikulincer & Shaver, 2005).

Recent laboratory experiments provide strong support for these theoretical ideas. For example, Baccus, Baldwin, and Packer (2004) showed that experimental priming with loving and accepting faces automatically increases one's sense of self-worth even when one is not aware of it. Specifically, participants provided information about themselves (e.g., name, birthday, home town) and then performed a reaction-time task in which they clicked on a word appearing on a computer screen as quickly as possible. After clicking on each word, a picture of a person was presented on the screen for a few seconds. In the experimental condition, every time a self-relevant word (e.g., the participant's name) appeared, it was followed by a picture of a smiling, accepting face. In the control condition, self-relevant words were randomly paired with pictures of smiling, frowning, and neutral faces. As indicated by two different measures of state self-esteem, participants in the experimental condition provided more positive self-evaluations than those in the control condition. These findings clearly indicate that when people think about themselves, automatic and unconscious representations of others' acceptance and love are likely to strengthen their positive self-evaluations.

Two other experimental studies show that mental representations of security-enhancing attachment figures can instill a sense of self-worth that is sufficient to render defensive self-inflation maneuvers unnecessary (Arndt, Schimel, Greenberg, & Pyszczynski, 2002; Schimel, Arndt, Pyszczynski, & Greenberg, 2001). In these studies, thoughts about attachment-figure availability (e.g., thinking about an accepting and loving other) or neutral thoughts were encouraged, and participants' use of particular self-enhancement strategies was assessed. Schimel et al. (2001) studied defensive biases in social comparison—searching for more social-comparison information when it was likely to suggest that one has performed better than other people (Pyszczynski, Greenberg, & LaPrelle, 1985). Arndt

et al. (2002) studied defensive self-handicapping—emphasizing factors that impair one's performance in an effort to protect against the damage to self-esteem that might result from attributing negative outcomes to one's lack of ability (Berglas & Jones, 1978). In both studies, momentary strengthening of mental representations of attachment-figure availability weakened the tendency to make self-enhancing social comparisons or self-handicapping attributions.

Along similar lines, Kumashiro and Sedikides (2005) suggested that "close positive relationships may bolster and shield the self to the point where, even following unfavorable feedback, accurate information about personal liabilities is sought out despite its self-threat potential" (p. 733). In two separate studies, participants performed a difficult cognitive task and then were asked to visualize either a responsive close friend or a distant or negative partner. Following the priming procedure, all participants received negative feedback about their performance and were asked about their interest in obtaining further information about the task and the underlying cognitive ability it tapped. In both studies, participants who were primed with a responsive close relationship partner expressed more interest in receiving information about their newly discovered liability than participants in other conditions. That is, having visualized a security-enhancing relationship partner, participants seemed to be so confident of their self-worth that they were willing to explore and learn about potential personal weaknesses.

Besides boosting self-esteem, regularly experiencing attachment-figure availability can assuage worries about being rejected, criticized, or abused. It can thereby bolster a person's willingness to get close to a partner; express needs, desires, hopes, and vulnerabilities; and ask for support when needed. That is, interactions with available, caring, and loving attachment figures facilitate pro-relational behaviors that are conducive to establishing and maintaining satisfyingly intimate and deeply interdependent relationships. This positive relational process begins with appraising an attachment figure's sensitivity and responsiveness and the consequent formation of positive beliefs and expectations about this person's good qualities and intentions. One gradually becomes convinced that such a good and caring figure is unlikely to betray one's trust, will not react negatively or abusively to expressions of need, and will not reject bids for closeness. With such confidence, it is relatively easy for a person to behave pro-socially and become more deeply involved in a relationship.

Using priming techniques, attachment researchers have found that momentary activation of mental representations of available and supportive attachment figures has beneficial effects on expectations of a partner's behavior (Pierce & Lydon, 1998; Rowe & Carnelley, 2003). In Rowe and Carnelley's (2003) study,

participants were primed with representations of attachment-figure availability or unavailability (writing for 10 minutes about a relationship in which they had felt secure or insecure) and then completed a questionnaire assessing general expectations about relationship partners' behavior. Priming with examples of partner availability led to more positive expectations for the current relationship than priming with insecure representations. In Pierce and Lydon's study (1998), young women were subliminally exposed (for 15 milliseconds) to security-related words (e.g., caring, supportive), insecurity-related words (e.g., rejecting, hurtful), or no words. They then read a hypothetical scenario in which they had unexpectedly become pregnant, and were asked to describe how they would cope with this event. As compared with the no-word condition, priming with security-related words caused an increase in seeking emotional support as a way of coping with the unwanted pregnancy. Security priming also reduced self-blame, and neither this nor the other obtained effects could be explained by variations in mood.

These simple priming effects are likely to be relatively short-lived and unstable. However, Rowe, and Carnelley (2006) recently found that repeated priming of security-related representations can lead to long-lasting positive effects on relational beliefs. In an initial (baseline) session, participants answered a self-report scale assessing general expectations about relationship partners' behavior. Then, on three occasions (across three days), participants were exposed to a secure or a neutral prime (e.g., recalling or imagining interactions with an attachment figure in which they felt secure or recalling or imagining a neutral event, such as a coursework writing plan or shopping at a supermarket). Two days later, all participants once again provided their general expectations about relationship partners' behavior, not preceded by any prime. Rowe and Carnelley (2006) noted more positive changes in expectations about relationship partners' behavior following repeated priming with security-related stimuli than following repeated priming with neutral stimuli. These findings offer preliminary but very encouraging evidence that repeated priming with security-related stimuli may be an effective way to create long-lasting changes in relational beliefs and behaviors.

Security Priming, Compassion, and Altruistic Helping

According to attachment theory, there is a dynamic interplay between the attachment system and other behavioral systems (such as exploration, caregiving, and sex), which contributes to the development of personal knowledge and skills, opens a person's mind to new possibilities and perspectives, and helps him or her actualize natural talents. One reason for these beneficial effects is that security-enhancing interactions reduce anxiety, vigilance, and preoccupation with attachment-related and -unrelated threats, allowing a person to devote more attention and effort to personal growth and self-development. Moreover, these interactions impart a sense of safety and protection that allows a person to take calculated risks and accept important challenges. With these interactions in mind, people can feel confident that support is available when needed, that their attachment figures will accept and love them even if they make some ill-fated decisions, and that the world is a safe place for exercising skills and actualizing one's potential.

Bowlby (1982) and Ainsworth et al. (1978) noticed that attachment insecurity interferes with the smooth operation of other behavioral systems, such as exploration, because of the urgency and priority of threats to oneself (especially during early childhood). This kind of interference can also occur in caregiving situations (Kunce & Shaver, 1994), because a potential caregiver may feel so threatened that obtaining care for him- or herself seems more urgent than providing care to others. At such times even adults are likely to be so focused on their own vulnerability that they lack the mental resources necessary to attend compassionately to others' needs for help and care. Only when a degree of safety is attained and a sense of security is restored can most people perceive others to be not only sources of security and support, but also human beings who need and deserve comfort and support themselves. As a result, a sense of security allows a person to attend less to his or her own vulnerability and shift attention to the domains of other behavioral systems, such as caregiving.

With this theoretical analysis in mind, we began a program of research on the effects of security priming on compassion and altruism. Our main hypothesis was that people whose mental representations of attachment security have been contextually enhanced would be more likely than relatively insecure people to empathize with and provide care for others. In the first study in this research program, Mikulincer, Gillath, et al. (2001, Study 1) performed an experiment assessing compassionate responses to others' suffering. Dispositional attachment anxiety and avoidance were assessed with the ECR scales, and the sense of attachment security was activated by having participants read a story about support provided by a loving attachment figure. This condition was compared with a positive affect or neutral condition. Following the priming procedure, all participants rated their current mood, read a brief story about a student whose parents had been killed in an automobile accident, and rated how much they experienced compassion (e.g., compassion, sympathy, tenderness) and personal distress (e.g., tension, worry, distress) when thinking about the distressed student. (The distinction between compassion, or

empathy, and personal distress was first made by Batson, 1991.)

As expected, dispositional attachment anxiety and avoidance were inversely related to compassion, and attachment anxiety was positively associated with personal distress. Thus, whereas avoidance seems to reduce responsiveness to others' needs, anxiety appears to increase self-preoccupation and a form of distress that, while possibly aroused via empathy, fails to incline people to take care of a needy other. More important, enhancement of attachment security, but not simple enhancement of positive affect, strengthened compassion and inhibited personal distress in reaction to others' distress. The findings were conceptually replicated in four additional studies (Mikulincer, Gillath, et al., 2001, Studies 2–5), using different techniques for heightening security (e.g., asking participants to recall personal memories of supportive care, subliminally exposing them to proximity-related words) and measuring different dependent variables (e.g., coded descriptions of feelings elicited by others' suffering, accessibility of memories in which participants felt compassion or distress).

Mikulincer, Gillath, et al.'s (2001) findings also indicated that the effects of security priming and attachment-style differences could not be explained by conscious mood. Although the priming of positive affect reduced personal distress, it did not significantly affect compassion, nor did changes in mood mediate the effects of security priming and dispositional attachment security on compassion and personal distress. Thus, the effects of attachment security were not the same as the effects of the positive affect induction and were not explicable in terms of simple mood changes.

We have found that the contextual activation of attachment security affects not only compassion toward people in distress but also broader value orientations. In three experiments, Mikulincer et al. (2003) found that enhancing attachment security (asking people to recall personal memories of supportive care or exposing them unobtrusively to a picture of a supportive interaction), as compared with enhancing positive affect or exposing participants to a neutral control condition, strengthened endorsement of two self-transcendent values, benevolence (concern for close others) and universalism (concern for all humanity). Moreover, avoidant attachment, assessed with the ECR, was inversely associated with endorsement of these two prosocial values; supporting our notion that avoidant attachment (or attachment-system deactivation) involves lack of concern for others' needs.

In a recent series of studies, Mikulincer, Shaver, Gillath, and Nitzberg (2005) examined the actual decision to help or not to help a person in distress. In the first two experiments, participants watched a confederate while she performed a series of increasingly aversive tasks. As the study progressed, the confederate became increasingly distressed about the aversive tasks, and the actual participant was given an opportunity to take the distressed person's place, in effect sacrificing self for the welfare of another. Shortly before this scenario unfolded, participants were primed with either representations of attachment security (the name of a participant's security provider) or attachment-unrelated representations (the name of a familiar person who was not an attachment figure or the name of a mere acquaintance). This priming procedure was conducted at either a subliminal level (rapid presentation of the name) or supraliminal level (asking people to recall an interaction with a particular person). At the point of making a decision about replacing the distressed person, participants completed brief measures of compassion and personal distress.

We found that momentary, subliminal activation of the sense of attachment security decreased personal distress and increased participants' compassion and willingness to take the place of a distressed other. Supraliminal enhancement of attachment security (asking people to consciously remember experiences of being cared for and supported by others) had the same effects. In addition, dispositional avoidance was related to lower compassion and lower willingness to help the distressed person. Dispositional attachment anxiety was related to personal distress, but not to either compassion or willingness to help.

In two additional studies, Mikulincer et al. (2005, Studies 3–4) examined whether the contextual heightening of attachment security overrides egoistic motives for helping, such as mood-enhancement (Schaller & Cialdini, 1988) and empathic joy (Smith, Keating, & Stotland, 1989), which would imply that the help it engenders is truly altruistic. Specifically, participants were randomly assigned to one of two priming conditions (security priming, neutral priming), read a true newspaper article about a woman in dire personal and financial distress, and rated their emotional reactions to the article (compassion, personal distress). In one study, half of the participants anticipated mood-enhancement by means other than helping (e.g., expecting to watch a comedy film). In the other study, half of the participants were told that the needy woman was chronically depressed and her mood might be beyond their ability to repair (*no empathic joy* condition). Schaller and Cialdini (1988) and Smith et al. (1989) had found that these two conditions—expecting to improve mood by other means or anticipating no sharing of joy with the needy person—reduced egoistic motivations for helping because there is no mood-related benefit from helping. However, these conditions failed to inhibit altruistic sources of helping, which persisted even when these egoistic motives were absent (Batson, 1991).

Our studies showed that expecting to improve one's mood by means other than helping, or expecting not to

be able to share a needy person's joy when helped, reduced compassion and willingness to help in the neutral priming condition but failed to affect these emotional and behavioral reactions in the security-priming condition. That is, contextual priming of attachment security increased compassion and willingness to help even when there was no egoistic reason for helping. These findings fit well with our theoretical view that the sense of attachment security reduces the need for defensive self-protection and allows a person to activate the caregiving behavioral system, direct attention to others' distress, take the perspective of a distressed other, and engage in altruistic behavior with the primary goal of benefiting the other person. For secure people, helping others does not serve personal-protection goals, because they already feel safe and secure. Rather, their sense of attachment security frees energy and attention to be used by the caregiving system, allowing a person to adopt an empathic attitude toward others' distress.

Interestingly, we also found that expecting to improve one's mood by watching a comedy film or anticipating no sharing of joy with a needy person reduced compassion and willingness to help only among people who scored high on avoidant attachment. For these insecure people, helping others seems to provide one route to feeling better about themselves, which causes them to be more willing to help when an egoistic payoff is likely. Such egoistic concerns held less sway over people who were either dispositionally less avoidant or under the influence of a security-enhancing prime. It therefore seems that attachment security counteracts some of the egoistic motives underlying avoidant people's reluctance to help.

Security Priming and the Reduction of Intergroup Hostility

Theoretically, the security-enhancing, "broadening" effects of attachment-figure availability should reduce negative, prejudicial, and hostile attitudes toward out-groups. Social psychologists have extensively documented the tendency to perceive one's own social group (in-group) as better than out-groups (e.g., Allport, 1954; Devine, 1995). According to social identity theory (Tajfel & Turner, 1986), intergroup bias serves a self-protective function, maintenance of self-esteem ("We, including I, are better than them"). Unfortunately, this method of maintaining self-esteem depends on emphasizing real or imagined ways in which the in-group and out-groups differ, especially ways in which the in-group can be perceived as better (Tajfel & Turner, 1986).

According to attachment theory, this tendency should be especially characteristic of insecure people. A person who can maintain a sense of value by virtue of possessing salient representations of attachment se-

curity should have less need to fear and disparage out-group members. In his account of human behavioral systems, Bowlby (1982) stated that attachment-figure availability mitigates the innate fear of strangers and supports a tolerant attitude toward unfamiliarity and novelty. In addition, securely attached people tend to maintain high, stable self-esteem without relying on defenses, including defensive derogation of other people.

In a series of five studies, we (Mikulincer & Shaver, 2001) provided evidence for the beneficial effects of security on inter-group perceptions. Correlational findings indicated that the higher a person's sense of attachment security, the weaker his or her hostile responses to a variety of out-groups (as defined by secular Israeli Jewish students): Israeli Arabs, Ultra-orthodox Jews, Russian immigrants, and homosexuals. Experimental findings indicated that various priming techniques—subliminal presentation of security-related words such as love and proximity, evocation via guided imagery of the components of the attachment-security script, and visualization of the faces of security-enhancing attachment figures—heightened the sense of attachment security and eliminated negative responses to out-groups. These effects were mediated by threat appraisal and were found even when participants were led to believe they had failed on a cognitive task or their national group had been insulted by an out-group member. That is, experimentally augmented attachment security reduced the sense of threat created by encounters with out-group members and seemed thereby to render unnecessary the usual efforts to derogate or distance oneself from them.

Following up these studies, we are currently conducting a series of studies to determine whether security priming can reduce actual aggression between contending or warring social groups. In these studies, the measure of aggressive behavior is the amount of hot sauce given to a target person in what is billed as a study of taste preference. We chose hot sauce because it has already been used effectively as form of mild aggression in social psychology experiments (e.g., McGregor et al., 1998) and does not require that anyone actually suffer pain (because the recipients of the hot sauce are not really required to consume it). While obviously not as aggressive as hostile actions toward out-group members that occur every day in most societies, administration of hot sauce has been shown to be a valid indicator of hostility in experimental settings (McGregor et al., 1998).

To increase the ecological validity and social significance of our findings, we focus on aggression between two groups that are actually engaged in mutual violence—Israeli Jews and Israeli Arabs. Although these two groups live side by side in Israel, they are highly segregated and have a long history of political, cultural, and territorial conflict. Moreover, research has

shown that Israeli Jews and Israeli Arabs tend to react to each other with prejudice, hostility, and overt aggression (Ben Ari & Amir, 1988). In the past several years, the intensity and destructiveness of this conflict and the number of violent acts related to it have increased dramatically as Palestinian Arab terrorists have committed terrorist actions inside Israel and the Israeli military has made repeated incursions into the territories governed by the Palestinian Authority. We have completed one study so far, and in it we examined whether experimentally enhanced attachment security among Israeli Jews attenuates aggressive responses toward Israeli Arabs. In subsequent studies we will examine whether the same effects can be found among Israeli Arabs with respect to Israeli Jews.

In the first session of the completed study, 120 Israeli Jewish undergraduates provided names of people who act as security-enhancing attachment figures, names of other familiar people who were not listed as fulfilling attachment-figure functions (e.g., mother, father, best friends, if they were not designated as attachment figures), and names of mere acquaintances. After 2–3 weeks, each participant was invited to a study, together with a same-sex student (who was actually a confederate of the experimenter). At the beginning of the experimental session, the confederate arrived and provided his or her name, major, and place of residence. At this point, half of the participants received information that the other person was a *Jew* (having a typical Jewish name, residing in a typical Jewish city); the other half received information that the other person was an *Arab* (having a typical Arab name, residing in a typical Arab city).

Then, the participant and the confederate were separated and put into different experimental rooms, and the participants performed a 30-trial computerized word-relation task. During each of the 30 trials, they were exposed subliminally (for 20 milliseconds) to the name of their own security-enhancing attachment figure (designated in the first session of the study), the name of a familiar person who was not selected as an attachment figure, or the name of an acquaintance.

Following the priming procedure, all participants were informed that they would evaluate a food sample—either a spicy or a non-spicy food, depending on random assignment. Next, they completed a taste-preference inventory, in which they indicated their liking for salty, spicy, sweet, and creamy foods, and they were told that the other participant (the confederate) had also completed this measure and had been randomly assigned to the hot-food condition. Then, the experimenter gave the real participant a tray containing materials needed to prepare a sample of hot sauce to give to the confederate.

The experimenter also explained that people are often curious about other people's taste preferences, so the participants would be shown the taste-preference questionnaire of the other person (the confederate). The completed form indicated that the confederate definitely disliked spicy foods. Participants were instructed to place a quantity of hot sauce into a bowl and seal it with a lid. They were also told that the confederate would be asked to consume the entire quantity of hot sauce (with some crackers). To be sure participants knew how painfully spicy the hot sauce was, they were asked to taste a bit of it. The dependent variable in the experiment was the measured amount of hot sauce each participant allocated to the confederate.

As shown in Figure 1, there was a significant interaction between the confederate's ethnicity (Arab or Jewish) and priming condition. When participants had been subliminally primed with the name of someone who was not an attachment figure, they delivered a larger amount of hot sauce to the Arab confederate than to the Jewish confederate—an indication of inter-group aggression. But security priming completely eliminated this difference; that is, the participants whose sense of security had been enhanced delivered equal (relatively low) amounts of hot sauce to the Arab and Jewish confederates.

These initial results fit well with previous findings showing that people who are either dispositionally secure or induced to feel more secure in a particular context are better able than their insecure counterparts to tolerate inter-group diversity, more likely to maintain broadly humane values, and more likely to regard others compassionately and behave prosocially. In light of this research, it seems likely that if human beings were helped by their families, communities, schools, religious institutions, and cultural media to become more secure, they would be better able to create a kinder and more tolerant, harmonious, and peaceful society.

Future Directions

The studies we have conducted thus far provoke several additional questions: What are the precise mechanisms by which security priming accomplishes such a wide range of beneficial effects? How many ways are there to enhance security, especially if one wishes to create permanent or long-lasting beneficial effects? How long do these beneficial effects last? Can they withstand the countervailing force of severe environmental threats, as suggested by the fact that even secure people seem to be pulled, at times, into wars, bouts of intolerance, and mental distress?

Diverse Mechanisms

The core idea behind attachment theory is that human beings are born "unfinished," with nervous systems that need extensive social support and guidance to
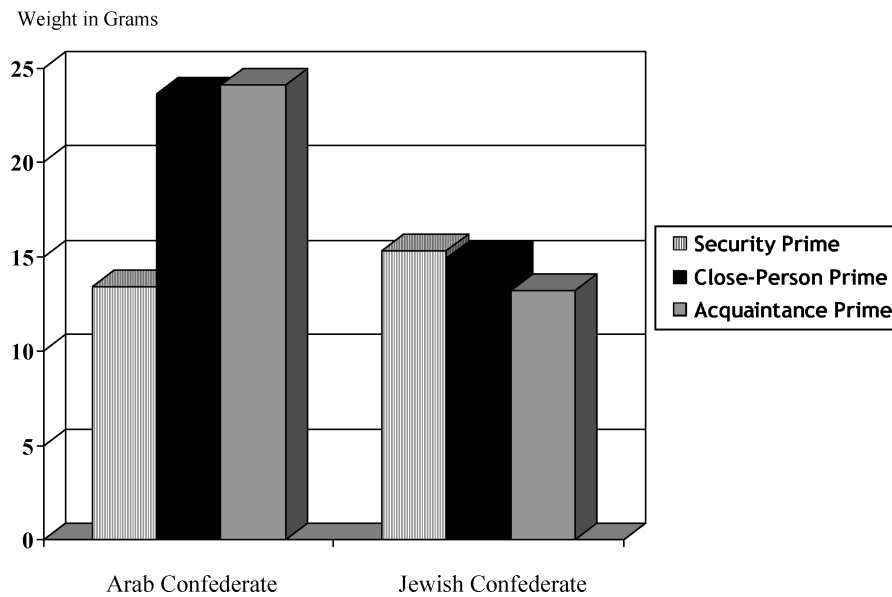
Weight in Grams

Figure 1. Mean amount of hot sauce dispensed as a function of confederate ethnicity and priming condition.

become fully adapted to their environment. At the heart of the unfinished creature is a set of innate behavioral systems designed to motivate necessary adjustments, in line with the long-term goals of survival, health maintenance, sexual reproduction, and effective care of offspring. The first systems to reveal themselves in development are the attachment system and the exploration system. Babies naturally seek comforting contact and affection, and are curious about other people and the physical environment. With proper protection, encouragement, and support, they readily expand their range of experiences and repertoire of skills, eventually showing capacities for caregiving and sex. In conjunction with these developments are a set of emotions that arise as innate behavioral systems and related motives express themselves in behavior. These emotions can be described in detailed ways: on the positive side, feeling safe and secure, being loved and admired, being curious, optimistic, skillful, and competent; on the negative side, feeling unsafe, threatened, pained, rejected, abandoned, unworthy, and helpless, hopeless, or incompetent. Having mostly positive experiences helps a child regulate its own emotions, which is crucial to becoming competent and, eventually, self-reliant. Having numerous negative experiences leads to rigid, defensive methods of emotion avoidance or regulation, or—in more extreme cases—to cognitive and emotional disorganization. Hence, any intervention that increases a person's sense of safety, lovability, personal efficacy, structure, self-regulation, and meaning is likely to strengthen core aspects of the self that are important for healthy development.

For example, when a child is threatened, negative feelings are replaced by positive ones if he or she is protected, embraced, and encouraged by attachment figures. Moreover, when a child is threatened by failure or incompetence, achieving self-perceived competence on his or her own or being scaffolded while achieving competence increases self-esteem, optimism, self-confidence, and effective coping skills. This is, we believe, why self-affirmation manipulations work in adulthood, especially for people who feel threatened or are low in self-esteem or plagued by attachment anxiety (e.g., Correll, Spencer, & Zanna, 2004; Spencer, Fein, & Lomore, 2001). This may also be why a manipulation that improves emotion regulation, for example by increasing attentional stability and mindfulness, provides some of the benefits of increased security (e.g., Brown & Ryan, 2003). Security is a natural foundation for effective emotion regulation, partly because it allows a person not to be overwhelmed or distracted by worries and anxiety. It provides a generally solid foundation on which good coping skills can be erected. But later in life, if this foundation was not provided in childhood or is damaged by trauma, it may be possible, perhaps even necessary, to work on increasing attentional stability and calmness through nonsocial means, such as meditation or repeating positive self-statements of the kind taught by cognitive behavioral therapists.

Relevant to this point, we have noticed that our security inductions are similar to Buddhist methods of fostering mindfulness, compassion, and loving-kindness, and also that security seems to be central to both attachment theory and Buddhist psychology. As explained by the Buddhist nun Pema Chödrön (2003, pp. 23–24): "We fear losing our illusion of security—that's what makes us so anxious . . . . The mind is always seeking zones of safety, and these zones of safety are continually falling apart . . . . That's the essence of *samsara*— the cycle of suffering that comes from continuing to

151

seek happiness in all the wrong places." Unlike attachment theorists, however, Chödrön seems to believe that *everyone* has an anxious, grasping mind, whereas attachment research suggests that this is a relative matter. People who have been treated well by their attachment figures are less afraid of death and other threats (e.g., Mikulincer & Florian, 2000), are more open cognitively and emotionally (e.g., Mikulincer, 1997), and are less easily thrown off course by fear, less preoccupied with attachment, and more secure. We do not believe, therefore, that their sense of security is an "illusion."

Buddhism also recognizes the importance of love to the development of emotional stability (Chödrön, 2003, pp. 9–10): "The essential practice is to cultivate *maitri*, or loving-kindness . . . . [An] image for maitri is that of a mother bird who protects and cares for her young until they are strong enough to fly away. People sometimes ask, 'Who am I in this image—the mother or the chick?' The answer is *both* . . . . Without loving-kindness for ourselves, it is difficult, if not impossible, to genuinely feel it for others."

This is similar to our ideas about the importance of attachment figures' love for establishing both effective coping strategies and being compassionate toward oneself and other people (Gillath, Shaver, & Mikulincer, 2005), but attachment theory and research point to the social origins of this ability and indicate that it is much more difficult for some people than for others to apply "maitri" to themselves and everyone else. Fortunately, the experiments reviewed here demonstrate that all people, regardless of dispositional attachment style, can become happier, healthier, and more tolerant and compassionate when primed with representations of attachment figures' love and support.

According to this line of thinking, there are probably many different routes to increased security. Self-affirmation and mindfulness are two; reminding a person of his or her key attachment figures and past experiences of love and support is another. Encouraging a person to feel loved by God might be another (Kirkpatrick, 2005); and still others include becoming closely involved with a supportive mentor, coach, therapist, or religious professional. Encouraging a relatively insecure person to help others, thereby experiencing effective caregiving and perhaps receiving genuine appreciation is another useful method (Gillath et al., 2005), as is developing one's talents or skills, which allows a person, for good reasons, to feel competent and socially valuable. Joining an affiliative or supportive group is another method, as is becoming involved in a high-functioning romantic relationship or marriage. In short, just as good attachment experiences have beneficial effects on other behavioral systems, such as exploration and caregiving, good experiences related to those behavioral systems are likely to feed back on the attachment system in ways that allow it to function in a less defensive, less distorted way.

Security-Priming Effects: Temporal Course and Interaction with Countervailing Forces

Given that security priming works, at least in our brief experiments, how probable is it that such effects can be temporally extended, to become therapeutic or self-enhancing in a lasting way? How resistant are such effects to countervailing forces in a world full of threats, conflicts, inter-group tension, and actual violence?

We have conducted pilot studies in which participants were subliminally primed with representations of attachment security every other day for three weeks, and the effects were examined one week after the final priming session ended. There were suggestions in the results that positive mood was enhanced over time and that the effect persisted on its own for a week. But in all such studies conducted so far, the effects were due to a combination of slight increases in positive mood in the security-priming conditions and strong decreases in positive mood in the neutral-prime control groups, suggesting that the study itself was perceived as a burden, and that the burden was buffered or eased for participants who received the security primes. Moreover, both studies were conducted at the point in an academic term when examinations occurred and term papers were due, so the participants were generally stressed and fatigued. We still need to conduct studies to systematically determine whether security priming can do more than buffer a person from negative stressors.

In a related series of studies, Sohlberg and Birgegard (2003) subliminally primed Swedish college students with the stimulus "Mommy and I are one," and obtained persisting beneficial effects on depression over a two-week period. In addition, Dandeneau, Baccus, Sakelleropoulo, Pruessner, and Baldwin (2006) engaged adult telemarketers in a cognitive task for five minutes each morning for five days. They saw a computer-screen full of pictured faces, all of which but one bore negative expressions (e.g., anger, disgust). The single exceptional face was smiling brightly. The participants' task was to ignore the negative faces and locate the positive one. Over time, their cortisol levels declined and their sense of self-efficacy, as well as supervisors' ratings of their work performance, increased. Moreover, as reviewed earlier, Rowe and Carnelley (2006) found positive changes in expectations about relationship partners' behavior two days after repeated priming with security-related stimuli.

All of these examples encourage us to conduct further tests of long-term security-priming effects. Of course, psychotherapy—when viewed as a series of interactions with a security-providing attachment figure (Bowlby, 1988)—also provides many examples of successful security enhancement. In the realm of applied Buddhist psychology, empirical evaluations of mindfulness-based stress reduction (Kabat-Zinn,

152

2003) also indicate that a meditative approach to re-laxation, stress amelioration, and self-guided emotion regulation has lasting beneficial effects. Thus, just as there are several procedures available to alter the attachment system's capacity to cope with stress and negative emotions, there are many ways to alter the system in lasting ways. It will take time to evaluate the long-term effects of the different methods and explore the mechanisms by which they operate.

Although we remain optimistic about the possibility of increasing a person's sense of security in lasting ways, it is important not to be naively simplistic about this. In most of our laboratory experiments, no negative environmental events arose to counter the momentary effects of enhanced security. As mentioned earlier, however, in two studies conducted by Mikulincer, Hirschberger, et al. (2001), the beneficial effects of security priming on evaluation of a formerly neutral stimulus were resistant to the negative effects of failure on a cognitive task and reminders of separation from a romantic partner. As also mentioned, security primes seemed to buffer student participants in our pilot studies of long-term priming against the stresses of end-of-term demands. Still, in the real world, people are confronted with frustrating bureaucratic rules and requirements, rude employees, bullying classmates, angry spouses, natural disasters (such as tsunamis and earthquakes), and human aggression and cruelty of all forms. Even secure people mourn losses and sometimes fight ferociously for their rights and the survival of their families. There is no form of security that makes genuine threats irrelevant or ignorable.

It's not yet clear how we should think about the best way for secure people to cope, for example, with ethnic discrimination, terrorism, and warfare. The Dalai Lama is often mentioned as a model of compassion and tolerance, but while winning the Nobel Peace Prize he has so far not been able to regain control of his native country, Tibet. There are undoubtedly secure political and military leaders who have been empathic and supportive of their followers while also leading them into war (Roosevelt and Eisenhower might be salient American examples; Rabin is a good example in Israel). At some point, science gives way to ethics in such matters. There is no scientific prescription that guarantees optimal behavior in a chaotic or disastrous environment.

In a recent pilot study, we found that more secure Palestinians living in the territories occupied by Israeli soldiers were more, rather than less, hostile toward Israeli Jews and more accepting of violence against them. Thus, although we are encouraged to pursue possible benefits of psychological security enhancement, we cannot assume that security and pacifism are synonymous. Achieving a world at peace requires humane ethics, a more tolerant cultural and educational climate, and good judgment and effective political will on the part of leaders, not just securely attached individ-

ual citizens. The same conditions presumably hold for self-affirmation and mindfulness. Still, without a sizeable proportion of secure, mindful, and self-efficacious citizens, political will alone is unlikely to accomplish desirable ethical goals. Psychological science, broad education, and appropriate political action must proceed in tandem.

Note

Address correspondence to Mario Mikulincer, Department of Psychology, Bar-Ilan University, Ramat Gan 52900, Israel. E-mail: mikulm@mail.biu.ac.il

References

Admoni, S. (2006). *Attachment security and eating disorders.* Unpublished doctoral dissertation, Bar-Ilan University, Ramat Gan, Israel.
Ainsworth, M. D. S. (1973). The development of infant-mother attachment. In B. M. Caldwell & H. N. Ricciuti (Eds.), *Review of child development research* (Vol. 3, pp. 1–94). Chicago, IL: University of Chicago Press.
Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: Assessed in the strange situation and at home.* Hillsdale, NJ: Erlbaum.
Allport, G. W. (1954). *The nature of prejudice.* Reading, MA: Addison-Wesley.
American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington DC: Author.
Arndt, J., Schimel, J., Greenberg, J., & Pyszczynski, T. (2002). The intrinsic self and defensiveness: Evidence that activating the intrinsic self reduces self-handicapping and conformity. *Personality and Social Psychology Bulletin, 28,* 671–683.
Aspinwall, L. G., & Staudinger, U. M. (Eds.). (2003). *A psychology of human strengths: Fundamental questions and future directions for a positive psychology.* Washington DC: American Psychological Association.
Baccus, J. R., Baldwin, M. W., & Packer, D. J. (2004). Increasing implicit self-esteem through classical conditioning. *Psychological Science, 15,* 498–502.
Baldwin, M. W., Fehr, B., Keedian, E., Seidel, M., & Thomson, D. W. (1993). An exploration of the relational schemata underlying attachment styles: Self-report and lexical decision approaches. *Personality and Social Psychology Bulletin, 19,* 746–754.
Baldwin, M. W., Keelan, J. P. R., Fehr, B., Enns, V., & Koh Rangarajoo, E. (1996). Social-cognitive conceptualization of attachment working models: Availability and accessibility effects. *Journal of Personality and Social Psychology, 71,* 94–109.
Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61,* 226–244.
Batson, C. D. (1991). *The altruism question: Toward a social-psychological answer.* Hillsdale, NJ: Erlbaum.
Ben Ari, R., & Amir, Y. (1988). Intergroup conflicts in Israel: Avenues for change. *Psychologia, 1,* 49–57.
Ben Tovim, D. I., & Walker, M. K. (1991). Further evidence for the Stroop test as a quantitative measure of psychopathology in eating disorders. *International Journal of Eating Disorders, 10,* 609–613.
Berant, E., Mikulincer, M., & Florian, V. (2001). Attachment style and mental health: A 1-year follow-up study of mothers of

infants with congenital heart disease. *Personality and Social Psychology Bulletin, 27*, 956–968.

Berglas, S., & Jones, E. E. (1978). Drug choice as a self-handicapping strategy in response to noncontingent success. *Journal of Personality and Social Psychology, 36*, 405–417.

Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger*. New York: Basic Books.

Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment* (2nd ed.). New York: Basic Books. (Original ed. 1969)

Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. London: Routledge.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult romantic attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford Press.

Brennan, K. A., & Morris, K. A. (1997). Attachment styles, self-esteem, and patterns of seeking feedback from romantic partners. *Personality and Social Psychology Bulletin, 23*, 23–31.

Broberg, A. G., Hjalmers, I., & Nevonen, L. (2001). Eating disorders, attachment, and interpersonal difficulties: A comparison between 18- to 24-year-old patients and normal controls. *European Eating Disorders Review, 9*, 381–396.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822–848.

Cassidy, J., & Shaver, P. R. (Eds.). (1999). *Handbook of attachment: Theory, research, and clinical applications*. New York: Guilford Press.

Chassler, L. (1997). Understanding anorexia nervosa and bulimia nervosa from an attachment perspective. *Clinical Social Work Journal, 25*, 407–423.

Chödrön, P. (2003). *Comfortable with uncertainty*. Boston, MA: Shambhala.

Cole-Detke, H., & Kobak, R. (1996). Attachment processes in eating disorder and depression. *Journal of Consulting and Clinical Psychology, 64*, 282–290.

Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology, 71*, 810–832.

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58*, 644–663.

Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology, 74*, 1380–1397.

Correll, J., Spencer, S. J., & Zanna, M. P. (2004). An affirmed self and an open mind: Self-affirmation and sensitivity to argument strength. *Journal of Experimental Social Psychology, 40*, 350–356.

Crowell, J. A., Fraley, R. C., & Shaver, P. R. (1999). Measurement of adult attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 434–465). New York: Guilford Press.

Dandeneau, S. D. M., Baccus, J. R., Sakelleropoulo, M., Pruessner, J. C., & Baldwin, M. W. (2006). *Attentional training reduces the stressful effects of social threat*. Paper presented at the annual meeting of the Society for Personality and Social Psychology. New Orleans, LA.

Davis, M. H., Morris, M. M., & Kraus, L. A. (1998). Relationship-specific and global perceptions of social support: Associations with well-being and attachment. *Journal of Personality and Social Psychology, 74*, 468–481.

Dekel, R., Solomon, Z., Ginzburg, K., & Neria, Y. (2004). Long-term adjustment among Israeli war veterans: The role of attachment style. *Anxiety, Stress and Coping: An International Journal, 17*, 141–152.

Devine, P. G. (1995). Prejudice and out-group perception. In A. Tesser (Ed.), *Advances in social psychology* (pp. 466–524). New York: McGraw-Hill.

Dieperink, M., Leskela, J., Thuras, P., & Engdahl, B. (2001). Attachment style classification and posttraumatic stress disorder in former prisoners of war. *American Journal of Orthopsychiatry, 71*, 374–378.

Emilien, G., Penasse, C., Charles, G., Martin, D., Lasseaux, L., & Waltregny, A. (2000). Post-traumatic stress disorder: Hypotheses from clinical neuropsychology and psychopharmacology research. *International Journal of Psychiatry in Clinical Practice, 4*, 3–18.

Feeney, J. A., & Noller, P. (1991). Attachment style and verbal descriptions of romantic partners. *Journal of Social and Personal Relationships, 8*, 187–215.

Fraley, R. C., Fazzari, D. A., Bonanno, G. A., & Dekel, S. (2006). Attachment and psychological adaptation in high exposure survivors of the September 11th attack on the World Trade Center. *Personality and Social Psychology Bulletin, 32*, 538–551.

Fraley, R. C., & Shaver, P. R. (1999). Loss and bereavement: Attachment theory and recent controversies concerning grief work and the nature of detachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 735–759). New York: Guilford Press.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218–226.

Gillath, O., Shaver, P. R., & Mikulincer, M. (2005). An attachment-theoretical approach to compassion and altruism. In P. Gilbert (Ed.), *Compassion: Conceptualizations, research, and use in psychotherapy* (pp. 121–147). London: Brunner-Routledge.

Gleason, T. R. (2002). Social provisions of real and imaginary relationships in early childhood. *Developmental Psychology, 38*, 979–992.

Greenberg, J. R., & Mitchell, S. A. (1983). *Object relations in psychoanalytic theory*. Cambridge, MA: Harvard University Press.

Harari, D., Furst, M., Kiryati, N., Caspi, A., & Davidson, M. (2001). A computer-based method for the assessment of body image distortions in anorexia-nervosa patients. *IEEE Transactions on Information Technology in Biomedicine, 5*, 311–319.

Harlow, H. F. (1959). Love in infant monkeys. *Scientific American, 200*, 68–86.

Hazan, C., & Shaver, P. R. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511–524.

Heinicke, C., & Westheimer, I. (1966). *Brief separations*. New York: International Universities Press.

Hesse, E. (1999). The Adult Attachment Interview: Historical and current perspectives. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 395–433). New York: Guilford Press.

Hochdorf, Z., Latzer, Y., Canetti, L., & Bachar, E. (2005). Attachment styles and attraction to death: Diversities among eating disorder patients. *American Journal of Family Therapy, 33*, 237–252.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10*, 144–156.

Kenny, M. E., & Hart, K. (1992). Relationship between parental attachment and eating disorders in an inpatient and a college sample. *Journal of Counseling Psychology, 39*, 521–526.

Kirkpatrick, L. A. (2005). *Attachment, evolution, and the psychology of religion*. New York: Guilford Press.

Klass, D., Silverman, P. R., & Nickman, S. L. (Eds.) (1996). *Continuing bonds: New understandings of grief*. Washington DC: Taylor & Francis.

154

Kumashiro, M., & Sedikides, C. (2005). Taking on board liability-focused information: Close positive relationships as a self-bolstering resource. *Psychological Science, 16,* 732–739.

Kunce, L. J., & Shaver, P. R. (1994). An attachment-theoretical approach to caregiving in romantic relationships. In K. Bartholomew & D. Perlman (Eds.), *Advances in personal relationships: Attachment processes in adulthood (*Vol. 5, pp. 205–237). London: Jessica Kingsley.

Levy, K. N., Blatt, S. J., & Shaver, P. R. (1998). Attachment styles and parental representations. *Journal of Personality and Social Psychology, 74,* 407–419.

Mallinckrodt, B., McCreary, B. A., & Robertson, A. K. (1995). Co-occurrence of eating disorders and incest: The role of attachment, family environment, and social competencies. *Journal of Counseling Psychology, 42,* 178–186.

Maslow, A. H. (1971). *The farther reaches of human nature.* New York: Viking.

McGregor, H., Leiberman, J., Greenberg, J., Solomon, S., Arndt, J., Simon, L., & Pyszczynski, T. (1998). Terror management and aggression: Evidence that mortality salience promotes aggression against worldview-threatening individuals. *Journal of Personality and Social Psychology, 74,* 590–605.

McNally, R. J. (1998). Experimental approaches to cognitive abnormality in posttraumatic stress disorder. *Clinical Psychology Review, 18,* 971–982.

Mickelson, K. D., Kessler, R. C., & Shaver, P. R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology, 73,* 1092–1106.

Mikulincer, M. (1995). Attachment style and the mental representation of the self. *Journal of Personality and Social Psychology, 69,* 1203–1215.

Mikulincer, M. (1997). Adult attachment style and information processing: Individual differences in curiosity and cognitive closure. *Journal of Personality and Social Psychology, 72,* 1217–1230.

Mikulincer, M., & Florian, V. (1995). Appraisal of and coping with a real-life stressful situation: The contribution of attachment styles. *Personality and Social Psychology Bulletin, 21,* 406–414.

Mikulincer, M., & Florian, V. (2000). Exploring individual differences in reactions to mortality salience: Does attachment style regulate terror management mechanisms? *Journal of Personality and Social Psychology, 79,* 260–273.

Mikulincer, M., Florian, V., & Weller, A. (1993). Attachment styles, coping strategies, and posttraumatic psychological distress: The impact of the Gulf War in Israel. *Journal of Personality and Social Psychology, 64,* 817–826.

Mikulincer, M., Gillath, O., Halevy, V., Avihou, N., Avidan, S., & Eshkoli, N. (2001). Attachment theory and reactions to others' needs: Evidence that activation of the sense of attachment security promotes empathic responses. *Journal of Personality and Social Psychology, 81,* 1205–1224.

Mikulincer, M., Gillath, O., Sapir-Lavid, Y., Yaakobi, E., Arias, K., Tal-Aloni, L., & Bor, G. (2003). Attachment theory and concern for others' welfare: Evidence that activation of the sense of secure base promotes endorsement of self-transcendence values. *Basic and Applied Social Psychology, 25,* 299–312.

Mikulincer, M., Hirschberger, G., Nachmias, O., & Gillath, O. (2001). The affective component of the secure base schema: Affective priming with representations of attachment security. *Journal of Personality and Social Psychology, 81,* 305–321.

Mikulincer, M., & Shaver, P. R. (2001). Attachment theory and intergroup bias: Evidence that priming the secure base schema attenuates negative reactions to out-groups. *Journal of Personality and Social Psychology, 81,* 97–115.

Mikulincer, M., & Shaver, P. R. (2003). The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal processes. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 35, pp. 53–152). New York: Academic Press.

Mikulincer, M., & Shaver, P. R. (2004). Security-based self-representations in adulthood: Contents and processes. In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment: Theory, research, and clinical implications* (pp. 159–195). New York: Guilford Press.

Mikulincer, M., & Shaver, P. R. (2005). Mental representations of attachment security: Theoretical foundation for a positive social psychology. In M. W. Baldwin (Ed.), *Interpersonal cognition* (pp. 233–266). New York: Guilford Press.

Mikulincer, M., & Shaver, P. R. (2007). *Attachment patterns in adulthood: Structure, dynamics, and change.* New York: Guilford Press.

Mikulincer, M., Shaver, P. R., Gillath, O., & Nitzberg, R. A. (2005). Attachment, caregiving, and altruism: Boosting attachment security increases compassion and helping. *Journal of Personality and Social Psychology, 89,* 817–839.

Mikulincer, M., Shaver, P. R., & Horesh, N. (2006). Attachment bases of emotion regulation and posttraumatic adjustment. In D. K. Snyder, J. A. Simpson, & J. N. Hughes (Eds.), *Emotion regulation in families: Pathways to dysfunction and health* (pp. 77–99).Washington DC: American Psychological Association.

O'Kearney, R. (1996). Attachment disruption in anorexia nervosa and bulimia nervosa: A review of theory and empirical research. *International Journal of Eating Disorders, 20,* 115–127.

Ognibene, T. C., & Collins, N. L. (1998). Adult attachment styles, perceived social support, and coping strategies. *Journal of Social and Personal Relationships, 15,* 323–345.

Orzolek-Kronner, C. (2002). The effect of attachment theory in the development of eating disorders: Can symptoms be proximity-seeking? *Child and Adolescent Social Work Journal, 19,* 421–435.

Pierce, T., & Lydon, J. (1998). Priming relational schemas: Effects of contextually activated and chronically accessible interpersonal expectations on responses to a stressful event. *Journal of Personality and Social Psychology, 75,* 1441–1448.

Pyszczynski, T., Greenberg, J., & LaPrelle, J. (1985). Social comparison after success and failure: Biased search for information consistent with a self-serving conclusion. *Journal of Experimental Social Psychology, 21,* 195–211.

Radecki-Bush, C., Farrell, A. D., & Bush, J. P. (1993). Predicting jealous responses: The influence of adult attachment and depression on threat appraisal. *Journal of Social and Personal Relationships, 10,* 569–588.

Ramacciotti, A., Sorbello, M., Pazzagli, A., Vismara, L., Mancone, & Pallanti, S. (2001). Attachment processes in eating disorders. *Eating and Weight Disorders, 6,* 166–170.

Rogers, C. R. (1961). *On becoming a person.* Boston, MA: Houghton Mifflin.

Rowe, A., & Carnelley, K. B. (2003). Attachment style differences in the processing of attachment-relevant information: Primed-style effects on recall, interpersonal expectations, and affect. *Personal Relationships, 10,* 59–75.

Rowe, A. C., & Carnelley, K. B. (2006). *Long lasting effects of repeated priming of attachment security on views of self and relationships.* Paper presented in the 13th European Conference on Personality, Athens, Greece.

Schaller, M., & Cialdini, R. B. (1988). The economics of empathic helping: Support for a mood management motive. *Journal of Experimental Social Psychology, 24,* 163–181.

Schimel, J., Arndt, J., Pyszczynski, T., & Greenberg, J. (2001). Being accepted for who we are: Evidence that social validation of the intrinsic self reduces general defensiveness. *Journal of Personality and Social Psychology, 80,* 35–52.

Seligman, M. E. P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment.* New York: Free Press.

155

Smith, K. D., Keating, J. P., & Stotland, E. (1989). Altruism revisited: The effect of denying feedback on a victim's status to an empathic witness. *Journal of Personality and Social Psychology, 57*, 641–650.

Sohlberg, S., & Birgegard, A. (2003). Persistent complex subliminal activation effects: First experimental observations. *Journal of Personality and Social Psychology, 85*, 302–316.

Spencer, S. J., Fein, S., & Lomore, C. D. (2001). Maintaining one's self-image vis-a-vis others: The role of self-affirmation in the social evaluation of the self. *Motivation and Emotion, 25*, 41–65.

Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development, 48*, 1184–1199.

Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Chicago: Nelson.

Troisi, A., Massaroni, P., & Cuzzolaro, M. (2005). Early separation anxiety and adult attachment style in women with eating disorders. *British Journal of Clinical Psychology, 44*, 89–97.

Ward, A., Ramsay, R., & Treasure, J. (2000). Attachment research in eating disorders. *British Journal of Medical Psychology, 73*, 35–51.

Ward, A., Ramsay, R., Turnbull, S., Steele, M., Steele, H., & Treasure, J. (2001). Attachment in anorexia nervosa: A transgenerational perspective. *British Journal of Medical Psychology, 74*, 497–505.

Waters, H. S., Rodrigues, L. M., & Ridgeway, D. (1998). Cognitive underpinnings of narrative attachment assessment. *Journal of Experimental Child Psychology, 71*, 211–234.

Wolszon, L. R. (1998). Women's body image theory and research: A hermeneutic critique. *American Behavioral Scientist, 41*, 542–557.

Zakin, G., Solomon, Z., & Neria, Y. (2003). Hardiness, attachment style, and long-term psychological distress among Israeli POWs and combat veterans. *Personality and Individual Differences, 34*, 819–829.