Attachment, Self-Esteem, Worldviews, and Terror Management: Evidence for a Tripartite Security System

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On the basis of prior work integrating attachment theory and terror management theory, the authors propose a model of a tripartite security system consisting of dynamically interrelated attachment, self-esteem, and worldview processes. Four studies are presented that, combined with existing evidence, support the prediction derived from the model that threats to one component of the security system result in compensatory defensive activation of other components. Further, the authors predicted and found that individual differences in attachment style moderate the defenses. In Studies 1 and 2, attachment threats motivated worldview defense among anxiously attached participants and motivated self-enhancement (especially among avoidant participants), effects similar to those caused by mortality salience. In Studies 3 and 4, a worldview threat and a self-esteem threat caused attachment-related proximity seeking among fearful participants and avoidance of proximity among dismissing participants. The authors' model provides an overarching framework within which to study attachment, self-esteem, and worldviews.

Keywords: attachment, terror management, self-esteem, defenses

Recent work integrating attachment theory and terror management theory (TMT) indicates that much of human behavior is directed toward maintaining a sense of psychological security and minimizing conscious and unconscious apprehension and anxiety about personal vulnerability—including, ultimately, death (e.g., Florian, Mikulincer, & Hirschberger, 2002; Mikulincer & Florian, 2000; Mikulincer, Florian, & Hirschberger, 2003). The combined view from these two broad theoretical frameworks is one in which close relationships, self-esteem, and cultural belief systems provide alternative means of boosting security and reducing or buffering anxiety. The nature, development, and functioning of these mechanisms with respect to terror management suggest the possibility of constructing a model of a tripartite security system in which attachment, self-esteem, and cultural worldviews are dynamically interrelated.

Using such a model as an organizing framework, researchers can integrate theories concerning attachment, self-esteem, and cultural worldviews and begin to empirically examine the possibility that threats to one component of the system elicit compensatory responses from the other components, especially in individuals whose security is especially vulnerable to threats. In the present article, we report four studies examining implications of an integrative model of attachment, self-esteem, and cultural worldviews—phenomena that, when considered together, go a long way toward explaining how individuals maintain a sense of security in the face of inevitable threats to life and well-being.

Theoretical Overview

Both attachment theory and TMT portray human beings as vulnerable and in need of protection, support, and optimism-sustaining encouragement, although the theories characterize human vulnerabilities somewhat differently and focus on different mechanisms of anxiety reduction. In this section, we briefly summarize and compare the two theories.

Attachment Theory

In his trilogy on attachment theory, Bowlby (1969/1982, 1973, 1980) portrayed the human animal as motivated to maintain real or imagined proximity to safety- and security-providing attachment figures (i.e., caregivers), especially in periods of stress and distress. Bowlby attributed this "attachment behavior" to an innate attachment behavioral system that was evolutionarily adaptive because (a) human individuals, especially when young, are more protected from danger while in the proximity of more capable, familiar adults whose reliability as protectors has been demonstrated (attachment figures) and (b) the resulting "felt security" (Sroufe & Waters, 1977) allows individuals to function autonomously and pursue other important goals, such as exploration, affiliation, and sexual mating, that foster growth, adaptation, and successful reproduction.

Although attachment behavior is most easily observed in infancy, Bowlby claimed that the attachment system remains active and functionally important "from the cradle to the grave." Hazan and Shaver (1987) provided empirical support for this notion by demonstrating striking parallels between attachment behavior during infancy and attachment to romantic/sexual partners during adolescence and adulthood. According to their adult attachment theory (updated by Fraley & Shaver, 2000, and Mikulincer & Shaver, 2003), much of people's motivation to become involved in long-term romantic relationships and much of their behavior—and

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measurable individual differences in this behavior—can be explained by the innate need for closeness, protection, and emotional support. As in early childhood, environmental or internal threats to an adult activate the attachment system, as indicated by both conscious and unconscious pursuit of proximity to attachment figures (e.g., Mikulincer, Gillath, & Shaver, 2002). In adulthood, as in childhood, actual or symbolic attainment of proximity and support restores felt security.

TMT

TMT portrays humans as motivated to cultivate a symbolic psychological reality in which they perceive themselves as immortal and inherently valuable, a cultural security blanket that reduces the inevitable anxiety and disorientation caused by humans' unique awareness that they are vulnerable to death (see Pyszczynski, Greenberg, & Solomon, 1997, for a review). TMT helps to explain the ubiquity and intensity of the human desire for self-worth or self-esteem, as well as the desire to acquire and maintain a conception of the world as a relatively predictable, orderly, and meaningful place. According to TMT, individuals' self-esteem first arises from early interactions with caregivers, who are also socialization agents acting on behalf of a culture, and is later maintained by their living up to the standards of behavior inherent in the worldview. Because the worldview, defined by the culture, is a primary vehicle through which people can attain immortality either literally (e.g., by attaining life after death based on merit) or symbolically (e.g., by living on through accomplishments, progeny, and other contributions to society and culture), the cultural worldview is a primary death-denying mechanism. Being a "good" member of one's cultural group qualifies a person for immortality, which renders self-esteem, or the sense that one is satisfying cultural criteria for inclusion and symbolic lastingness, an important additional kind of existential anxiety buffer.

Given the purported developmental relation between early childhood experiences and subsequent self-esteem, a developmental process emphasized by both attachment theory and TMT, it seems natural that being loved and valued by close relationship partners—the focus of adult attachment theory—would be a third source of security throughout life, like self-esteem and cultural worldviews. This makes attachment security a likely third death-anxiety buffer, and indeed, Mikulincer et al. (2003) have recently provided strong evidence for including attachment-related processes within an expanded TMT.

Empirical Review

There is already good evidence that attachment, self-esteem, and cultural worldview systems are activated in response to threats and that each one can reduce anxiety and increase security. In this section we provide a brief overview of the evidence.

Evidence for the Defensive Function of the Attachment Motive

Normative infantile responses to environmental and internal threats such as an infant's finding him- or herself alone, in pain, or in the presence of strangers provide strong support for attachment theory. These threats result in crying, searching for attachment figures, and clinging to an available attachment figure. Moreover, comforting responses from such a figure generally reduce distress and allow an infant to return to exploration or affiliation (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969/1982, 1973).

With regard to attachment processes in adolescence and adulthood, hundreds of studies (many reviewed in Cassidy & Shaver, 1999, and Mikulincer & Shaver, 2003) have shown that people in these age groups activate their attachment systems when confronted by threats such as death, illness, failure, and separation (e.g., Mikulincer, Birnbaum, Woddis, & Nachmias, 2000; Mikulincer, Gillath, & Shaver, 2002) and that most people seek the proximity, support, and affection of attachment figures (such as parents, close friends, or romantic partners) under threatening conditions. Along similar lines, reminders of mortality inspire people to enter relationships and seek more closeness in relationships (Florian et al., 2002). Furthermore, dispositional and situational attachment security—a feeling of confidence in the available support and love of attachment figures—is related to less defensiveness (Mikulincer & Shaver, 2001), more cognitive openness (Mikulincer, 1997), and more empathy and compassion for others (Gillath, Shaver & Mikulincer, 2005). These studies have shown that adults, like young children, seek attachment security and become more open to exploration and affiliation when security is maintained.

Evidence for the Defensive Function of the Self-Esteem Motive

Numerous theorists have recognized the ubiquity of the need for self-esteem, at least as far back as William James (1890), who wrote about "self-seeking," a broad effort to pursue positive outcomes for the self and entities associated with the self. There is extensive evidence supporting this position. Research inspired by self-affirmation theory (Steele, 1988) has shown that people respond to failure priming by spontaneously affirming important aspects of the self in an open-ended essay (Tesser, Martin, & Cornell, 1996), and following self-affirmation, people ruminate less on self-esteem-relevant goals following failure (Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999) and are more open to threatening or belief-discrepant information (Cohen, Aronson, & Steele, 2000; Sherman & Cohen, 2002).

Research by terror management theorists has extended these findings and lent support to TMT's particular interpretation of the self-esteem motive as primarily energized or fueled by the psychological need to quell death anxiety. Reminders of mortality (a *mortality salience* [MS] manipulation) heighten people's attempts to increase self-esteem by engaging in more self-esteem-relevant behaviors (Hirschberger, Florian, Mikulincer, Goldenberg, & Pyszczynski, 2002; Taubman Ben-Ari, Florian, & Mikulincer, 1999), focusing more on aspects of the self from which esteem is derived (Goldenberg, McCoy, Pyszczynski, Greenberg, & Solomon, 2000), and altering attributions of success and failure in self-serving directions (Mikulincer & Florian, 2002). In addition, when self-esteem is dispositionally high or experimentally boosted, people display and report less anxiety in response to physical threats and death-related stimuli (Greenberg, Solomon, et al., 1992).

In light of such findings, it is clear that people are motivated to feel good about themselves at least partly because feeling good about oneself protects against threats and feelings of vulnerability. Moreover, threats to the perceived worthiness of the self spur compensatory responses, and restoring feelings of self-worth leads to more openness and less defensiveness.

Evidence for the Defensive Function of the Worldview Motive

For decades, the fact that people are motivated to sustain a consistent view of the world—through a process usually labeled dissonance reduction—has been a psychological maxim. People seem averse to situations in which conflict arises between two mutually exclusive attitudes or behaviors. Along similar lines, Lerner's (1980) work on the just-world phenomenon has demonstrated that people are compelled to view the world as an essentially just place in which one gets what one deserves. This motivation leads people to think less of victims of misfortune and to seek to punish individuals who transgress against social norms. These findings suggest that human beings are motivated to maintain a view of the world as stable and fair.

As with self-esteem, TMT has taken worldview research a step further by conceptualizing and demonstrating the anxiety-buffering properties of the cultural worldview, suggesting that people's desire to uphold a meaningful picture of reality may be motivated by existential insecurity. In support of their hypothesis that reminding people of their ultimate fear, annihilation, should increase the need for anxiety-reducing mechanisms, TMT researchers have repeatedly shown that death salience inspires greater defense of people's cherished worldviews, for example, by rating in-group members more favorably and out-group members more negatively (Greenberg et al., 1990) and by recommending harsher punishments for people who violate worldview standards (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). Moreover, H. McGregor et al. (1998) showed that once people defend their worldview in one way, they no longer manifest further worldview defensiveness. This form of psychological self-preservation is very similar to attachment and self-esteem seeking and appears to reflect the fact that people are motivated to uphold their views of the universe, especially after facing a threat to personal security, and that when people affirm their views, they are less susceptible to other sources of discomfort.

The Security Motive: An Integration

Conceptual and empirical work on attachment theory and TMT provide a rich foundation on which to build a model of human beings as principally motivated to maintain a sense of felt security, a model in which attachment, self-esteem, and cultural worldviews are the central pathways to that secure goal state. Broadly speaking, in the view derived from attachment theory and TMT, human beings are seen as trying to prevent psychological injury and disarray (or, conversely, to preserve security) through various strivings. Also in this view, to the extent that security is attained, individuals are less defensive and exhibit stronger tendencies toward growth-related thoughts and behaviors.

These processes seems to be patterned after the core processes underlying the observable behavior of infants and children, who quickly seek support and comfort from an attachment figure when they are threatened in any way, especially by conditions or stimuli (the dark, strangeness, pain) that would have signaled vulnerability to death or injury in environments of evolutionary adaptation. Initially, the primary caregiver is the main sanctuary from distress and vulnerability. Once an infant gains sufficient capabilities to navigate crudely through the world, his or her behaviors are met with caregivers' approval or disapproval, which shape the child's beliefs and behaviors in directions dictated by a cultural worldview. The young child associates approval with love, security, and a positive view of the self and disapproval with withdrawal of love and thus potential vulnerability and a negative view of the self. Therefore, one's estimation of personal worth is built up partially as a reflection of the love and support bestowed by caregivers during early childhood, so that self-esteem is predicated on attachment experiences, at least early in life. As the child becomes integrated into the larger social world, cultural norms and beliefs serve as an extended basis for self-esteem, and the cultural worldview, which addresses budding concerns related to the explicit awareness of mortality, emerges as a source of security and self-esteem—a caregiver by proxy.

It is important to recognize this fundamentally dialectical development of the security system's three components: attachment, self-esteem, and cultural belief systems. These mechanisms are so intertwined developmentally as to be almost functionally indistinguishable with regard to the regulation of anxiety. A sense of self-worth is deeply related to a sense of being loved and cared for by attachment figures. The feeling that the world is orderly and predictable, and that one can establish a position of worth within it, which can be derived from the cultural worldview, is also psychologically tantamount to the feeling of attachment security. Self-worth can be derived both from interactions with attachment figures throughout life and from living up to the standards prescribed by the worldview. Additionally, the worldview itself can be viewed as an amalgam of the values held by attachment figures, authority figures, and peers, as well as one's own unique experiences and proclivities. That is, the content of the worldview is mainly a function of attachment and self-esteem dynamics operating in a structured social world.

As a result of the tightly woven relations between the three security-providing mechanisms we have been discussing, it seems reasonable to hypothesize an interdependent regulatory control system, consisting of attachment, self-esteem, and worldviews, that dynamically controls levels of anxiety by motivating behaviors aimed at boosting one or more of the three main components. Logically, if attachment, self-esteem, and worldviews develop partly to defend against feelings of vulnerability, then threats to each mechanism should momentarily increase unconscious vulnerability concerns and, in turn, instigate terror management defenses. In other words, threats to one terror management mechanism should motivate defensive responding on the part of that mechanism as well as the remaining, unthreatened mechanisms. Appealing as this theoretical integration may be, how extensively is it supported by empirical evidence? As it turns out, although no theorists have explicitly combined attachment, self-esteem, and worldview into a model of an overarching security system, the literature of social psychology provides ample evidence from which we can infer such an integrative model. In short, undermin-

ing or bolstering each security-providing mechanism has been shown to affect each of the other mechanisms.

In attachment studies, it has been shown that threatening attachment security by priming people with relationship threats (e.g., separation) results in greater accessibility of death-related thoughts (Florian et al., 2002), which are usually considered triggers of terror management mechanisms (Pyszczynski, Greenberg, & Solomon, 1999). On the other hand, boosting attachment security causes less worldview defense in the form of out-group derogation (Mikulincer & Shaver, 2001)—such derogation being a frequent consequence of MS in TMT studies. In self-esteem studies, when self-esteem is threatened by priming people with the word *failure*, the attachment system becomes activated (Mikulincer et al., 2000, Mikulincer, Gillath, & Shaver, 2002). The actual experience of failure causes more worldview defense in the form of out-group derogation, which in turn restores self-esteem (Fein & Spencer, 1997), and boosting self-esteem reduces the worldview defense typically elicited by MS (Harmon-Jones et al., 1997). Finally, when vital aspects of one's worldview are affirmed, self-protective mechanisms such as the defensive denial of threats or challenges to one's beliefs are reduced (Cohen et al., 2000; Sherman & Cohen, 2002), which implies that self-esteem is protected.

The evidence just reviewed forms the bulk of the empirical case needed to justify integrating attachment theory, self-esteem theories, and TMT into a model of substitutable mechanisms that maintain psychological security, thus freeing resources for more growth-oriented thoughts and behaviors. There are, however, a few gaps in the empirical picture that we seek to fill in the series of studies reported here. For instance, the literature does not tell us whether a threat to attachment security will increase worldview defense and self-esteem striving. Nor does it tell us whether a threat to one's worldview activates the attachment system. The experiments described here were designed to address these issues while taking relevant individual differences into account.

Attachment Style

Experimental effects related to the operation of the attachment system are often moderated by dispositional and situationally induced differences in attachment style, defined in terms of patterns of security and insecurity. Additionally, attachment style has been found to moderate the effects of MS (Mikulincer & Florian, 2000). Although other personality variables, such as self-esteem and neuroticism, sometimes moderate terror management processes (e.g., Goldenberg, Pyszczynski, McCoy, Greenberg, & Solomon, 1999; Harmon-Jones et al., 1997), we focus in the present article on attachment style for two major reasons. First, it seems likely that attachment processes and their individual-difference residues arise earlier in development than self-esteem or terror management mechanisms. Second, differences in attachment style have been conceptualized in terms of two orthogonal dimensions, attachment-related anxiety and avoidance (e.g., Bartholomew, 1990; Brennan, Clark, & Shaver, 1998), which are strikingly similar to anthropologist Ernest Becker's (1973) "twin ontological motives" formed in reaction to the terror of death. Becker, whose theoretical work inspired TMT, suggested that humans develop contradictory urges to, on the one hand, *merge* with greater powers, such as caretakers or a social unit and belief system, and, on the other hand, to *emerge* from such protective

structures, to act independently and uniquely on the world (i.e., to gain self-esteem). According to current thinking (e.g., Mikulincer & Shaver, 2003), attachment anxiety reflects "hyperactivation" of the attachment system and an overreliance on others (i.e., merging), whereas attachment avoidance reflects deactivation of the attachment system and an overemphasis on autonomy (i.e., emerging).

Empirically, attachment insecurity (indicated by relatively high scores on measures of attachment-related anxiety and avoidance) has been linked to more aggressive forms of worldview defense in response to MS, and attachment security has been associated with more mature and growth-oriented worldview defenses (Mikulincer & Florian, 2000). There is therefore good reason to predict that responses to a threatened security system may differ as a function of attachment style depending on the nature of the defense opportunities available. For example, relatively anxious people should tend to use attachment-hyperactivating, merging strategies (e.g., seeking proximity to attachment figures and defending a collective worldview), whereas relatively avoidant people should tend to use attachment-deactivating, emerging strategies (e.g., self-esteem defense, aggressiveness) when security is threatened.

We should note that, given the statistical independence of the anxiety and avoidance dimensions, it is possible for people to be classified as having one of four attachment styles (Bartholomew, 1990): secure (low anxiety and avoidance), fearful (high anxiety and avoidance), dismissing (low anxiety and high avoidance), and preoccupied (high anxiety and low avoidance). This four-category conceptualization should not be taken to imply that attachment styles are truly typological (i.e., well-bounded types defined by the two dimensional space), but in writing about results of empirical studies, it is occasionally useful to refer to the four "styles," especially in situations in which anxiety and avoidance interact.

In the studies presented here, we explored dynamic interrelations among alternative components of the proposed tripartite security system. In Studies 1 and 2, we presented an attachment-related threat (thoughts of separation from a romantic partner) and then measured the extent to which people were motivated to defend an aspect of their worldview or enhance self-esteem. In Study 1, we hypothesized that more anxiously attached individuals would respond to the attachment threat by supporting an important aspect of their worldview (their identification with the United States), allowing them to merge with a collective. In Study 2, we expected individuals to respond by describing themselves in terms they viewed as more desirable—especially individuals high in avoidance. In Studies 3 and 4, we exposed participants to a worldview threat (Study 3) or a self-esteem threat (Study 4) and then assessed their desire for closeness in romantic relationships. We hypothesized that anxious individuals would respond to the threats by expressing more desire for closeness, whereas avoidant individuals would respond by expressing less desire for closeness, reflecting their tendency toward autonomous, attachment-deactivating defensive strategies.

Study 1

In this initial study, we wanted to determine whether a threat to the attachment system would elicit the kind of worldview defense typically seen after a MS manipulation. According to our reasoning, a threat to the attachment system undermines the integrity of

the entire security system and therefore should elicit compensatory responses on the part of other components of the system—in this case, the worldview. Terror management researchers have found that people defend their worldview after pondering the death of a loved one, albeit to less of an extent than after thinking about their own death (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994). That finding, as well as Mikulincer, Florian, Birnbaum, and Malishkevich's (2002) finding that pondering relationship problems increases the accessibility of death-related thoughts, supports our prediction that terror management mechanisms, including worldview defense, should be activated in response to relationship threats. In Greenberg et al. (1994) the loss of an attachment figure was confounded with the issue of death, so in Study 1 we focused on reactions to the loss of an imagined romantic relationship due to a breakup rather than a death.

Participants were randomly assigned to one of three conditions: MS, separation salience, and salience of a control topic (watching television). We included the MS condition to determine the extent to which the effects of separation thoughts (our primary interest) parallel the effects of death reminders. Each participant wrote about either his or her own death, separation from a close relationship partner, or watching television. They then read both pro- and anti-American essays, in a counterbalanced order, and rated the author of each essay in terms of knowledge and likability. Before the priming condition, each participant had completed a measure of attachment-related anxiety and avoidance. We expected anxiety to be associated with more worldview defense in response to separation (and mortality) salience because allegiance to one's country involves merging one's identity with, and perhaps being protected by, a larger social entity. Our expectation for avoidant individuals was that they would not respond with as strong a worldview defense on this task as anxious individuals, because defending America is essentially merging with a collective entity, which may be unattractive to avoidant individuals.

Method

Participants. The sample consisted of 103 women and 28 men, who identified themselves as 47% Caucasian, 36% Asian American, and 17% African American, Latino, Middle Eastern American, or "other." All participants were university students who participated to gain credits in a psychology course. All indicated that they identified with America either "a little," "quite a bit," or "a lot" (a 3, 4, or 5 on a 5-point scale), which was required for a worldview defense to be a predictable reaction to a mortality or attachment threat (4 participants were excluded because they responded with a 1 or 2 on the identification question).

Materials and procedure. Participants were informed that they would be participating in two separate studies, the first concerning the relation between personality and attitudes. In sessions consisting of 1 to 3 participants, individuals received a questionnaire packet and were asked to work through the materials in the order presented. First, they indicated how much they identified with America on a scale of 1 (*not at all*) to 5 (*a lot*). Next, they filled out three personality questionnaires, including the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998), a 36-item measure of attachment style that asks respondents to agree or disagree on a 7-point scale with items tapping attachment anxiety (e.g., "I worry about being abandoned," "I worry that romantic partners will not care about me as much as I care about them") and avoidance (e.g., "I prefer not to show a partner how I feel deep down," "I am very comfortable being close to romantic partners" [reverse scored]). The construct validity of these scales in relation to predictions derived from attachment theory has been estab-

lished in scores of studies (see review by Mikulincer & Shaver, 2003). The other questionnaires, the Rosenberg Self-Esteem Scale (Rosenberg, 1965) and the Neuroticism subscale of the Eysenck Personality Inventory (Eysenck & Eysenck, 1967) were used as filler tasks both to help validate the cover story and to check the uniqueness of the expected effects of attachment anxiety. Coefficient alphas for all of the scales were acceptable in this study: Anxiety, .93; Avoidance, .94; Self-Esteem, .88; Neuroticism, .92. As usual, the two attachment scales were essentially independent ($r = .11$, *ns*).[1]

After completing the individual-difference questionnaires, participants were randomly assigned to write about one of three topics: their own death, separation from a close relationship partner caused by a breakup or divorce, or the control topic, watching television. The instructions for this exercise were adapted from ones commonly used in terror management studies (e.g., Rosenblatt et al., 1989). Participants were asked to describe the thoughts and feelings aroused while thinking about the topic (i.e., death, separation, or television), as well as what each experience would be like as it happened and how the person would feel after it had happened. The manipulation was followed by the Positive and Negative Affect Schedule–Expanded Form (PANAS-X), a 60-item mood report (Watson & Clark, 1994), which was included because MS exerts its greatest effects after a delay or distraction, when thoughts of death are considered to be outside of awareness but still cognitively accessible (Greenberg et al., 1994), and because we wanted to be able to test whether self-reported affect would mediate our findings.

Participants were then introduced to the second study, which was described as a pilot study designed to assess gut-level reactions to essays about America and Americans written by foreign students. Participants read and evaluated two handwritten essays used in prior TMT research (e.g., Greenberg, Simon, et al., 1992), in one of two counterbalanced orders. In the pro-American essay, the author extols the virtues of the democracy, freedom, and opportunity that exist in America. In the anti-American essay, the author claims that America's purported status as a "land of opportunity" is a ruse and that Americans are actually bigoted, greedy, lazy, and arrogant. Participants were asked to rate each author on five 9-point scales (1 = *the least possible*; 9 = *the most possible*) in terms of how much they liked the author, how intelligent and knowledgeable the author seemed to be, how much they agreed with the author's point of view, and how true they thought the essay was.

When they had completed the questionnaire and answered some questions about demographics, the participants were probed for suspicion, debriefed, and dismissed. None of the participants appeared to be suspicious about the study's cover story.

Results

Ratings of pro- and anti-American authors. We conducted multiple regression analyses to assess the unique effects of MS and separation salience on pro- and anti-American authors as a func-

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[1] All of the analyses reported for this and subsequent experiments were computed with and without self-esteem and neuroticism included as independent variables. Including self-esteem and neuroticism in the model did not affect the significant pattern of results for any of the studies, nor did self-esteem or neuroticism interact significantly with any of the manipulations. We therefore feel confident in interpreting the results for the attachment variables in terms of attachment theory rather than more general constructs of self-esteem and neuroticism. The uniqueness of the attachment effects fits with other studies that have included both attachment-style measures and measures of self-esteem, neuroticism, or general anxiety (e.g., Mikulincer, Gillath, & Shaver, 2002; Shaver & Brennan, 1992). Also, because the coefficient alphas for anxiety and avoidance were high (i.e., above .85) in all studies, we report alphas only in Study 1.

tion of anxiety and avoidance. We created two dummy variables for MS and separation salience and entered them in the first step of the regression analysis along with centered anxiety and avoidance scores (scores were centered as recommended by Aiken & West, 1991). In the second step, we entered the product terms representing the interactions of mortality and anxiety, mortality and avoidance, separation and anxiety, separation and avoidance, and anxiety and avoidance. In the third step, we entered the three-way interaction terms.[2]

For ratings of the anti-American author, there were no main effects or interactions.[3] For ratings of the pro-American author, the overall model was significant at all three steps at the .001 level, $F(4, 126) = 6.15$, $F(9, 121) = 5.80$, and $F(11, 119) = 4.77$, respectively, explaining between 16% (Step 1) and 30% (Steps 2 and 3) of the variance. There were two main effects and three interactions. Attachment anxiety was negatively related to ratings of the pro-American author, $t(130) = 4.1$, $\beta = -.34$, $p < .001$. Evaluations of the author were higher in the MS condition, $t(130) = 2.69$, $\beta = .25$, $p = .008$. The main effects, however, were qualified by a Mortality × Anxiety interaction, $t(130) = 3.18$, $\beta = .36$, $p = .002$, and a Separation × Anxiety interaction, $t(130) = 2.44$, $\beta = .27$, $p = .02$. Following the guidelines of Aiken and West (1991), a probe of the interaction revealed that individuals in the MS and separation salience conditions who were high in anxiety (i.e., one standard deviation above the mean) rated the pro-American author more positively than did high anxious participants in the television condition, but there was no effect of condition on the ratings made by low-anxious participants (see Figure 1).

There was also an interaction between MS and avoidance, $t(130) = 3.13$, $\beta = -.33$, $p = .002$. Individuals low in avoidance gave more positive ratings to the pro-American essayist after MS relative to low avoidant individuals' ratings in the other experimental groups, whereas individuals high in avoidance did not. There was a similar pattern of results for the separation condition, but the interaction did not reach significance. There were no three-way interactions.

Affect. We ran similar regression analyses on positive and negative affect and found a number of main effects. The overall model for the negative affect analyses was significant at all three steps at the .01 level, $F(4, 126) = 5.30$, $F(9, 121) = 2.87$, and $F(11, 119) = 2.47$, respectively, and explained between 14% (Step 1) and 19% (Step 3) of the variance in self-reported affect. Anxiety related to negative affect, $t(130) = 3.89$, $\beta = .32$, $p < .001$, as did, marginally, avoidance, $t(130) = 1.81$, $\beta = .15$, $p = .07$.
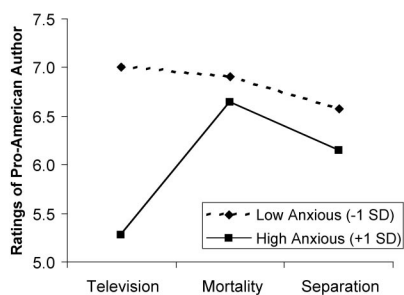
For positive affect, the overall model was significant at all three steps at the .001 level, $F(4, 126) = 8.85$, $F(9, 121) = 4.31$, and $F(11, 119) = 4.41$, respectively, and explained between 22% (Step 1) and 29% (Step 3) of the variance. Anxiety related to less positive affect, $t(130) = 3.42$, $\beta = -.27$, $p = .001$, as did avoidance, $t(130) = -2.09$, $\beta = -.17$, $p = .04$. Interestingly, positive affect was higher in both the MS, $t(130) = 3.14$, $\beta = .28$, $p = .002$, and separation salience conditions, $t(130) = 3.95$, $\beta = .36$, $p < .001$. However, including positive affect as a covariate in our regressions predicting ratings of the pro-American author did not alter the results, indicating that affect did not mediate the observed findings. There were no significant two- or three-way interactions.

Discussion

The results generally confirmed our predictions. As expected, individuals high in attachment-related anxiety (both preoccupied and fearful "types") who thought about separation from a close relationship partner responded by giving more positive evaluations to a pro-American author than their counterparts in the control condition—the same reaction anxious individuals displayed in response to MS. This indicates that a threat to the attachment system can elicit worldview defense on the part of people who are dispositionally anxious with regard to their romantic relationships. Individuals low in attachment anxiety (secure and dismissing "types") did not differ in their ratings of the pro-American author as a function of mortality or separation primes.

Interestingly, attachment anxiety was negatively related to ratings of the pro-American author under control conditions. Although we did not predict this finding, it is interpretable in light of the tendencies of anxious and low self-esteem people. For example, Harmon-Jones et al. (1997) reported that very high self-esteem participants in the control condition showed more in-group bias than individuals with lower self-esteem (of whom anxious people are a subgroup) in the same condition. Also, given the association between anxiety and low self-esteem (Bylsma, Cozzarelli, &

Figure 1. The effect of separation and mortality salience on ratings of a pro-American author, as a function of attachment anxiety.

[2] The analyses were also run including order of reading the pro- and anti-American essays. This variable did not affect any of the results reported here, so it is not considered further.

[3] The lack of any effects on ratings of the anti-American essayist was unexpected, but not surprising. The University of California, Davis (UCD), where all of our studies were run, is exceptionally ethnically diverse (as reflected in the demographics of our sample), including a substantial number of foreign students. Additionally, as with many college campuses, and psychology departments in particular, UCD is characterized by liberal ideology and an emphasis on tolerance of different opinions. Terror management research has revealed that priming participants with tolerance attenuates reactions to pro- and anti-American individuals. Therefore, there may have been an implicit demand on participants to be charitable to the anti-American essayist, who complained of being treated harshly in this country because of his or her minority status. There was probably not a demand for participants to dampen their ratings of the pro-American author, because tolerance does not require anti-Americanism. In fact, there is some support for this post hoc interpretation; the mean evaluation of the anti-American essayist was 4.96, which is around the midpoint on the 9-point scale. Therefore, there may have been a normative level of tolerance of the anti-American essayist's opinions that was not affected by condition, anxiety, or avoidance.

Sumer, 1997), it is reasonable to expect that anxious people would also have dispositionally low ratings of entities with which they identify—in this case, the United States. However, when the attachment system comes under threat, anxious people mobilize defenses related to identification with their country and fellow citizens, up to a level exhibited more stably by low-anxious people.

For avoidant people, we did not have confident predictions because, although avoidant people have displayed worldview defense in response to MS in some previous studies (Mikulincer & Florian, 2000), the kind of worldview defense in those studies was similar to a just-world defense (ratings of social transgressions and punishment for the transgressors) rather than a defense of a collective identity structure, as examined in the present study. In our study, avoidant individuals did not react to MS with more positivity toward the pro-American author, although nonavoidant individuals did, suggesting that the avoidant individuals were not motivated to bolster their security by merging with (i.e., depending on) a collective entity. (As mentioned above, the results were similar in the separation condition, but the interaction was not significant.)

Finally, we found that mortality and separation priming resulted in more self-reported positive affect. Although we had not predicted this effect on mood, it may have been due to an affect-regulation process that occurs as a proximal defense against thoughts of death and separation. It is important to note, however, that similar effects are typically not reported in terror management research, and as is seen below, it did not occur again in our second study. In any case, the mood changes in Study 1 did not mediate the effects of threat primes on worldview defense.

In general, Study 1 demonstrated that a threat to the attachment system caused by thinking about separation motivated the same worldview defense as MS, although both effects were moderated by attachment style. We next sought to test whether separation salience would cause people—especially avoidant individuals, who seemed not to defend themselves by merging with a collective entity in Study 1—to respond with a defense oriented toward magnifying feelings of self-worth, which was the primary aim of Study 2.

Study 2

In Study 2, we examined the possibility that a threat to the attachment system would increase people's desire to feel good about themselves (i.e., to enhance self-esteem), which is another defensive reaction to MS seen in many TMT studies (e.g., Goldenberg et al., 2000; Hirschberger et al., 2002; Mikulincer & Florian, 2002). In so doing, we further tested the key prediction of our integrative model that a threat to one component of the security system should elicit compensatory defensiveness on the part of other components, just as if the entire system had been threatened (e.g., by a reminder of death).

In Study 2 we administered the ECR, to assess attachment-related anxiety and avoidance, and asked participants to rate the desirability of 8 independent and 8 interdependent traits (Sedikides, Gaertner, & Toguchi, 2003). We chose a measure of independent and interdependent traits because, theoretically, these two kinds of traits should be differentially related to avoidance and anxiety. Thus, they gave us an opportunity to reveal differences

between anxious and avoidant people. As in Study 1, we primed participants with either mortality, separation from an attachment figure, or watching television. Following the priming manipulation and a brief delay, we asked participants to rate themselves on the 16 traits they had previously rated for desirability. We operationalized "self-enhancement" by considering self-ratings on the two trait dimensions as a function of how desirable each kind of trait was perceived by a participant to be.

We expected that individuals exposed to mortality and separation primes would show a greater tendency to rate themselves as exemplifying the kinds of traits (independent and/or interdependent) they personally valued than would individuals who did not have their security threatened. We further expected, on the basis of previous experiments showing that avoidant people are prone to defenses involving the self-serving distortion of self-appraisals (Mikulincer, 1998), that avoidant people would be especially likely to respond to security threats with self-enhancement.

Method

Participants. One hundred forty-three women and 96 men, all university students, participated for extra credit toward an introductory psychology course. Self-identified ethnicity yielded 41% Caucasians, 35% Asian Americans, and 23% Hispanics or Latinos, African Americans, or "other."

Materials and procedure. In a large lecture hall, participants were randomly assigned to receive a questionnaire packet containing a mortality, separation, or television priming exercise. They were told that the investigators were interested in associations among various personality variables and that they should move through the packet in order, working quickly and not focusing unduly on any one question. The first measure in the packet was Sedikides et al.'s (2003) list of eight independent (e.g., "independent," "leader," "self-reliant") and 8 interdependent (e.g., "agreeable," "cooperative," "patient") traits. Participants were asked to rate the extent to which they found each trait desirable (i.e., how much they valued the trait) on a 9-point scale (1 = *extremely undesirable*; 9 = *extremely desirable*). Cronbach alphas for these two subscales were adequate to justify combining the items to form two scores: .75 for the independence scale and .79 for the interdependence scale. Participants then completed the ECR so that we would have measures of attachment-related anxiety and avoidance. They then completed the Neuroticism subscale of the Big Five Inventory (John, Donahue, & Kentle, 1991), which was included as both a filler and a potential control variable.

Next, participants wrote about the topic of their own mortality, separation from a close relationship partner (caused by a breakup or divorce), or television—the same priming method used in Study 1. Immediately afterward, they filled out the PANAS (Watson, Clark, & Tellegen, 1988), a 20-item measure of positive and negative affect, followed by a "Life Habits" questionnaire, which consisted of 18 mundane questions such as "How many hours a day do you watch TV?" and "How often do you eat at restaurants?" This questionnaire has been used as a filler or distractor in numerous studies by Mikulincer and his colleagues (reviewed by Mikulincer & Shaver, 2003) and, along with the PANAS, provided the delay and distraction that has been found to be important for the occurrence of MS effects.

Participants then completed the dependent measure, which consisted of a list of the same 16 traits participants had initially rated in terms of desirability. This time, they were instead asked to rate how well each trait term applied to them (1 = *not at all well*; 9 = *extremely well*). To make this measure seem less redundant with the earlier desirability measure, we altered the formatting of the items so that instead of circling a desirability answer alternative they were writing the number of a particular self-description alternative. Cronbach's alpha was .74 for the independence subscale and .76 for the interdependence subscale. Finally, participants

were probed for suspicion, asked to provide demographic information, and dismissed. None of the participants guessed the actual nature of the study.

Results

We conducted separate multiple regression analyses on self-ratings of independence and interdependence as a function of MS, separation salience, anxiety, avoidance, and desirability ratings for independent and interdependent traits. We created two dummy variables for MS and separation salience and entered them in the first step of the multiple regression analysis along with centered anxiety scores, avoidance scores, and desirability ratings. We entered the appropriate two-way interactions in the second step, three-way interactions in the third step, and four-way interactions in the fourth step.

Independence. At each step, the overall model was significant at the .001 level, $F(5, 233) = 18.99$, $F(11, 227) = 8.41$, $F(21, 217) = 5.98$, and $F(23, 215) = 5.46$, respectively, explaining between 29% (Step 1) and 37% (Step 4) of the variance in self-ratings of independence. There were main effects of anxiety and desirability ratings such that more anxious people rated themselves as less independent, $t(238) = 4.31$, $\beta = -.24$, $p < .001$, and people who valued independence more rated themselves as relatively more independent (reflecting a general self-serving bias), $t(238) = 8.54$, $\beta = .47$, $p < .001$.

There were also significant Mortality × Desirability and Separation × Desirability interactions. Compared with controls, people who were primed with mortality were more likely to rate themselves as independent the more they valued independence, and more likely to rate themselves as less independent the less they valued independence, $t(238) = 2.97$, $\beta = .23$, $p = .003$. People primed with separation showed the same pattern of results, $t(238) = 3.34$, $\beta = .27$, $p = .001$. These results are depicted in Figure 2.

Finally, there was one significant three-way interaction between separation salience, desirability ratings, and attachment avoidance, $t(238) = 2.24$, $\beta = .20$, $p = .03$. A probe of this interaction, shown in Figure 3, revealed that the interaction between separation salience and desirability ratings occurred mainly among individuals high in avoidance. That is, compared with avoidant participants in the control condition, for individuals high in avoidance (but not for individuals low in avoidance), thoughts of separation resulted in
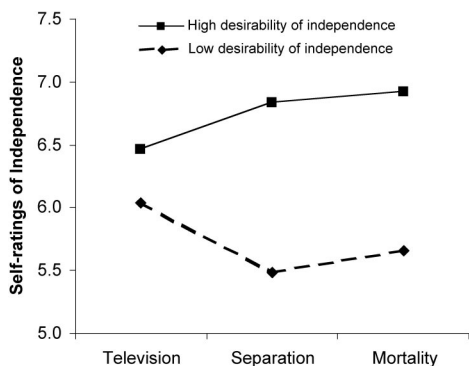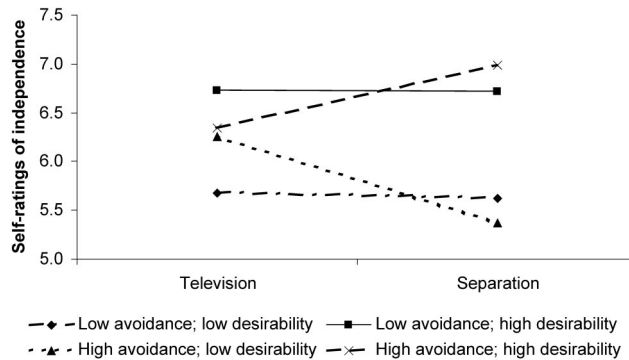

Figure 3. The effect of separation primes on self-ratings of independence as a function of attachment avoidance.

higher self-ratings of independence if independence was highly valued but in lower self-ratings of independence if independence was less highly valued (see Figure 3).

Interdependence. At each step, the overall model was significant at the .001 level, $F(5, 233) = 17.06$, $F(11, 227) = 7.03$, $F(21, 217) = 5.06$, and $F(23, 215) = 4.61$, respectively, explaining between 29% (Step 1) and 33% (Step 4) of the variance in self-ratings of interdependence. There was a main effect of desirability ratings, $t(237) = 8.81$, $\beta = .50$, $p < .001$, such that people who rated interdependence as more desirable also saw themselves as more interdependent (again reflecting a general self-serving bias).

As with ratings of independence, there were significant Mortality × Desirability and Separation × Desirability interactions. People who were primed with mortality were more likely than controls to rate themselves as more interdependent if they thought interdependence was more desirable and to rate themselves as less interdependent if they thought interdependence was less desirable, $t(237) = 2.28$, $\beta = .17$, $p = .02$. The same was true for people who were primed with separation, $t(237) = 2.47$, $\beta = .19$, $p = .01$. Unlike the results for independence, however, there was no interaction between desirability, priming condition, and avoidance (or anxiety; $p\text{s} > .21$).

Affect. For positive affect, there was no effect of separation or MS, nor were there any interactive effects of priming condition and anxiety or avoidance (all $p\text{s} > .15$). For negative affect, the overall model was significant at the .001 level for each step, $F(4, 234) = 6.83$, $F(9, 229) = 4.15$, and $F(5, 233) = 3.49$, respectively, explaining between 11% (Step 1) and 14% (Step 3) of the variance in negative affect. As in Study 1, anxiety was related to negative affect, $t(238) = 4.37$, $\beta = .27$, $p < .001$, as was avoidance, $t(238) = 1.95$, $\beta = .12$, $p = .05$. There was also a marginal Separation × Anxiety interaction on negative affect, $t(238) = 1.89$, $\beta = .17$, $p = .06$, which showed that anxiously attached individuals had more negative affect in the separation salience condition. However, when we added negative affect as a covariate in our earlier regression analyses predicting self-ratings of independence and interdependence, the significant pattern of results was unaltered, implying that affect did not mediate the effect of separation and MS on self-enhancement.

Figure 2. The effect of separation and mortality primes on self-ratings of independence, as a function of rated desirability of independent traits.

Discussion

Consistent with previous terror management research (Mikulincer & Florian, 2002), we found that mortality reminders resulted in especially pronounced self-serving tendencies, measured in this case as the consistency between how much people valued independence and interdependence and how highly they rated themselves on those same dimensions. Further, as predicted, an attachment threat operationalized by writing about separation from a close relationship partner had an effect similar to that of MS. On the dimension of interdependence, everyone self-enhanced in response to both separation salience and MS. For the independence dimension, MS caused everybody to self-enhance, but the effect of separation on self-enhancement occurred mainly among individuals high in avoidance, who tend to use autonomy-oriented defenses such as self-enhancement as a defense rather than merge with another person or a collective entity.

The reason for this difference (between avoidant and non-avoidant people responding to MS vs. the threat of separation) is not completely clear and needs to be studied further, but it is reminiscent of a difference noted by Mikulincer, Gillath, and Shaver (2002). They found that avoidant people took longer to name the color of ink in which their attachment figures' names were typed following subliminal presentation of the threat word *separation* (an attachment-relevant threat), but not following subliminal presentation of the threat word *failure*, which is not as directly related to attachment. The results of the present study suggest, as expected, that there is something special about the matter of independence in the context of the threat of separation that draws out differences between avoidant and nonavoidant individuals. Whereas the attachment threat inherent to thoughts of separation inspired self-enhancement on the trait dimension of independence among avoidant individuals, people who were low on avoidance were apparently reluctant to self-enhance in the independence domain after thinking about separation.

In Study 2, anxious participants exhibited marginally more negative affect in the separation salience condition compared with anxious participants in the other conditions. However, we found no other effects of mortality or separation salience on mood, supporting our earlier supposition that the effect found in Study 1 was unreliable. As in Study 1, the major effects observed in Study 2 did not appear to be mediated by explicit affect.

In sum, Study 2 supports the notion that threats to the attachment system elicit the same kind of self-esteem defense as MS and shows that such effects are sometimes moderated (depending on the content domain of enhancement) by the deactivating, autonomy-enhancing defensive tendencies of avoidant people. In combination with the findings of Study 1, which showed that threats to the attachment system elicit the same kind of worldview defense as MS (in that case, as a function of the hyperactivating, closeness-enhancing defensive tendencies of anxious people), the findings of Study 2 support a major prediction, based on our model, that threats to the attachment system cause defensive reactions similar to those elicited by the threat of death.

We were therefore set to test the model further by examining whether similar dynamics apply to threats to other components of the security system. In Studies 1 and 2 we attacked the attachment system and looked for defensive responses in the domains of the self-esteem and worldview systems. In Studies 3 and 4 we sought to attack the self-esteem and worldview systems and measure the responses of the attachment system.

Study 3

In Study 3, we attacked participants' worldview and assessed effects of this threat on the desire for closeness in romantic relationships, a measure of what attachment researchers, following Bowlby (1969/1982), call proximity-seeking. As mentioned earlier, affirming one's values (i.e., worldview) reduces defensiveness (Steele, 1988), which suggests that undermining a person's worldview should increase defensiveness. With respect to attachment, threatening stimuli, such as the words *death*, *illness*, *failure*, and *separation*, have been found to automatically activate the attachment system, even when presented subliminally (Mikulincer et al., 2000; Mikulincer, Gillath, & Shaver, 2002). However, no studies have tested whether a threat to the worldview increases defensiveness in general or proximity-seeking in particular. In our terms, a threat to the worldview, one of the three major anxiety buffers, is also a threat to one's overall sense of security and should activate the attachment system, which in turn should be reflected in a heightened desire for closeness and intimacy in relationships.

In Study 3, we assessed participants' attachment style, exposed them to either negative (attacking) or neutral (moderate) essays about America, and then measured the extent to which they sought closeness in a romantic relationship. On the basis of assumptions of attachment theory and research, there should be differences between individuals high in anxiety and those high in avoidance in baseline desire for relationship closeness. People low on the avoidance dimension (i.e., preoccupied and secure types, in Bartholomew's, 1990, terms) should display a relatively greater desire for closeness, whereas more avoidant people (Bartholomew's fearful and dismissing types) should display less desire for closeness. We therefore predicted this pattern in Study 3. More central to our current interests, and according to the same logic applied to Studies 1 and 2, we predicted that preoccupied and secure people would respond with the same or more desire for closeness in relationships as a function of having their worldview threatened but that dismissing avoidant individuals would show less desire for closeness in the worldview-threat condition, reflecting their deactivating, individuating defensive strategies.[4] We had no confident prediction about fearfully avoidant individuals, because they are high in both anxiety and avoidance, and it was unclear which tendency, proximity-seeking or proximity-avoidance, would manifest itself in behavior when they were threatened.

Method

Participants. There were 120 participants (100 women, 19 men, 1 not reporting gender) in the study. The sample was ethnically diverse: 56% Caucasian, 25% Asian American, and 18% African American, Hispanic or Latino, Middle Eastern American, or "other." All participants were university students who participated to gain credits in a psychology course.

Materials and procedure. As in Studies 1 and 2, participants were told that they would be taking part in two separate studies, and they completed

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[4] Theoretically, worldview threat should cause implicit attachment system activation in people of all attachment types, but overt defenses related to attachment should be moderated by attachment style.

the materials in separate cubicles (with 1 to 3 people participating in each session). After completing the ECR and filler measures of self-esteem and neuroticism, participants were asked to read and evaluate essays that were being pilot tested for future research. By random assignment, participants then read two essays (to maximize the impact of the manipulation) about America that were either both negative or both neutral. One of the negative essays was the one used in Study 1. The other was taken from Arndt and Greenberg (1999); in it, the author denounces America, urges an overthrow of the government, and declares that people who are happy with America are stupid. The neutral essays were designed to be as similar to the negative essays as possible except for their tone. The content consisted of mildly positive and negative observations about America, which together gave a neutral impression. The first neutral essay was ostensibly written by an immigrant who said that while there are opportunities and relative equality in America, it is not perfect; that Americans are good or bad depending on who you talk to; and that the country is basically okay. In the second essay, the other author similarly stated that the country is decent and has both good and bad qualities, that the government could be greatly improved but is basically adequate, and that it is understandable for some people to like America and some to dislike it.

After reading the essays, we asked participants how positive or negative each one was, on a 7-point scale. These questions were included both to substantiate the cover story about pretesting attitudes about the essays and to ensure that the negative essay was perceived as negative and the neutral one as neutral. The mean ratings for the essays were as intended, with the negative essays being judged as negative (1.62 on a 7-point positivity scale) and the neutral essays as neutral (4.38 on the 7-point scale), $t(119) = 22.44$, $p < .001$.

Immediately after reading and evaluating the essays, participants indicated their desire for closeness in romantic relationships. They were asked to imagine their ideal romantic relationship (not a current or past relationship) and then to rate five items on an 8-point scale: how close they would like the relationship to be, how psychologically intimate they wanted to be with their partner, how much time they would like to spend with the person, how much of their thoughts and feelings they would like to share with their partner, and how much they would like to rely on their partner for sympathy and support. Coefficient alpha for this scale was .82.

Finally, participants were asked some demographic questions, probed for suspicion, debriefed, and thanked.

Results

Multiple regression analyses were conducted to examine the effect of reading anti-American essays on the desire for closeness and intimacy in a romantic relationship as a function of attachment anxiety and avoidance. In the first step of the regression analysis, we entered a dummy variable for worldview threat (i.e., essay type) along with centered anxiety and avoidance scores. In the second step, we entered the Threat × Anxiety, Threat × Avoidance, and Anxiety × Avoidance interaction terms. The three-way interaction was entered in the third step.

At each step, the overall model was significant at the .001 level, $F(3, 116) = 20.21$, $F(6, 113) = 10.87$, and $F(7, 112) = 10.17$, respectively, explaining between 34% (Step 1) and 39% (Step 3) of the variance. There were main effects of anxiety and avoidance on desire for closeness. As anticipated, attachment anxiety was related to a greater desire for closeness in relationships, $t(119) = 3.11$, $\beta = .24$, $p = .002$; and avoidance was related to less desire for closeness, $t(119) = 7.58$, $\beta = -.58$, $p < .001$.

There was also a significant three-way interaction between worldview threat, anxiety, and avoidance, $t(119) = 2.04$, $\beta = .29$, $p = .04$. A probe of the interaction, plotted in Figure 4, revealed
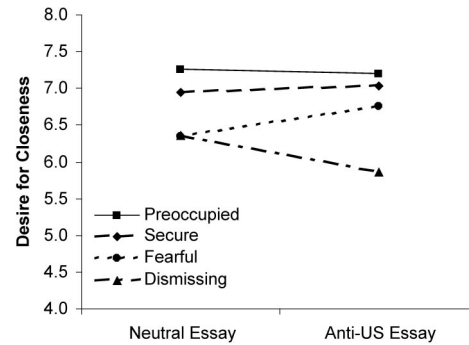

Figure 4. The effect of worldview threat on desire for closeness as a function of attachment style. US = United States.

that individuals who were low in avoidance (i.e., secure and preoccupied types) were high in desire for closeness in the control condition and after a worldview threat. Individuals low in anxiety but high in avoidance (i.e., those who were dismissingly avoidant) responded to the worldview threat with less desire for closeness than dismissing avoidant participants in the control condition, as predicted. In contrast, those high in anxiety and avoidance (i.e., those who were fearfully avoidant) expressed more desire for closeness after a worldview threat than fearful individuals in the control condition, suggesting that their anxiety about abandonment overrode their avoidant tendency in the context of a worldview threat.

Not surprisingly, the desire for closeness reported by participants who were low in avoidance (the secure and preoccupied participants) may have been subject to a ceiling effect and thus unable to increase as a function of the worldview threat. Examination of their scores, 6.95 and 7.26, respectively, on the 8-point scale without any threat, supports this speculation.

Discussion

The results of Study 3 confirmed our major predictions, except in cases in which effects could not occur because of a ceiling effect. First, as expected, anxiety was associated with more and avoidance with less desire for closeness in romantic relationships. This finding provides evidence for the validity of the closeness measure. More important for current purposes was the finding that participants who were low in avoidance had a high desire for closeness both in the control condition and after a worldview threat, whereas high avoidant, low-anxious people (i.e., those with a dismissing attachment style) in the worldview threat condition expressed less desire for closeness compared with that expressed in a control condition. Interestingly, people who scored high on both anxiety and avoidance—that is, people with a fearful attachment style—expressed more desire for closeness after their worldview was threatened than did fearful individuals in the control condition. This implies that under circumstances of threat, fearful individuals' anxious, hyperactivating tendencies become more important than their avoidant, deactivating tendencies.

The results of Study 3 are generally supportive with regard to the security system model. A worldview threat clearly had effects on the attachment-related proclivities of fearful and dismissing individuals and caused those who were dismissing to distance

themselves from others, as had been shown to be participants' defensive preference in previous studies (reviewed by Mikulincer & Shaver, 2003). Because the results—that is, the divergence of fearfully and dismissingly avoidant defensive reactions—was not specifically predicted a priori, Study 4 was designed to test whether the pattern would replicate using a different kind of threat.

Study 4

Study 4 was a replication of Study 3, with one important difference: In Study 4, instead of being exposed to a worldview threat, half of the participants were exposed to a self-esteem threat. Specifically, participants were randomly assigned to complete either an easy word-search puzzle "for enjoyment" or an impossible word-search puzzle that was purportedly an index of exceptional abilities. Unbeknownst to the participants, the impossible puzzle guaranteed their failure on the task. After the word-search task, as in Study 3, participants indicated their desire for closeness and intimacy in a romantic relationship.

According to our model, a threat to self-esteem should have the same defense-arousing consequences as a threat to one's belief system and should thus inspire similar defensive behavior. We therefore predicted that preoccupied and secure individuals (i.e., participants low in avoidance) would demonstrate the same or more desire for closeness after a failure experience than after a nonfailure experience and that dismissing people would show less desire for closeness after failure than after completing the control puzzle. On the basis of the findings of Study 3 and our inference that fearful individuals, because of their attachment-related anxiety, defend by seeking proximity rather than avoiding it, we predicted that fearful individuals would show more desire for closeness in response to failure.

Method

Participants. The participants were 116 women and 63 men who volunteered to participate in exchange for credits toward a psychology course. As in Studies 1–3, the sample was ethnically diverse, with 46% identifying as Asian American, 29% as Caucasian, and 25% as Hispanic or Latino, Native American, African American, or "other."

Materials and procedure. In groups of 10 to 20, participants seated in a large classroom were handed questionnaire packets with a cover page explaining that the researchers were interested in correlating personality variables. Participants were asked to complete the questionnaires in the order in which they appeared in their packets. They first completed the ECR, embedded between filler questionnaires measuring self-esteem and neuroticism. Next, participants came to a page instructing them to stop and await further instructions. When all participants had reached this point, the experimenter told the group that they would have 2 min to complete the following measure and that when told to stop they should move on to the rest of the questionnaire.

The 2-min task was, for all participants, a word-search puzzle. For a randomly selected half of participants, however, the words were very easy to find, and the instructions indicated that the task was "for enjoyment." This constituted the control condition. In the self-esteem threat condition, the word search was impossible—no words from the list were actually contained in the matrix of letters. In this condition, the instructions mentioned that most students from the university were able to find four words in a 2-min period, and "the more words you find, the more exceptional you are." Therefore, all participants in this condition were led to believe that they had performed worse than average, which was presumably exacer-

bated by the sound of control condition participants in the same room circling words.

Immediately after the word puzzle participants completed the measure of desired commitment in romantic relationships used in Study 3. We increased the range of the response scale from 1–8 to 1–21, hoping to reduce the likelihood of a ceiling effect for participants scoring low on avoidance, because 21 might have seemed extremely high. The coefficient alpha for the scale was .84. Finally, participants were probed for suspicion, asked to supply demographic information, debriefed as to the true purpose of the study (and assured that in one condition the puzzle had been impossible and so did not assess ability), and thanked.

Results

Multiple regression analyses were conducted to examine the effects of self-esteem threat, anxiety, and avoidance on desire for closeness. In the first step of the regression analysis, we entered a dummy variable representing self-esteem threat along with centered anxiety and avoidance scores. In the second step, we entered the Threat $\times$ Anxiety, Threat $\times$ Avoidance, and Anxiety $\times$ Avoidance interaction terms. The three-way interaction term was entered in the third step.

At each step, the overall model was significant at the .001 level, $F(3, 175) = 24.38$, $F(6, 172) = 15.20$, $F(7, 171) = 14.70$, respectively, explaining between 30% (Step 1) and 38% (Step 3) of the variance. As in Study 3, there were main effects of anxiety and avoidance, such that anxiety was related to greater desire for closeness, $t(178) = 3.35$, $\beta = .23$, $p = .001$, and avoidance was related to a lower desire for closeness, $t(178) = 8.20$, $\beta = -.55$, $p < .001$. Moreover, there was a significant interaction between self-esteem threat, anxiety, and avoidance, $t(178) = 2.82$, $\beta = .28$, $p = .005$. A probe of this interaction, depicted in Figure 5, revealed that whereas preoccupied and secure individuals had equally high levels of desired closeness regardless of condition, fearful individuals expressed more desire for closeness in the self-esteem threat condition, and dismissing individuals had less desire for closeness in the threat condition—the same pattern observed in Study 3.

Discussion

After a threat to self-esteem posed by an apparent failure at a word task, preoccupied and secure individuals had the same high desire for closeness in relationships as preoccupied and secure individuals in the nonthreat condition. Changing the rating scale
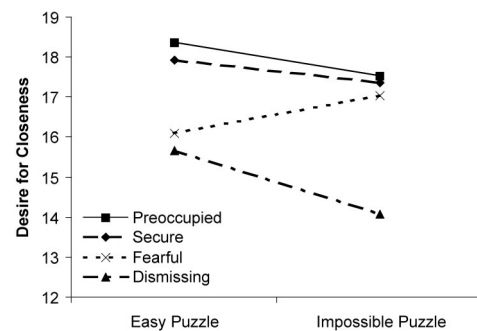

Figure 5. The effect of a self-esteem threat on desire for closeness as a function of attachment style.

did not eliminate the ceiling effect for these individuals, who consistently expressed almost the highest possible desire for closeness, indicating a desire to remain close to others even in the absence of a threat. Meanwhile, fearful individuals expressed more desire for closeness after their self-esteem had been threatened and dismissing individuals expressed less desire for closeness after the self-esteem threat than counterparts in the control condition.

We should note that because we did not include a manipulation check, we cannot be certain that self-esteem was threatened in the condition with the impossible puzzle. It seems likely, however, that the manipulation did pose the intended threat to self-esteem because similar manipulations have been used in past research to undermine self-esteem (for a review, see Mikulincer, 1994). Also, because the effects of the impossible puzzle were essentially identical to the effects of a worldview threat, it seems unlikely that possible confounding variables (e.g., task difficulty) could explain the results.

Across Studies 3 and 4, a worldview threat and a self-esteem threat motivated attachment-related defensive actions on the part of avoidant individuals. Thus, as predicted on the basis of our security model, the attachment system seems to respond defensively in ways parallel to self-esteem and worldview defenses. Further research is needed to clarify the moderation of these defenses by individual differences. This research will need to include different measures of attachment-system effects, as in neither Study 3 nor Study 4 was it possible to determine whether secure and preoccupied individuals would have reacted defensively if they had not already been near the top of our proximity-seeking scale.

General Discussion

We proposed a tripartite model of security maintenance based on an integration of attachment theory and terror management theory as well as on research on self-esteem maintenance and self-affirmation processes. There was already some support in the literature for the basic idea embodied in the model, which is that assaults on any one of three defensive processes that maintain security (i.e., attachment, self-esteem, and cultural worldviews) causes an increase in one of the alternative forms of defensiveness. There was evidence, for example, that satisfying or calming the attachment system causes less worldview defense (Mikulincer & Shaver, 2001), whereas threatening the attachment system results in more death-related thoughts (Florian et al., 2002). There was also evidence that threatening self-esteem causes greater attachment- and worldview-related defenses (Fein & Spencer, 1997; Mikulincer et al., 2000) and that affirming personal values (i.e., bolstering one's worldview) lowers self-esteem-related defenses (Steele, 1988).

The studies reported here add to the existing empirical evidence for the model by showing systematically how attachment, self-esteem, and worldview defenses respond when one component of the system comes under attack. In Studies 1 and 2, threatening the attachment system produced worldview and self-esteem defenses similar to those aroused by MS. In Studies 3 and 4, threatening participants' worldview or self-esteem elicited attachment-related defenses (at least for avoidant individuals, whose scores were not already at the ceiling on our scales). The processes represented in our model apparently operate automatically, since they were not mediated by explicit affect (measured in Studies 1 and 2), and did not seem to be understood by study participants when we asked them what they thought was being studied, or what they thought they were doing during the study.

It is important to note, however, that in each study individual differences in attachment style moderated the effects of attacking particular defenses. In Study 1, only people high in attachment anxiety or low in avoidance responded to MS or separation primes with more defense of their pro-American worldview. In Study 2, only people high in avoidance exhibited greater self-enhancement when describing their independent traits in the separation (attachment threat) condition, although everyone, on average, showed more self-enhancement after being threatened when describing their interdependent traits. In Studies 3 and 4, fearful individuals (those high in both anxiety and avoidance) used a proximity-seeking strategy when threatened with a worldview or self-esteem assault, whereas dismissing individuals (those high in avoidance but low in anxiety) used a distancing strategy. Thus, when studying any aspect of the security-maintenance model, it is important to consider individual differences in attachment style (see Mikulincer et al., 2003, for a similar view). In particular, it seems that attachment anxiety is related to hyperactivating defensive strategies that involve real or symbolic proximity seeking, and avoidance is related to deactivating defensive strategies that involve distancing from other persons and excessive reliance on individualistic defenses such as self-enhancement. (For a more detailed discussion of these issues, see the extensive review by Mikulincer & Shaver, 2003.)

Our studies, in combination with the related studies we reviewed, clearly support the security-maintenance model, but several interesting questions remain to be addressed. First, given that it is possible to motivate one kind of defense by attacking another, is it also possible that supporting one kind of defense reduces the need to respond with another? We know already that enhancing attachment security causes lower worldview defense (e.g., Mikulincer & Shaver, 2001), but we do not know whether increasing attachment security reduces self-enhancement. We know that boosting self-esteem causes lower MS-inspired worldview defense (Harmon-Jones et al., 1997) and that self-affirmation causes more openness to belief-discrepant information (Cohen et al., 2000), but we do not know whether such self-esteem boosts increase attachment security or specifically foster openness to other, more threatening worldviews (e.g., sharply conflicting religions). We know that affirming one's values, or worldview, results in less general defensiveness, but we do not know whether it specifically reduces self-esteem defenses or attachment-related defenses. These issues offer exciting directions for further research.

It will also be important and interesting to delineate the implicit processes that mediate the kinds of effects we hypothesized and documented. We say "implicit" because neither previous TMT studies nor the studies reported here provide any support for the possibility that conscious affect regulation mediates the defensive effects that have been documented. This leaves open the possibility that affective processes at an implicit level mediate the effects. At least one study involving self-affirmation (Koole et al., 1999, Study 5) has shown that implicit positive affect mediated the effect of self-affirmation on the reduction of rumination after threat. In addition, recent TMT findings revealed that giving participants a placebo purported to block anxiety eliminated the effects of MS on

worldview defense (Greenberg et al., 2003). Thus, implicit anxiety would be a good candidate to examine as a possible mediator of the effects we report here, particularly because our model implies that the pursuit of security is a flight from anxiety.

Our model implies that attachment, self-esteem, and worldviews offer substitutable defense mechanisms. Building on Tesser et al.'s (1996) demonstration that many mechanisms of self-esteem defense (e.g., self-affirmation) are functionally equivalent, we posit that the broader psychological defense system comprising attachment, self-esteem, and worldviews is also a system of substitutable mechanisms. Our model is more general and inclusive than Tesser et al.'s; whereas they view several mechanisms in terms of self-esteem maintenance, we conceptualize self-esteem maintenance as part of security maintenance, a construct that encompasses several fairly different-looking kinds of defenses. Our analysis implies that successful use of one kind of defense on a particular occasion may render the other kinds of defenses unnecessary on that occasion. This implication has not been tested, however, so further research is needed to assess whether, say, seeking and obtaining proximity renders self-enhancement unnecessary or whether bolstering a person's worldview makes proximity seeking unnecessary after security has been threatened.

A related issue is the degree to which different people preferentially use one line of defense rather than another and, if so, in what kinds of situations (Mischel, 2004). For example, as shown in the present article, only the more anxious and less avoidant participants used an in-group-based worldview defense, and in one case, only avoidant participants responded to separation with self-enhancement. It would also be worth examining whether people use attachment-based defensive strategies even if these result in greater proximity to a close other who poses a worldview threat (e.g., a parent whose political opinions are offensive). These questions point to new directions for research on the personal and situational dynamics of security maintenance.

A final issue that will be important to resolve concerns the exact constitution of the psychological security system. For instance, is it really necessary to add attachment to the self-esteem and worldview defense systems already posited by TMT? In other words, perhaps attachment security is simply a sense of self-esteem derived from satisfying the wishes and desires of a worldview-providing attachment figure. Although this might seem to be a conceptually neat solution with an advantage in parsimony, we strongly believe that attachment should be viewed as an independent security system component, albeit very much overlapping (in ways discussed in the introduction) with self-esteem and belief systems. The reasons for our position are threefold. First, in several studies (including our own), controlling for scores on the Rosenberg Self-Esteem Scale did not alter the dynamics of attachment processes, showing that attachment and self-esteem are at least partially distinct. Second, in the studies reported in this article, avoidant people tried to increase self-esteem after a threat but also tried to distance from a hypothetical attachment relationship. This suggests that at least for avoidant individuals, attachment bonds are not equivalent to self-esteem. Third, and most convincingly, Hirschberger, Florian, and Mikulincer (2003) found that MS increased the desire for intimacy even after participants imagined that their intimate partner had severely criticized them. That is, there was a main effect of MS on attachment striving even when the attachment striving would result in a blow to self-esteem. Not only does this imply that attachment is a distinct defense system, but it also implies that attachment is a particularly powerful defense that may, for most people, trump other defenses, and even be used at the expense of other defenses.

It remains to be seen whether mechanisms not addressed by attachment theory or TMT might also be involved in maintaining psychological equanimity. I. McGregor, Zanna, Holmes, and Spencer (2001) and van den Bos (2001) have suggested, for example, that MS activates feelings of uncertainty, which in turn motivate defensive behavior. However, a number of experiments have failed to find self-esteem striving and worldview defense effects parallel to MS effects when using van den Bos's uncertainty salience manipulation (Landau et al., 2004; Martens, Greenberg, Schimel, & Landau, in press; Routledge, Arndt, & Goldenberg, 2004). Other provocative possibilities for defense mechanisms may be found in basic and common activities such as eating (e.g., "comfort food"), shopping, sexual activity, and some forms of entertainment.

Whether there prove to be additional defensive strategies, we believe it makes sense to attempt to integrate all of them into a single model of security maintenance. Rather than indefinitely expand the number of minitheories dealing with defensive maintenance of security and individual differences that moderate defenses, why not attempt to create a single theory of security maintenance that reveals the dynamic interrelations among major security-maintaining mechanisms? We hope the model proposed in the present article provides a takeoff point for future integrative efforts.

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Thousand Oaks, CA: Sage.

Ainsworth, M. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation.* Oxford, United Kingdom: Erlbaum.

Arndt, J., & Greenberg, J. (1999). The effects of a self-esteem boost and mortality salience on responses to boost relevant and irrelevant worldview threats. *Personality and Social Psychology Bulletin, 25,* 1331–1341.

Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships, 7,* 147–178.

Becker, E. (1973). *The denial of death.* New York: Simon & Schuster.

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

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

Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss.* New York: Basic Books.

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

Bylsma, W. H., Cozzarelli, C., & Sumer, N. (1997). Relation between adult attachment styles and global self-esteem. *Basic and Applied Social Psychology, 19,* 1–16.

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

Cohen, G. L., Aronson, J., & Steele, C. M. (2000). When beliefs yield to evidence: Reducing biased evaluation by affirming the self. *Personality and Social Psychology Bulletin, 26,* 1151–1164.

Eysenck, H. J., & Eysenck, S. B. G. (1967). *Personality structure and measurement.* London: Routledge & Kegan Paul.

Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance: Affirming the self through derogating others. *Journal of Personality and Social Psychology, 73,* 31–44.

Florian, V., Mikulincer, M., & Hirschberger, G. (2002). The anxiety-buffering function of close relationships: Evidence that relationship commitment acts as a terror management mechanism. *Journal of Personality and Social Psychology, 82,* 527–542.

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology, 4,* 132–154.

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.

Goldenberg, J. L., McCoy, S. K., Pyszczynski, T., Greenberg, J., & Solomon, S. (2000). The body as a source of self-esteem: The effect of mortality salience on identification with one's body, interest in sex, and appearance monitoring. *Journal of Personality and Social Psychology, 79,* 118–130.

Goldenberg, J. L., Pyszczynski, T., McCoy, S., Greenberg, J., & Solomon, S. (1999). Death, sex, love, and neuroticism: Why is sex such a problem? *Journal of Personality and Social Psychology, 77,* 1173–1187.

Greenberg, J., Martens, A., Jonas, E., Eisenstadt, D., Pyszczynski, T., & Solomon, S. (2003). Psychological defense in anticipation of anxiety: Eliminating the potential for anxiety eliminates the effect of mortality salience on worldview defense. *Psychological Science, 14,* 516–519.

Greenberg, J., Pyszczynski, T., Solomon, S., Rosenblatt, A., Veeder, M., Kirkland, S., & Lyon, D. (1990). Evidence for terror management II: The effects of mortality salience on reactions to those who threaten or bolster the cultural worldviews. *Journal of Personality and Social Psychology, 58,* 308–318.

Greenberg, J., Pyszczynski, T., Solomon, S., Simon, L., & Breus, M. (1994). Role of consciousness and accessibility of death-related thoughts in mortality salience effects. *Journal of Personality and Social Psychology, 67,* 627–637.

Greenberg, J., Simon, L., Pyszczynski, T., Solomon, S., & Chatel, D. (1992). Terror management and tolerance: Does mortality salience always intensify negative reactions to others who threaten one's worldview? *Journal of Personality and Social Psychology, 63,* 212–220.

Greenberg, J., Solomon, S., Pyszczynski, T., Rosenblatt, A., Burling, J., Lyon, D., et al. (1992). Why do people need self-esteem? Converging evidence that self-esteem serves an anxiety-buffering function. *Journal of Personality and Social Psychology, 63,* 913–922.

Harmon-Jones, E., Simon, L., Greenberg, J., Pyszczynski, T., Solomon, S., & McGregor, H. (1997). Terror management theory and self-esteem: Evidence that increased self-esteem reduces mortality salience effects. *Journal of Personality and Social Psychology, 72,* 24–36.

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

Hirschberger, G., Florian, V., & Mikulincer, M. (2003). Strivings for romantic intimacy following partner complaint or partner criticism—A terror management perspective. *Journal of Social and Personal Relationships, 20,* 675–687.

Hirschberger, G., Florian, V., Mikulincer, M., Goldenberg, J. L., & Pyszczynski, T. (2002). Gender differences in willingness to engage in risky behavior: A terror management perspective. *Death Studies, 26,* 117–141.

James, W. (1890). *The principles of psychology* (Vol. 1). New York: Dover.

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory – Versions 4a and 54.* Berkeley: University of California, Berkeley, Institute of Personality and Social Research.

Koole, S. L., Smeets, K., van Knippenberg, A., & Dijksterhuis, A. (1999). The cessation of rumination through self-affirmation. *Journal of Personality and Social Psychology, 77,* 111–125.

Landau, M. J., Johns, M., Greenberg, J., Pyszczynski, T., Martens, A., Goldenberg, J. L., & Solomon, S. (2004). A function of form: Terror management and structuring the social world. *Journal of Personality and Social Psychology, 87,* 190–210.

Lerner, M. J. (1980). *The belief in a just world: A fundamental delusion.* New York: Plenum Press.

Martens, A., Greenberg, J., Schimel, J., & Landau, M. J. (in press). Ageism and death: Effects of mortality salience and perceived similarity to elders on reactions to elderly people. *Personality and Social Psychology Bulletin.*

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

McGregor, I., Zanna, M. P., Holmes, J. G., & Spencer, S. J. (2001). Compensatory conviction in the face of personal uncertainty: Going to extremes and being oneself. *Journal of Personality and Social Psychology, 80,* 472–488.

Mikulincer, M. (1994). *Human learned helplessness: A coping perspective.* New York: Plenum Press.

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. (1998). Adult attachment style and affect regulation: Strategic variations in self-appraisals. *Journal of Personality and Social Psychology, 75,* 420–435.

Mikulincer, M., Birnbaum, G., Woddis, D., & Nachmias, O. (2000). Stress and accessibility of proximity-related thoughts: Exploring the normative and intraindividual components of attachment theory. *Journal of Personality and Social Psychology, 78,* 509–523.

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. (2002). The effects of mortality salience on self-serving attributions—Evidence for the function of self-esteem as a terror management mechanism. *Basic and Applied Social Psychology, 24,* 261–271.

Mikulincer, M., Florian, B., Birnbaum, G., & Malishkevich, S. (2002). The death-anxiety buffering function of close relationships: Exploring the effects of separation reminders on death-thought accessibility. *Personality and Social Psychology Bulletin, 28,* 287–299.

Mikulincer, M., Florian, V., & Hirschberger, G. (2003). The existential function of close relationships: Introducing death into the science of love. *Personality and Social Psychology Review, 7,* 20–40.

Mikulincer, M., Gillath, O., & Shaver, P. R. (2002). Activation of the attachment system in adulthood: Threat-related primes increase the accessibility of mental representations of attachment figures. *Journal of Personality and Social Psychology, 83,* 881–895.

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). San Diego, CA: Academic Press.

Mischel, W. (2004). Toward an integrative science of the person. *Annual Review of Psychology, 55,* 1–22.

Pyszczynski, T., Greenberg, J., & Solomon, S. (1997). Why do we need

what we need? A terror management perspective on the roots of human social motivation. *Psychological Inquiry, 8,* 1–20.

Pyszczynksi, T., Greenberg, J., & Solomon, S. (1999). A dual-process model of defense against conscious and unconscious death-related thoughts: An extension of terror management theory. *Psychological Review, 106,* 835–845.

Rosenberg, M. (1965). *Society and the adolescent self image.* Princeton, NJ: Princeton University Press.

Rosenblatt, A., Greenberg, J., Solomon, S., Pyszczynski, T., & Lyon, D. (1989). Evidence for terror management theory I: The effects of mortality salience on reactions to those who violate or uphold cultural values. *Journal of Personality and Social Psychology, 57,* 681–690.

Routledge, C., Arndt, J., & Goldenberg, J. L. (2004). A time to tan: Proximal and distal effects of mortality salience on sun exposure intentions. *Personality and Social Psychology Bulletin, 30,* 1347–1358.

Sedikides, C., Gaertner, L., & Toguchi, Y. (2003). Pancultural self-enhancement. *Journal of Personality and Social Psychology, 84,* 574–591.

Shaver, P. R., & Brennan, K. A. (1992). Attachment styles and the "Big Five" personality traits: Their connections with each other and with romantic relationship outcomes. *Personality and Social Psychology Bulletin, 18,* 536–545.

Sherman, D. K., & Cohen, G. L. (2002). Accepting threatening information: Self-affirmation and the reduction of defensive biases. *Current Directions in Psychological Science, 11,* 119–123.

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

Steele, C. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 261–302). New York: Academic Press.

Taubman Ben-Ari, O., Florian, V., & Mikulincer, M. (1999). The impact of mortality salience on reckless driving. *Journal of Personality and Social Psychology, 76,* 35–45.

Tesser, A., Martin, L. L., & Cornell, D. P. (1996). On the substitutability of self-protective mechanisms. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 48–68). New York: Guilford Press.

van den Bos, K. (2001). Uncertainty management: The influence of uncertainty salience on reactions to perceived procedural fairness. *Journal of Personality and Social Psychology, 80,* 931–941.

Watson, D., & Clark, L. A. (1994). *Manual for the Positive and Negative Affect Schedule—Expanded form.* Unpublished manuscript.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063–1070.