

DEATH AND FORGIVENESS: MORTALITY SALIENCE AND THE
MOTIVATION TO REPAIR TROUBLED RELATIONSHIPS

by

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ABSTRACT OF THE THESIS

Death and Forgiveness: Mortality Salience and the

Motivation to Repair Troubled Relationships

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Previous research has shown that mortality salience increases relational strivings, and that thinking about relationship problems increases death-thought accessibility (Mikulincer, Florian, & Hirschberger, 2003). However, no study has examined whether mortality salience increases relational strivings toward troubled close relationship partners. The present study investigated whether mortality salience induces people to expect their troubled relationships to improve (friend, family, or romantic). Although I predicted that mortality salience would motivate securely but not insecurely attached individuals to repair their relationship problems, results showed a different, yet intriguing pattern. Mortality salience increased avoidant participants' expectations for improvement and future relationship satisfaction. In fact, mortality salience boosted avoidant participants' expectations for improvement and future relationship satisfaction up to the level of securely attached participants. Mortality salience also increased high self-esteem women's expectations for improvement and ratings of importance of their troubled relationships. The present study extends previous research, suggesting that troubled close relationships serve a terror management function for different subgroups of individuals

than previous research has found for other types of close relationships. Future research is necessary to assess the generalizability of these findings outside the laboratory and among older populations.

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Death and Forgiveness: Mortality Salience and the Motivation to Repair Troubled Relationships

“Remembering that I’ll be dead soon is the most important tool I’ve ever encountered to help me make the big choices in life. Because almost everything – all external expectations, all pride, all fear of embarrassment or failure – these things just fall away in the face of death, leaving only what is truly important” (Steve Jobs, 2005).

Eleven months after Marie Osmond’s 18-year old son Michael committed suicide, Marie remarried her ex-husband Stephen Craig. Ryan O’Neal began to mend his strained relationships with his daughter, Tatum, and his son, Redmond, after the death of Redmond’s mother, Farrah Fawcett. And Michael Douglas credits his battle with throat cancer for motivating him to repair his troubled relationship with his father. Do death-related thoughts and events motivate people to mend troubled relationships with significant others in their lives?

Terror Management Theory (TMT)

Humans are the only known species who are aware of their inevitable death. According to terror management theorists, humans have developed psychological mechanisms to protect them from this terrifying reality (Becker, 1973). These terror management strategies include both *proximal* and *distal* defenses (Pyszczynski, Greenberg, & Solomon, 1999; Pyszczynski, Greenberg, & Solomon, 2000). *Proximal defenses* refer to strategies like suppressing death-related thoughts or rationalizing death as far off in the future. Individuals use these defenses when consciously thinking about their mortality (Pyszczynski et al., 1999; Pyszczynski et al., 2000). *Distal defenses* operate more indirectly through shifts in perspective about oneself and the world; they occur when people are not consciously thinking about death. Distal defenses mitigate

death anxiety by enabling humans to feel connected to something more meaningful and longer-lasting than their own lives (Greenberg, Pyszczynski, & Solomon, 1997). Distal defenses may provide hope for *literal immortality*, continued existence in an afterlife, or *symbolic immortality*, continued existence through one's achievements or relationships with others still living (Pyszczynski et al., 1999).

The two distal defenses most widely studied in the terror management literature are cultural worldview validation and self-esteem enhancement. Terror management theorists argue that cultural worldviews transform a chaotic world into an organized structure by providing a belief system for people to follow (Pyszczynski et al., 1999). Culture serves as a buffer against death anxiety because the belief systems it establishes offer answers to existential questions about life and death. This theory has been well supported through empirical research. Numerous studies have shown that, when mortality is made salient, individuals more strongly endorse the validity of their beliefs and admire those who share their views, and more strongly reject other beliefs and show disdain for those who hold alternate worldviews (e.g., Greenberg et al., 1997).

Terror management theorists argue that self-esteem buffers against death anxiety because self-esteem is in part a measure of how well an individual is living up to the values and standards of his or her society. Research has shown that mortality salience increases individuals' self-esteem strivings (Goldenberg et al., 2000). Some research also suggests that simply having high self-esteem buffers against death anxiety (e.g., Harmon-Jones, Simon, Greenberg, Pyszczynski, Solomon, & McGregor, 1997), although other studies have found conflicting evidence regarding the role of global feelings of self-worth as a terror-management defense (e.g., Landau & Greenberg, 2006).

According to terror management theorists, the reason why self-esteem and cultural worldviews provide a sense of security against mortality concerns can be traced to children's early socialization experiences with their primary caregivers (Pyszczynski et al., 2000; Solomon, Greenberg, & Pyszczynski, 1991). During infancy, children receive unconditional protection and affection from their primary caregivers. However, as they develop, children learn that to continue to earn the approval and affection of their primary caregivers, they must follow the rules established by their culture. As a result, children come to associate protection with behaving according to their culture's standards. Terror management theorists argue that this association between protection and living up to cultural standards persists after children learn that their parents are mortal and will not always be there to protect them (Pyszczynski et al., 2000).

The Existential Function of Close Relationships

Recently, researchers have proposed that, in addition to culture and self-esteem, close relationships serve an existential function. Certainly, close relationships can serve both cultural worldview (i.e., "Do I have the type and quality of relationships society values?") and self-esteem (i.e., "Can I consider myself a person of worth, based on how my close relationships are going?") functions (e.g., the sociometer hypothesis; Leary & Downs, 1995). However, several researchers have argued that close relationships function as an entirely separate defense than culture and self-esteem (see Mikulincer et al., 2003).

It makes sense to consider close relationships a terror management defense in terms of the socialization argument discussed above and attachment theory more generally (Bowlby, 1969). Research suggests that as children develop into adults, close

others—particularly romantic partners—replace parents as the main source of emotional support (Hazan & Shaver, 1987). Therefore, close relationship partners may provide a source of protection against death anxiety similar to the role primary caregivers play in shielding their infants from fear. Indeed, relationships provide emotional relief from anxiety and distress (Mikulincer et al., 2003) and fulfill a basic human need (i.e., the need to belong; Baumeister & Leary, 1995). Mikulincer et al. (2003) argue that close relationships serve a global function of providing emotional support as well as a specific function of ensuring a social identity that continues after death. There are several ways in which relationships may provide a sense of symbolic immortality: through one's progeny and the memories of those still living, by making people feel part of a larger social group, and by providing a source of meaning and value that transcends the self (Mikulincer et al., 2003). Long-term relationships likely provide a stronger buffer against death anxiety than short-term relationships because long-term relationships provide a richer, more durable source of meaning and value.

A growing body of literature supports the hypothesis that close relationships buffer against death anxiety (for a review, see Mikulincer et al., 2003). To test this hypothesis, TMT researchers typically make mortality salient in the minds of participants in an experimental group (i.e., by having them write about what will happen when they die) but not to those in a control group (i.e., by having them write about a control topic). Because research has shown that symbolic defenses only operate when participants are not consciously thinking about death (Arndt, Greenberg, Pyszczynski, Solomon, & Simon, 1997), participants complete distractor tasks following the experimental induction. Then, researchers present the dependent variable(s) of interest. Using this

procedure, researchers have found that mortality salience increases global relational strivings as well as relational strivings within the context of close relationships.

Research has shown that mortality salience increases *global* relational strivings in a variety of ways. Under mortality salience, people show enhanced feelings of interpersonal competence, lower fear of rejection, and greater willingness to initiate social interactions with a same-sex target (Taubman-Ben-Ari, Findler, & Mikulincer, 2002). Individuals also show an increased need for affiliation following a mortality salience induction, as measured by their decision to sit alone or among other participants for a subsequent task (Wisman & Koole, 2003).

Several studies have also shown that mortality salience increases the desire to form and maintain close relationships. Under mortality salience, participants show increased commitment to their romantic partner (Florian, Mikulincer, & Hirschberger, 2002), exaggerated perceptions of how positively their romantic partners see them (Cox & Arndt, 2012), greater desire for intimacy in their romantic relationships (Mikulincer & Florian, 2000), greater willingness to compromise their standards for selecting a romantic partner (Hirschberger, Florian, & Mikulincer, 2002), increased desire for proximity to their parents (Cox, Arndt, Pyszczynski, Greenberg, Abdollahi, & Solomon, 2008), and greater ease of recalling positive interactions with their parents (Cox et al., 2008).

Furthermore, there is some evidence that close relationship defenses override the activation of other terror management defenses. After having participants write about death or a control topic, Wisman and Koole (2003) asked them to participate in a group discussion. For the discussion, they were allowed to choose between sitting alone and defending a personal worldview or sitting with others and arguing against their position.

Wisman and Koole (2003) found that participants in the mortality salience condition were much more likely to choose to sit in a group than controls, suggesting that, in response to mortality salience, people's desire to affiliate with others outweighs their desire to validate their worldviews. In another study, Florian et al. (2002) had participants complete a mortality salience or control writing task and then write about their commitment to their current romantic partner or their commitment to their favorite radio program. After receiving these manipulations, participants were asked to rate the severity of several social transgressions (e.g., robbery, forgery, medical malpractice) and determine the severity of the punishments the transgressors should receive. Florian et al. (2002) found that participants in the mortality salience condition who did not write about their relational commitment rated the transgressions as more severe and deserving of harsher punishments than control participants—the typical cultural worldview validation effect. However, participants in the mortality salience condition who had previously written about their commitment to their romantic partner did not judge the transgressions more harshly than control participants, suggesting that close relationship defenses can neutralize cultural defenses. Additionally, Hirschberger et al.'s (2002, 2003) findings suggest that relational bonds may trump self-esteem enhancement because, under mortality salience, participants (a) were more willing to compromise their mate selection standards and (b) desired greater intimacy with their romantic partner, despite their partner's criticism.

Whereas mortality salience increases relational strivings, thinking about the dissolution of close relationships increases death thought accessibility. For example, participants are more likely to fill in the blanks to a word completion task with death-

related words after thinking about problems in their relationships (Florian et al., 2002). Similarly, Mikulincer, Florian, Birnbaum, & Malishkovitz (2002) found that imagining being separated from a close relationship partner increased death thought accessibility. In fact, Mikulincer et al. found a linear relationship between the length of time participants imagined being separated from their partner and the level of death thought accessibility (as measured by the number of death-related words participants completed).

Does Mortality Salience Motivate People to Mend their Troubled Relationships?

Although Florian et al. (2002) showed that thinking about relationship problems leads to greater death-thought accessibility, no study has examined whether mortality salience increases efforts to repair relationship problems. To my knowledge, no study in the terror management literature has focused on the effects of mortality salience in the context of troubled close relationships.

Hirschberger, Florian, and Mikulincer (2003) investigated relational strivings following a partner's criticism, but it is possible that the authors only induced participants to imagine a single negative episode in an otherwise positive relationship. Wakimoto (2011) examined how people reconstruct their autobiographical memories of positive and negative interactions with friends under mortality salience. Although participants in the mortality salience condition remembered positive experiences with friends as occurring less long ago than those in the control condition, no differences emerged for the subjective temporal distance of negative interactions with friends. However, as in Hirschberger (2003), participants were likely imagining a single negative interaction in an otherwise positive relationship rather than a friendship plagued with problems. In fact,

in her discussion, Wakimoto suggests that participants may not have perceived a single negative experience as a threat to the continuity of the friendship.

The purpose of this study was to fill the gap in the terror management literature on how mortality salience affects relational strivings in the context of troubled relationships. Specifically, this study examined whether mortality salience induces people to (1) expect greater improvement in their troubled relationships, (2) imagine improvement occurring more quickly, (3) initiate conflict resolution, and (4) expect greater future satisfaction in these relationships.

To investigate these questions, I employed a slightly different methodology than has typically been used in terror management research. Instead of focusing on a specific category of close relationships such as romantic relationships, I let participants decide whether to select a troubled friendship, family relationship, romantic relationship, or other type of close relationship. This approach was useful for a few reasons. Practically, it is easier for people to identify a troubled relationship if they are not constrained by the type of relationship from which they must choose. As a result, this approach enabled an examination of real relationships without resorting to hypothetical scenarios.

Furthermore, studying the effects of mortality salience on all types of close relationships increases the generalizability of the findings. By leaving the type of close relationship open-ended, this study tested the extent to which all types of close relationships buffer against death anxiety.

Moderating Variables

Although several studies suggest that close relationships buffer against death anxiety, additional research has shown that there is considerable variability across

individuals in how effective close relationships are as a buffer against mortality concerns. Three individual difference factors appear to play an important role in determining whether a person's close relationships can effectively buffer their existential concerns: attachment style, self-esteem, and gender (Hirschberger, Florian, & Mikulincer, 2002; Mikulincer & Florian, 2000; Mikulincer et al., 2003).

Attachment style. As previously mentioned, the theory that close relationships serve a terror management defense is grounded in attachment theory. Terror management theorists argue that primary caregivers provide us with our earliest sense of protection, which we later seek from close relationship partners throughout our lives. However, not all individuals develop a sense of security and trust from their close relationships (Bowlby, 1969; Ainsworth, 1978). Securely attached individuals obtain a sense of security from their close relationships and are able to place trust in others; they are comfortable getting close to others but are not overly dependent upon them (Hazan & Shaver, 1987). Individuals with insecure patterns of attachment, however, do not gain security and trust from their close relationships. Some insecurely attached individuals develop an avoidant form of attachment: they are uncomfortable getting close to others and do not feel as though they can depend on them. Others have an anxious-ambivalent form of attachment: they worry that significant others will abandon them and thus attempt to draw their partners closer to them than their partners are comfortable being.

Given that securely attached individuals can rely on close relationships for emotional support more so than insecurely attached individuals, it would appear that close relationships would provide a stronger buffer against death anxiety for securely attached individuals than for insecurely attached individuals. In fact, several studies

provide support for this hypothesis. Mikulincer and Florian (2000) found that whereas securely attached participants showed a greater desire for intimacy in romantic relationships following mortality salience, insecurely attached participants did not. Instead, insecurely attached individuals resorted to other defenses to mitigate their death concerns (e.g., by validating their cultural worldviews; Mikulincer & Florian, 2000). Similarly, Taubman-Ben-Ari et al. (2002) found that it was primarily securely attached participants who showed lower levels of rejection sensitivity, enhanced feelings of interpersonal competence, and greater willingness to initiate social interactions with strangers following mortality salience.

More recently, some researchers have proposed that securely attached individuals may not be the only ones who can rely on close relationships as a terror management defense. Cox et al. (2008) argue that the reason previous studies suggest securely but not insecurely attached individuals show increased relational strivings under mortality salience is because previous research has focused on relational strivings in the context of romantic relationships. These researchers developed a creative technique to investigate whether securely and insecurely attached individuals turn to different types of attachment figures under mortality salience. In their study, the experimenters gave participants a questionnaire described as a survey on consumer behavior. To maintain the cover story, participants were told that some would evaluate a household product, whereas others would evaluate a cell phone calling plan. In reality, all participants completed the cell phone minute allocation task. After a mortality salience manipulation, participants were asked to allocate 100 minutes on a weekly cell phone plan to each of four people: a parent, sibling, romantic partner, and friend. Cox et al. found that, whereas securely

attached participants allocated more minutes to a romantic partner under mortality salience, anxious-ambivalent participants allocated more minutes to a parent. Similarly, Cox and Arndt (2012) found that, under mortality salience, securely attached individuals reported increased positive regard from their romantic partner (i.e., exaggerating how positively their partner viewed them), and anxious-ambivalent individuals reported increased positive regard from their parents. These studies suggest that mortality salience increases secure individuals' relational strivings toward a romantic partner, and anxious-ambivalent individuals' relational strivings toward their parents. Cox and Arndt (2012) propose that anxious-ambivalent individuals "have difficulties transferring attachment processes to extrafamilial relations" (p. 626). In these studies, avoidant participants did not show increased relational strivings (Cox et al., 2008) or positive regard (Cox & Arndt, 2012) for attachment figures following mortality salience. Cox et al. (2008) argue that avoidant individuals distance themselves from others and do not seem to care much about their attachments.

Because attachment style appears to play a large role in determining whether close relationships serve as a death anxiety buffer, the present study investigated whether attachment style moderates the effects of mortality salience on participants' desire to mend their troubled relationships.

Self-esteem. Studies examining the moderating role of self-esteem on relational strivings following mortality salience have found conflicting results. Hirschberger et al. (2002) found that, under mortality salience, individuals with high self-esteem were more likely than those with low self-esteem to compromise their mate selection standards (Hirschberger et al., 2002). These researchers argue that, whereas people with high self-

esteem respond to mortality salience with an approach strategy (striving to form and maintain relational bonds), people with low self-esteem respond with an avoidance strategy (rejecting others in an effort to boost their self-esteem).

Other studies suggest that self-esteem does not moderate the effects of mortality salience on relational strivings (Mikulincer & Florian, 2000; Smieja, Kalaska, & Adamczyk, 2006; Taubman-Ben-Ari, Findler, & Mikulincer, 2002; Wakimoto, 2011). Taubman Ben-Ari et al. (2002) and Mikulincer and Florian (2000) found that self-esteem did not account for unique variance above and beyond the effects of attachment style and condition, suggesting that attachment style is the key factor in determining the effects of mortality salience on relational strivings. Although most previous research has found that self-esteem does not moderate mortality salience effects, due to the presence of conflicting findings in the literature, self-esteem was included as a factor in this study.

Gender. Like self-esteem, studies have shown inconclusive results regarding the moderating role of gender on mortality salience effects. Some research suggests that women respond to mortality salience with greater levels of relational strivings than men (e.g., Hirschberger et al., 2002). Others, however, have failed to find gender differences (e.g., Florian et al., 2002; Hirschberger et al., 2003). I did not hold strong predictions as to whether gender would moderate the effects of mortality salience on participants' motivation to mend their troubled relationships, but I tested for possible differences.

Overview of Present Study

The purpose of this study was to examine whether mortality salience motivates people to mend their troubled close relationships (friend, family, and romantic). To investigate this question, participants were randomly assigned to a mortality salience or

control condition. After the manipulation, participants completed distractor tasks and then a series of dependent measures assessing their *intentions* to repair the problems they were experiencing with a significant other and their *expectations* for the relationship to improve.

Hypotheses. I hypothesized that participants in the mortality salience condition would be more likely than controls to initiate conflict resolution. I also predicted that, compared to controls, participants in the mortality salience condition would expect greater and quicker improvement and greater future relationship satisfaction. However, I expected these effects to be moderated by attachment style, such that differences between conditions would be observed primarily among securely but not insecurely attached participants. Previous research suggests that it is mainly securely attached individuals who show increased interpersonal competence and lower rejection sensitivity following mortality salience (Mikulincer & Florian, 2000; Taubman-Ben-Ari et al., 2002), and securely attached individuals likely have better conflict resolution skills than do insecurely attached individuals. Therefore, I expected mortality salience to be especially effective in motivating securely attached participants to repair their troubled relationships. I did not hold strong predictions as to whether self-esteem and gender would moderate the mortality salience effects. If self-esteem and gender were significant moderators, however, I expected high self-esteem participants and women in the mortality salience condition to be the most likely to expect and initiate quick conflict resolution.

Method

Design

The study was a 2 (experimental condition: mortality salience, control) x 3 (attachment style: secure, avoidant, anxious-ambivalent) x 2 (gender: male, female) factorial design, with self-esteem included as an additional (continuous) IV.

Participants

A total of 249 undergraduate students enrolled in General Psychology at Rutgers University participated in this study in partial fulfillment of a research participation requirement. Of the 249, 23 were unable to identify a troubled relationship with an important person in their lives and thus were excluded from the analyses. The final sample consisted of 226 participants (80 men, 146 women), ranging in age from 17 to 29 years ($M = 19.12$, $SD = 1.82$).

Materials and Procedure

Before signing up for the study, participants completed Hazan and Shaver's (1987) Attachment Style Questionnaire and a shortened version of the Rosenberg Self-Esteem Scale (Rosenberg, 1965) as part of a prescreening questionnaire administered to all students enrolled in the psychology subject pool. The full version of the Rosenberg Self-Esteem Scale contains ten items assessing global (i.e., enduring) feelings of self-worth, which participants rate on a scale from 1 (strongly disagree) to 4 (strongly agree). Due to space constraints in the prescreening questionnaire, the scale was reduced to five items. The five items that produced the strongest item-to-total correlations during pilot testing were selected for the shortened scale, which was reliable in the present sample (α

= 0.83). The shortened version contained two positively worded items (e.g., “On the whole, I am satisfied with myself”) and three negatively worded items (e.g., “I certainly feel useless at times”; reverse-coded). See Appendix A to view the full and reduced versions of the scale.

For the attachment style questionnaire, participants read a paragraph describing each of the three attachment styles (secure, avoidant, and anxious-ambivalent) and were asked to indicate which best describes their feelings about their close relationships (see Appendix B).

Upon arrival to the lab, each participant was seated at a computer station by an experimenter blind to condition. The study was administered on the computer using Qualtrics survey software. Although participants took the study in small groups ($n \leq 3$), each participant sat at his or her own desk facing away from the other participants.

After providing informed consent, participants entered their anonymous 5-digit participant identification code to begin the study. They were then presented with the following overview of the study:

“In this study you will complete a series of personality, attitude, and judgment questionnaires. There are no right or wrong, or good or bad, answers. Different responses simply reflect different personalities, attitudes, and judgment styles. Please respond honestly and naturally to each question. Your responses to these questions are completely anonymous and will be used for research purposes only.”

After reading this opening statement, participants were randomly assigned to a mortality salience or control condition. Following standard procedure (Burke, Martens, & Faucher, 2010), participants in the mortality salience condition were asked to describe (a) the emotions that the thought of their death arouse in them, and (b) what they think will happen to them physically as they die. Control participants were asked to describe (a) the

emotions that the thought of experiencing dental pain arouse in them, and (b) what they think will happen to them physically as they experience dental pain (see Appendix C). Dental pain was used as a control task because it keeps pain constant across conditions while varying only the level of existential threat.

After the manipulation, participants completed two distractor tasks: the Positive and Negative Affect Scales (PANAS; Appendix D; Watson, Clark, & Tellegen, 1988) and a Literary Preference Questionnaire (Appendix E; Solomon, personal communication, 2011). Previous research has shown that the effects of mortality salience occur only after a delay, when people are distracted from consciously thinking about their death (Arndt et al., 1997). In fact, Burke et al.'s (2010) meta-analysis showed that mortality salience studies including two or three delay tasks between the experimental induction and the dependent measure produced significantly larger effects than those with a single or no delay task. For this reason, two distractor tasks were included in the study. Besides functioning as a delay task, the PANAS also served to exclude the possibility that negative affect, rather than existential concerns, could explain any differences between conditions.

On the PANAS, participants rated the extent to which 27 positive (e.g., “cheerful” and “relaxed”) and 33 negative (e.g., “scared” and “distressed”) emotion words or phrases described how they were feeling at the present moment. Items were rated on a scale ranging from 1 (very slightly or not at all) to 5 (extremely). The reliability of each scale was high ($\alpha = 0.94$ for both scales). On the Literary Preference Questionnaire, participants read a passage from a novel and then rated the descriptiveness of the story and guessed the author's gender.

Following the distractor tasks, participants were prompted to identify an important person in their lives (such as a close family member or friend) they had not been getting along with well. Once participants selected someone, they were asked to enter the person's initials, gender, and age, and indicate whether the person was a friend, family member, romantic partner, or "other." Participants rated the severity of the problems they were experiencing with the person and the importance of the relationship on 7-point scales (see Appendix F to view these materials).

Participants then completed a series of dependent measures. They were asked to indicate whether they believed their relationship would improve, how long it would be until the relationship improved, how much better or worse the relationship would be in the future, and how positive (or negative) and pleasant (or unpleasant) the relationship would be in the future (all on 7-point scales). They also reported how much effort they and their significant other would put in to repair the relationship, how likely it would be for them and the significant other to take the initiative to repair the relationship, and how likely it would be for both of them to work together to repair the relationship (on 6-point scales). In addition, participants completed an adapted version of Wakimoto's (2011) 8-item relationship satisfaction measure, in which they rated the extent to which 8 adjectives (e.g., "supporting" and "reciprocal") would describe their relationship with the person in the future. Adjectives were rated on a scale from 1 (not at all applicable to our relationship) to 7 (exactly true of our relationship). The reliability of this scale was high in the present sample ($\alpha = 0.95$). All dependent measures are presented in Appendix F.

After the dependent measures, participants completed the Attachment Style Questionnaire and the full 10-item version of the Rosenberg Self-Esteem Scale, presented

in counterbalanced order. These measures were included in the study for comparison purposes only. To ensure that the manipulation had no effect on participants' responses to these measures, participants' responses from the prescreening questionnaire were used to assess these variables.

Finally, participants provided their demographic information (including gender), and were debriefed, thanked for their participation, and granted research participation credit.

Results

Descriptive Statistics

The sample was comparable to others in terms of its distribution of attachment styles (58.5% secure, 26.6% avoidant, 14.8% anxious-ambivalent), but the percentage of those who identified as anxious-ambivalent was about 5% lower than average (Hazan & Shaver, 1987). Because only a small number of anxious-ambivalent participants were assigned to the mortality salience condition ($N=11$, <5% of the sample), anxious-ambivalent participants were excluded from analyses containing attachment style as a factor.

The most common type of troubled relationship participants reported was one with a family member or relative (46.9%). Troubled relationships with friends were also common (35.8%). Troubled romantic relationships were less common (14.2%), and there were few "Other" types of troubled relationships participants reported (3.1%). A series of chi-square analyses was performed to test whether the type of relationship participants selected (family relationship vs. friendship) varied by condition, attachment style (secure vs. avoidant), gender, and self-esteem (high vs. low). The type of troubled relationship

participants selected varied by condition, $\chi^2(1, N = 187) = 6.39, p = .01$, such that those in the mortality salience condition were most likely to select troubled family relationships, whereas those in the control condition were most likely to select troubled friendships. However, the type of relationship participants selected did not systematically vary by attachment style, gender, or self-esteem.

On average, participants rated the severity of the problems they were experiencing with their relationship partner as “Moderate” ($M = 3.97, SD = 1.59$, on a scale ranging from 1 (Minor) to 7 (Major)) and their troubled relationships as important to them ($M = 5.87, SD = 1.30$, on a scale ranging from 1 (Not at all important) to 7 (Extremely important)). Participants’ ratings of the severity of problems they were experiencing with their relationship partner did not differ by condition, attachment, or gender. However, there was a negative correlation between self-esteem and severity of relationship problems, such that participants with higher self-esteem reported less severe problems in their troubled relationships, $r(220) = -0.18, p < .01$. There were no two- or three-way differences among the IVs for severity of relationship problems.

Participants’ ratings of the importance of their troubled relationship did not vary by condition, attachment style, gender, or self-esteem, nor were there any two-way differences among the IVs for relationship importance. However, there was a significant three-way condition x gender x self-esteem interaction for relationship importance, $F(1, 214) = 9.62, p < .01$. A median split was performed on self-esteem to separate participants into high and low groups. Simple effects performed on self-esteem revealed an interaction between condition and gender among participants with high, $F(1, 106) = 6.68, p = .01$, but not low self-esteem, $F(1, 108) = 0.64, ns$. As shown in Figure 1, high

self-esteem women in the mortality salience condition ($M = 6.29$, $SD = 1.01$) rated their troubled relationships as more important to them than did those in the control condition ($M = 5.37$, $SD = 1.65$), $t(64) = 2.84$, $p < .01$. Among high self-esteem men, there was no difference in relationship importance ratings between conditions (Mortality salience: $M = 6.05$, $SD = 1.23$; Control: $M = 5.64$, $SD = 1.33$), $t(38) = -1.04$, *ns*. Because participants rated the importance of the relationship to them after the manipulation and the pattern observed for relationship importance matched other condition x gender x self-esteem effects (described below), relationship importance may be considered an additional dependent variable.

Data Reduction

Preliminary analyses revealed strong correlations among the dependent measures designed for the purposes of this study. As a result, these items were z-scored and combined into a single expectations for improvement index (9 items; $\alpha = 0.92$). The item assessing how long it would be until the relationship improved (Time until resolution) was analyzed separately because it did not correlate strongly with the other items. The Future Relationship Satisfaction measure adapted from Wakimoto (2011) was also analyzed as a separate dependent variable.

Analysis Strategy

A series of general linear model (GLM) analyses was conducted to test the two-way condition x attachment, condition x gender, and condition x self-esteem effects on expectations for improvement, time until resolution, and future relationship satisfaction. In addition, because pilot testing revealed intriguing three-way condition x gender x self-esteem interactions, I also tested for three-way effects among these variables. For

analyses containing self-esteem, self-esteem was standardized and entered as a covariate, and all main effects and interactions among the predictors were included in the model.

Effects of Mortality Salience and Attachment Style on Expectations for Relationship Improvement

Improvement. For expectations for improvement, there was a main effect for attachment style, $F(1, 185) = 9.98, p < .01, \eta^2 = .05$, such that secure participants ($M = 0.27, SD = 0.66$) expected greater improvement in their troubled relationships than did avoidant participants ($M = -0.12, SD = 0.74$). There was no main effect for condition, $F(1, 185) = 2.05, ns.$, but there was a significant two-way interaction between condition and attachment style, $F(1, 185) = 5.48, p = .02, \eta^2 = .03$. A simple effects analysis by attachment style revealed that, contrary to my predictions, secures in the mortality salience condition did not expect greater improvement than did secures in the control condition, $t(128) = 0.40, ns$. Instead, *avoidant* participants in the mortality salience condition ($M = 0.14, SD = 0.74$) expected greater improvement than did avoidants in the control condition ($M = -0.27, SD = 0.71$), $t(57) = 2.13, p < .04$ (see Figure 2a). Alternatively, a simple effects analysis by condition revealed that avoidant participants ($M = -0.27, SD = 0.72$) were less likely than secure participants ($M = 0.33, SD = 0.62$) to expect their relationships to improve when they were in the control condition, $t(91) = 4.32, p < .001$; however, in the mortality salience condition, there was no significant difference between secure ($M = 0.23, SD = 0.68$) and avoidant participants' ($M = 0.14, SD = 0.74$) expectations for improvement, $t(94) = .53, ns$. As shown in Figure 2b, mortality salience boosted avoidant participants' expectations for improvement up to the level of secure participants.

Time until resolution. For time until resolution, there was a main effect for attachment style, $F(1, 185) = 6.71, p = .01, \eta^2 = .03$, such that secure participants ($M = 3.49, SD = 1.90$) expected quicker conflict resolution than did avoidant participants ($M = 4.34, SD = 1.91$). There was no main effect for condition, $F(1, 185) = .14, ns.$, but the interaction between condition and attachment style approached statistical significance, $F(1, 185) = 3.50, p = .06, \eta^2 = .02$. A simple effects analysis by attachment style indicated that, contrary to my predictions, mortality salience did not improve securely attached participants' expectations for how quickly conflict resolution would occur, $t(128) = 1.36, ns.$ Mortality salience also did not significantly alter avoidant participants' expectations for how quickly resolution would occur, $t(57) = -1.34, ns$ (see Figure 3a). However, a simple effects analysis by condition revealed a similar pattern to that observed for improvement. In the control condition, secure participants ($M = 3.23, SD = 1.87$) expected quicker conflict resolution than did avoidant participants ($M = 4.59, SD = 1.91$), $t(91) = -3.41, p = .001$, but in the mortality salience condition, there was no difference in time until resolution between secure ($M = 3.69, SD = 1.92$) and avoidant participants ($M = 3.91, SD = 1.88$), $t(94) = -0.48, ns.$ Under mortality salience, avoidant participants expected conflict resolution to occur as quickly as did secure participants (see Figure 3b).

Future relationship satisfaction. For future relationship satisfaction, there was no main effect for condition, $F(1, 185) = 1.35, ns.$, but there was a main effect for attachment style, $F(1, 185) = 14.30, p < .001, \eta^2 = .07$, such that secure participants ($M = 4.98, SD = 1.43$) expected greater future relationship satisfaction than did avoidant participants ($M = 4.01, SD = 1.54$). There was also a significant interaction between

condition and attachment style, $F(1, 185) = 3.73, p \leq .05, \eta^2 = .02$. Simple effects by attachment style indicated that, contrary to my predictions, securely attached participants did not expect greater future relationship satisfaction under mortality salience, $t(128) = -0.71, ns$. As before, *avoidant* participants in the mortality salience condition ($M = 4.47, SD = 1.55$) expected greater future relationship satisfaction than did those in the control condition ($M = 3.74, SD = 1.48$); however, this difference only approached statistical significance, $t(57) = 1.79, p < .08$ (see Figure 4a). Additionally, simple effects by condition revealed that, among those in the control condition, secure participants ($M = 5.08, SD = 1.33$) expected greater future relationship satisfaction than did avoidant participants ($M = 3.74, SD = 1.48$), $t(91) = 4.54, p < .001$; however, in the mortality salience condition, there was no difference in expectations for future relationship satisfaction between the two groups (Secure: $M = 4.90, SD = 1.50$; Avoidant: $M = 4.47, SD = 1.55$), $t(94) = 1.18, ns$. Again, mortality salience improved avoidant participants' expectations for future relationship satisfaction to the level of secure participants (see Figure 4b).

Post-hoc analyses. Unexpectedly, mortality salience influenced avoidant but not secure participants to expect greater improvement in their troubled relationships. Did avoidants differ from secures following mortality salience? Because participants completed the self-esteem measure once before signing up for the study and again at the end of the study, I was able to test whether avoidants' increased relational strivings following mortality salience raised their self-esteem up to the level of secures. A repeated measures ANOVA with time of the self-esteem measure as a within-subjects factor and condition and attachment as between-subjects factors revealed only a main effect for time

of the self-esteem measure, $F(1, 185) = 32.98, p < .001$, such that participants reported higher self-esteem at the end of the study ($M = 3.15, SD = .52$) than they did in the pre-study questionnaire ($M = 2.97, SD = .54$). There was no interaction among condition, attachment style, and time of the self-esteem measure, $F(1, 185) = 0.08, ns.$, indicating that avoidants' greater expectations for improvement in their troubled relationships following mortality salience did not boost their self-esteem. Therefore, although avoidants became more like secures in their expectations for improvement in their troubled relationships, this shift did not improve their feelings of self-worth.

The unexpected findings also raise the question of why mortality salience induced avoidant participants to expect greater improvement and future relationship satisfaction in their troubled relationships. Did mortality salience induce avoidant individuals to adopt a more pro-social attitude toward their troubled relationships? Or did mortality salience influence avoidants to exaggerate perceived regard from their troubled relationship partner (and thus expect their partners to make the effort to repair the relationship)? To investigate these questions, I separated the composite improvement index into subscales based on conceptual differences among the items. I created a self effort subscale from the items assessing how much effort the participant would put in to repair the relationship and how likely it would be for the participant to initiate conflict resolution ($\alpha = 0.81$). The parallel questions about the relationship partner were combined to create a partner effort subscale ($\alpha = 0.90$). The items assessing the degree to which the relationship would improve, get better, be positive, and be pleasant were combined into a future improvement subscale ($\alpha = 0.92$), and the mutual effort item was analyzed on its own. Because all items on the self, partner, and mutual effort subscales were answered on 6-

point scales and all items on the future improvement subscale were answered on 7-point scales, items were not z-scored before they were averaged.

For the self effort subscale, there were no main effects for condition or attachment style, nor was there an interaction between the predictors. For the partner effort measure, there was a main effect for attachment style, $F(1, 185) = 12.57, p < .001$, such that secures ($M = 4.00, SD = 1.28$) expected their partners to put in more effort to repair the relationship than did avoidants ($M = 3.17, SD = 1.46$). There was no main effect for condition, $F(1, 185) = 0.94, ns.$, but there was a statistically significant two-way interaction between condition and attachment style, $F(1, 185) = 4.71, p = .03$. Simple effects conducted on attachment style revealed no difference between conditions for secures, $t(128) = -1.14, ns.$, but a marginally significant difference for avoidants, $t(57) = 1.75, p < .09$. Compared to avoidant participants in the control condition ($M = 2.92, SD = 1.38$), avoidant participants in the mortality salience condition ($M = 3.59, SD = 1.52$) expected their partner to put in more effort to repair the relationship. Alternatively, simple effects by condition indicated that, in the control condition, secures ($M = 4.14, SD = 1.18$) expected their partners to put in more effort to repair the relationship than did avoidants ($M = 2.92, SD = 1.38$), $t(91) = 4.58, p < .001$; however, in the mortality salience condition, there was no difference between secures' and avoidants' ratings of their partner's willingness to repair the relationship, $t(94) = 0.21, ns.$

For the mutual effort subscale, there was a main effect for condition, $F(1, 185) = 5.01, p < .03$, such that secures ($M = 4.12, SD = 1.26$) were more willing to work together to repair the troubled relationship than were avoidants ($M = 3.59, SD = 1.32$). There was no main effect for condition, $F(1, 185) = 1.02, ns.$, but there was an interaction

between condition and attachment style, $F(1, 185) = 4.72, p = .03$. Simple effects by attachment style revealed no difference between conditions for secures, $t(128) = -1.06, ns.$, but a marginally significant difference between conditions for avoidants, $t(57) = 1.87, p < .07$. Avoidant participants in the mortality salience condition ($M = 4.00, SD = 1.31$) were more willing to work together to repair the relationship than were avoidant participants in the control condition ($M = 3.35, SD = 1.27$). Simple effects by condition indicated that secures ($M = 4.25, SD = 1.25$) were more willing to work together to repair the relationship than were avoidants ($M = 3.35, SD = 1.27$) in the control condition, $t(91) = 3.36, p = .001$; however, in the mortality salience condition, there was no difference between secures' and avoidants' willingness to work together to mend the relationship, $t(94) = 0.04, ns.$

For the future improvement subscale, there was a main effect for attachment style, $F(1, 185) = 7.80, p < .01$, such that secures ($M = 5.58, SD = 1.07$) expected greater future improvement than did avoidants ($M = 5.00, SD = 1.26$). There was no main effect for condition, $F(1, 185) = 2.26, ns.$, but there was a significant interaction between condition and attachment, $F(1, 185) = 4.40, p < .04$. As before, simple effects by attachment style revealed no difference between conditions among secures, $t(128) = -0.57, ns.$, but a significant difference between conditions among avoidants, $t(57) = 1.97, p \leq .05$. Avoidant participants in the mortality salience condition ($M = 5.41, SD = 1.25$) expected greater improvement in their troubled relationships than did avoidant participants in the control condition ($M = 4.76, SD = 1.22$). Alternatively, simple effects by condition indicated that, in the control condition, secures ($M = 5.62, SD = 0.96$) expected greater improvement than did avoidants ($M = 4.76, SD = 1.22$), $t(91) = 3.36, p =$

.001; however, under mortality salience, avoidant participants' expectations for improvement were no different than securely attached participants' expectations for improvement, $t(94) = 0.44, ns$.

In sum, these additional analyses suggest that mortality salience induces avoidant participants to become more pro-social *and* alters avoidant participants' perceptions of how favorably their partners see them. Nonetheless, mortality salience does not appear to motivate avoidant participants to take the full responsibility for repairing the troubled relationship on their own.

Effects of Mortality Salience and Self-Esteem on Expectations for Relationship Improvement

Improvement. Although attachment style and self-esteem were moderately correlated with each other, the effects for condition and self-esteem did not match the effects for condition and attachment style. For expectations for improvement, there was a main effect for self-esteem, $F(1, 218) = 9.12, p < .01$, such that higher self-esteem predicted greater expectations for improvement, $r(220) = 0.21, p < .01, \eta^2 = .04$. However, there was no main effect for condition or interaction between condition and self-esteem.

Time until resolution. There were no main effects or interaction between condition and self-esteem for time until resolution.

Future relationship satisfaction. For future relationship satisfaction, there was a main effect for self-esteem, $F(1, 218) = 6.34, p = .01, \eta^2 = .03$, such that participants with higher self-esteem expected greater future relationship satisfaction, $r(220) = .17, p = .01$.

However, as before, there was no main effect for condition or interaction between condition and self-esteem.

Effects of Mortality Salience and Gender on Expectations for Relationship

Improvement

Improvement. For expectations for improvement, there were no main effects for condition or gender or interaction between the predictors.

Time until resolution. Likewise, there were no main effects or interaction between condition and gender for time until resolution.

Future relationship satisfaction. There were also no main effects or interaction between condition and gender for future relationship satisfaction.

Effects of Mortality Salience, Gender, and Self-Esteem on Expectations for

Relationship Improvement

Improvement. For expectations for improvement, there was a main effect for self-esteem, $F(1, 214) = 5.59, p < .02, \eta^2 = .02$, such that higher self-esteem predicted greater expectations for improvement, $r(220) = 0.21, p < .01$. There were no main effects for condition or gender, nor were there any two-way interactions among the predictors. However, there was a significant three-way interaction, $F(1, 214) = 3.88, p \leq .05, \eta^2 = .02$. A median split was performed on self-esteem to separate participants into high and low groups. Simple interactions conducted on self-esteem revealed a significant interaction between condition and gender for participants with high, $F(1, 106) = 4.00, p < .05$, but not low self-esteem, $F(1, 108) = .07, ns$. Mortality salience increased high self-esteem women's ($M = 0.40, SD = 0.63$) expectations for improvement relative to high self-esteem female controls ($M = 0.10, SD = 0.74$) but not high self-esteem men's ($M =$

0.12, $SD = 0.64$) expectations for improvement relative to high self-esteem male controls ($M = 0.34$, $SD = 0.61$). If anything, mortality salience appeared to reduce high self-esteem men's expectations for improvement, although this difference was not statistically significant (see Figure 5). For those with low self-esteem, mortality salience had no effect on either men's or women's expectations for improvement.

Time until resolution. For time until resolution, there were no significant main effects or interactions among the predictors. That is, mortality salience, gender, and self-esteem had no effect on participants' expectations for how long it would take their relationships to improve.

Future relationship satisfaction. For future relationship satisfaction, there were no main effects or two-way interactions among the predictors, but there was a statistically significant three-way interaction, $F(1, 214) = 4.71$, $p \leq .03$, $\eta^2 = .02$. In contrast to the findings for expectations for improvement, simple effects by self-esteem did not yield a significant condition by gender interaction for participants with either low, $F(1, 108) = 1.71$, *ns.*, or high self-esteem, $F(1, 106) = 2.54$, *ns.* However, simple effects by condition revealed a significant gender by self-esteem interaction among those in the mortality salience, $F(1, 103) = 3.82$, $p \leq .05$, but not control condition, $F(1, 111) = 1.06$, *ns.* High self-esteem women in the mortality salience condition ($M = 5.21$, $SD = 1.35$) expected greater future relationship satisfaction than did low self-esteem women in the mortality salience condition ($M = 4.36$, $SD = 1.92$), $t(69) = -2.18$, $p < .04$; however, high and low self-esteem men in the mortality salience condition did not significantly differ from each other in their expectations for future relationship satisfaction, $t(34) = 0.58$, *ns.* See Figure 6 for a graphical representation of this finding.

Post-hoc analyses. As I did for condition and attachment, I conducted post-hoc analyses for condition, gender, and self-esteem to examine the effects of these predictors on each subscale of the improvement index (self effort, partner effort, mutual effort, and future improvement). The purpose of these additional analyses was to test whether mortality salience motivated high self-esteem women to expect greater improvement in their troubled relationships because (a) they intended to make the effort to repair the relationship, (b) they expected their partner to make the effort to resolve the conflict, and/or (c) they planned to undertake a concerted effort to repair the relationship.

There were no main effects or interactions among condition, gender, and self-esteem for the self effort subscale. For partner effort, there was a main effect for self-esteem, $F(1, 214) = 5.79, p < .02$, such that participants with higher self-esteem expected their partner to put in more effort to repair the relationship than did those with lower self-esteem. However, there were no other main effects or interactions among the predictors.

For mutual effort, there was a main effect for self-esteem, $F(1, 214) = 7.28, p < .01$, such that participants with higher self-esteem were more willing to work together to repair the relationship than were those with lower self-esteem. There were no other significant main effects or two-way interactions, but there was a three-way interaction among condition, gender, and self-esteem, $F(1, 214) = 4.71, p \leq .03$. Simple effects by self-esteem revealed a significant interaction between condition and gender for those with high, $F(1, 106) = 6.02, p < .02$, but not low self-esteem, $F(1, 108) = 0.02, ns$. High self-esteem women in the mortality salience condition ($M = 4.47, SD = 1.18$) were more willing to work together to repair the relationship than were high self-esteem women in the control condition ($M = 3.93, SD = 1.36$), whereas high self-esteem men in the control

condition ($M = 4.30$, $SD = 1.03$) were more willing to work together to repair the relationship than were high self-esteem men in the mortality salience condition ($M = 3.68$, $SD = 1.13$). However, these differences between conditions only approached statistical significance for high self-esteem women, $t(66) = 1.74$, $p < .09$, and men, $t(40) = -1.85$, $p \leq .07$.

For the future improvement subscale, there were no main effects or two-way interactions among condition, gender, and self-esteem, but there was a significant three-way interaction among the predictors, $F(1, 214) = 2.94$, $p < .03$. As before, simple effects by self-esteem revealed a significant condition by gender interaction for participants with high, $F(1, 106) = 4.27$, $p \leq .04$, but not low self-esteem, $F(1, 108) = 0.75$, *ns*. Mortality salience increased high self-esteem women's ($M = 5.72$, $SD = 1.08$) expectations for future improvement relative to high self-esteem female controls ($M = 5.18$, $SD = 1.17$), $t(66) = 1.97$, $p \leq .05$, but did not significantly affect high self-esteem men's expectations for future improvement, $t(40) = -1.08$, *ns*.

In sum, these additional analyses do not strongly support any of the proposed explanations for why mortality salience motivates high self-esteem women to expect greater improvement in their troubled relationships. High self-esteem women in the mortality salience condition did not significantly differ from controls in their intentions to make the effort to repair the relationship or their perceptions of their partner's intentions to repair the relationship. Mortality salience did increase high self-esteem women's willingness to work together to repair the relationship, but this explanation remains inconclusive due to the marginal significance of the analysis. Therefore, although mortality salience induced high self-esteem women to view their troubled relationships as

more important to them and as more likely to improve, the results do not offer a solid explanation for how high self-esteem women expect this resolution to occur.

Differences in Positive and Negative Affect between Mortality Salience and Control Conditions

Following previous research, independent group *t*-tests were conducted to test for differences in positive and negative affect between conditions. These tests revealed a marginally significant difference between conditions for positive affect, $t(224) = 1.83, p = .07$, and a significant difference for negative affect, $t(224) = -2.68, p < .01$.

Surprisingly, participants in the mortality salience condition reported higher positive affect ($M = 2.87, SD = 0.71$) and lower negative affect ($M = 1.65, SD = 0.50$) than those in the control condition (Positive affect: $M = 2.70, SD = 0.71$; Negative affect: $M = 1.85, SD = 0.58$). Although differences between conditions in positive and negative affect are rare in mortality salience research, there have been other studies that have found such differences (e.g., Arndt, Greenberg, Simon, Pyszczynski, & Solomon, 1998).

Importantly, all significant effects on the dependent measures described above remain significant after controlling for the effects of negative (or positive) affect. Therefore, the observed differences in affect between conditions do not explain the effects of mortality salience on participants' expectations for improvement in their troubled relationships.

Discussion

The purpose of this study was to investigate whether mortality salience can motivate people to repair their troubled relationships. I predicted that, compared to controls, participants in the mortality salience condition would (1) expect greater improvement in their relationships, (2) anticipate quicker conflict resolution, (3) be more

likely to initiate conflict resolution, and (4) expect greater future relationship satisfaction. Moreover, I expected these effects to be observed primarily among securely attached participants.

Contrary to my hypotheses, I found that securely attached participants expected equally high levels of improvement and future relationship satisfaction and equally quick conflict resolution across the mortality salience and control conditions. While this finding is inconsistent with prior research (e.g., Mikulincer & Florian, 2000; Taubman-Ben-Ari et al., 2002), it appears that mortality salience is not necessary to motivate securely attached individuals to repair their troubled relationships.

Surprisingly, mortality salience induced *avoidant* participants to expect greater improvement and greater future relationship satisfaction, compared with avoidants in the control condition. Under mortality salience, avoidants' expectations for improvement, quick conflict resolution, and future relationship satisfaction were no different than securely attached participants' expectations for their troubled relationships. This finding diverges from previous research, which suggests that close relationships do not serve as a terror management defense for avoidant individuals (e.g., Cox et al., 2008). Researchers have argued that avoidant individuals do not derive a sense of protection and security from their close relationships because avoidant individuals do not value their attachments much at all (Cox et al., 2008; Fraley, Davis, & Shaver, 1998). However, the data from the present study suggest otherwise. Ruling out potential confounds, there was no difference between secure and avoidant participants' ratings of the importance of their troubled relationships or the severity of the problems they were experiencing with their relationship partners.

The results of the present study may have differed from the rest of the terror management literature because this study specifically examined relational strivings in the context of troubled relationships. Even though avoidant individuals tend to remain distant from close relationship partners, attachment figures may still be important to them. For relatively stable relationships, mortality salience may not increase avoidant individuals' relational strivings because doing so would oppose their relational style, which is reasonably effective for maintaining those particular relationships. For troubled relationships, avoidant individuals may typically see improvement as unlikely. However, under mortality salience, they may recognize that their typical interaction patterns are ineffective and thus adopt a more pro-social attitude toward their troubled relationships. Results from the present study indicated that mortality salience does not motivate avoidant individuals to take full responsibility for repairing the troubled relationship, but mortality salience did increase avoidant individuals' willingness to work together with their partner to repair the relationship.

Mortality salience also appeared to alter avoidants' perceptions of their partners' attitudes toward the relationship. Under mortality salience, avoidant individuals expected their partners to put in more effort to repair the relationship, compared to those in the control group. Research has shown that securely attached individuals exaggerate perceived regard from their romantic partner following mortality salience, and anxious-ambivalent individuals exaggerate perceived regard from their parents (Cox et al., 2008). Mortality salience may induce avoidant individuals to exaggerate perceived regard from a troubled relationship partner. However, due to the post-hoc nature of the analyses examining the effort the participant and the participant's partner would put in to repair

the relationship (and the marginal significance of the findings), these explanations remain tentative and demand further investigation.

An alternative explanation for the findings is that mortality salience induced avoidant participants to identify a specific type of troubled close relationship (e.g., a family relationship), which may be more likely to improve over time than other types of relationships. Unfortunately, the present study cannot rule out this explanation because there were not enough participants who identified each type of troubled relationship, per condition and attachment style, to test for interactive effects among condition, attachment style, and type of troubled relationship. Future research should either recruit a larger sample of participants or control for the type of troubled close relationship in the study to rule out this possibility.

It is also important to note that the majority of the avoidant participants in this study were women (76%). As a result, it is unclear whether the effects of mortality salience on relational strivings are specific to avoidant women or generalize to avoidant individuals of both genders. Future research should examine whether mortality salience motivates relational strivings in the context of troubled relationships among a more equally distributed sample of avoidant women and men.

Mortality Salience, Self-Esteem, Gender, and Expectations for Relationship Improvement

In addition to the unexpected moderating effects of attachment style, this study also showed intriguing moderating effects of gender and self-esteem on individuals' expectations for improvement under mortality salience. Like many studies in the literature (Florian et al., 2002; Hirschberger et al., 2003; Mikulincer & Florian, 2000;

Smieja, Kalaska, & Adamczyk, 2006; Taubman Ben-Ari, Findler, & Mikulincer, 2002; Wakimoto, 2011), neither self-esteem nor gender on their own moderated the effects of mortality salience on relational strivings. Self-esteem was moderately related to attachment style, but whereas attachment style moderated the mortality salience effects, self-esteem on its own did not. These findings demonstrate that self-esteem and attachment style are separate constructs.

Although self-esteem and gender were not significant moderators on their own, gender and self-esteem together moderated the effects of mortality salience on participants' expectations for improvement in their troubled relationships. Mortality salience induced women with high self-esteem to expect greater improvement in their troubled relationships. Mortality salience also induced high self-esteem women to place more importance on their troubled relationships. However, mortality salience did not increase high self-esteem women's willingness to take the initiative to repair the relationship or alter their perceptions of their partner's willingness to repair the relationship. Compared to high self-esteem female controls, high self-esteem women in the mortality salience condition were more willing to work together with their partner to repair the relationship, but this difference was only marginally significant. There were no effects of mortality salience, gender, and self-esteem on participants' expectations for how long it would take to resolve their relationship problems, indicating that although mortality salience increased high self-esteem women's expectations for improvement, it did not improve their expectations for how quickly resolution would occur.

Although a few studies have shown that mortality salience motivates relational strivings mainly among high self-esteem individuals or women (e.g., Hirschberger et al.,

2002), most have not found such effects (Florian et al., 2002; Hirschberger et al., 2003; Mikulincer & Florian, 2000; Smieja et al., 2006; Taubman Ben-Ari et al., 2002; Wakimoto, 2011). Perhaps the key to reconciling these conflicting findings is to examine the interactive effects of gender, self-esteem, and mortality salience on relational strivings, rather than the two-way gender and mortality salience or self-esteem and mortality salience effects.

There are a few reasons why mortality salience effects might differ between low and high self-esteem men and women in the domain of close relationships. Research has shown that women are more likely than men to define themselves in terms of their relationships with others (Acitelli, Rogers, & Knee, 1999; Cross & Morris, 2003). For women, relationships may be a particularly effective buffer against death anxiety. But why might relationships only serve a terror management function for high self-esteem women?

At a first glance, it may appear that mortality salience induced high self-esteem women to expect greater improvement in their troubled relationships because women derive their feelings of self-worth from their ability to develop and maintain satisfying interpersonal relationships. Individuals with *relationship contingent self-esteem* feel good about themselves when their relationships are going well, and bad about themselves during times of interpersonal turmoil (Knee, Canevello, Bush, & Cook, 2008). Because mortality salience has been shown to increase self-esteem strivings (Goldenberg et al., 2000), those with relationship contingent self-esteem may have reported greater expectations for improvement following mortality salience in an effort to validate their feelings of self-worth. However, relationship contingent self-esteem does not appear to

explain the results of the present study. Relationship contingent self-esteem refers to a pattern of fluctuating self-esteem according to the ups and downs of one's relationships (usually a romantic relationship) rather than to the importance an individual places on his or her interpersonal relationships. Previous researchers have not found gender differences in relationship contingent self-esteem, and relationship contingent self-esteem is associated with low global self-esteem (Knee et al., 2008). Therefore, it is unlikely that mortality salience induced high self-esteem women to expect greater improvement in their troubled relationships because they had high relationship contingent self-esteem.

An alternative explanation for why mortality salience induced high self-esteem women to expect greater improvement in their troubled relationships can be derived from terror management theorists' definition of self-esteem. Terror management theorists argue that self-esteem serves as a gauge for how well an individual is living up to his or her culture's standards. Because women in our culture are expected to be communal (e.g., cooperative, loyal, and warm and kind; Prentice & Carranza, 2002; Rudman & Glick, 2001), highly relational women (i.e., those who define themselves interdependently) who more strongly embody these ideals may have higher self-esteem. Under mortality salience, high self-esteem women may seek to validate their self-worth by demonstrating their pro-social nature, whereas low self-esteem women who do not possess such characteristics may not.

However, if mortality salience motivates high self-esteem women to validate their feelings of self-worth through their relationships, it is unclear why they would not be willing to put in more effort to repair the relationship following mortality salience. The problems high self-esteem women were experiencing in their troubled relationships were

equally as severe as those reported by other participants, but perhaps, under mortality salience, high self-esteem women believed that improvement could be achieved without additional effort. Cross and Morris (2003) argue that highly relational individuals are more concerned than others about the success of their relationships and are more likely to hold positive illusions about their relationships. And people are particularly likely to exhibit such positive illusions under mortality salience (Cox & Arndt, 2012).

Nonetheless, these explanations for the findings are only speculative, and future research is needed to determine why mortality salience induces high self-esteem women to expect greater improvement in their troubled relationships.

Implications

Although the results of this study did not support my hypotheses, they provide new insight into the effects of mortality salience on close relationships. The present study extends previous research by suggesting that troubled close relationships also serve as a terror management defense, but for different subgroups of individuals than previous research has found for other types of close relationships. Although previous TMT research found that close relationships were not important to avoidant individuals (Cox & Arndt, 2012; Cox et al., 2008), the results of the present study suggest otherwise. Under mortality salience, avoidant individuals expected greater improvement in their troubled relationships and greater future relationship satisfaction; in fact, they exhibited the same expectations for improvement as did secure individuals.

Troubled close relationships also appeared to serve as a terror management defense for women with high self-esteem. Whereas previous research has found conflicting results regarding the moderating roles of gender and self-esteem on mortality

salience effects, the results of the present study suggest that examining gender in conjunction with self-esteem may account for these inconsistencies.

Limitations and Directions for Future Research

In this study, one purpose for having participants select any type of troubled close relationship was to test the generalizability of this terror management defense. However, I was unable to test whether the type of relationship served as a moderator variable because only a small percentage of the sample selected a troubled romantic relationship (14%). Because previous research has demonstrated that the type of relationship determines which attachment group shows increased relational strivings following mortality salience (i.e., securely attached individuals toward romantic partners and anxious-ambivalent individuals toward their parents), it is important to examine the interactive effects of mortality salience, attachment style, and type of troubled close relationship in future research on relational strivings toward troubled relationship partners. It is also important to test whether the type of troubled relationship moderates mortality salience effects because mortality salience appeared to influence the type of troubled relationship selected in this study. Participants were more likely to identify a troubled family relationship following mortality salience than a friendship or romantic relationship. As a result, it remains unclear whether participants' greater expectations for improvement following mortality salience were a function of the type of relationship they chose. Rather than leading individuals to expect greater improvement in their relationships, mortality salience may have induced individuals to think about a certain type of troubled relationship (i.e., family relationships), which may be more likely than other types of relationships to improve over time. Therefore, it is crucial for future

research to examine the interactive effects of mortality salience, attachment style, and type of relationship on relational strivings in the context of troubled close relationships.

There were a few other methodological limitations to this study. Due to space constraints in the prescreening questionnaire, the traditional single-item attachment style measure (Hazan & Shaver, 1987) was used to assess attachment. Only a small number of participants identified as anxious-ambivalent on this measure, precluding a test of whether troubled close relationships serve as a terror management defense for anxious-ambivalent individuals. To test this question, future researchers should employ Griffin and Bartholomew's (1994) continuous measure of attachment, which is more commonly used in recent terror management and attachment research. In investigating whether close relationships serve a terror management function for anxious-ambivalent individuals, researchers could also test for the moderating effects of the type of troubled relationship. Based on previous research (Cox & Arndt, 2012; Cox et al., 2008), those high in attachment anxiety with troubled parental relationships may show increased relational strivings following mortality salience.

As previously stated, the sample used in the present study was also limited in that the majority of the avoidant participants were female. The observed effects of mortality salience on relational strivings may be specific to avoidant women rather than apply to all avoidant individuals. Recruiting a larger sample of avoidant men is necessary to determine whether the effects observed in this study also extend to avoidant men.

Another limitation to this study concerns the predictive utility of the dependent variables. It is unclear whether the dependent measures adequately captured participants' actual motivations to repair their troubled relationships rather than just their momentary

expectations and illusions. Participants' expectations for improvement and optimism about their relationships may transfer into positive outcomes, but the results of the present study cannot attest to whether individuals' momentary expectations would subsequently manifest in actual behaviors aimed at resolving relationship problems. Future research should investigate how transitory these mortality salience effects are by determining whether mortality salience can influence real behavioral outcomes.

In addition, future research is needed to determine whether the effects observed in the present study generalize to people from other age groups. Presumably, those who are older than the college student population are forced to think about death more often. Therefore, it is important to examine whether death motivates older individuals to repair their troubled relationships because older individuals confront death-related thoughts and events more frequently than do younger people.

Additional work is also needed to determine why troubled close relationships serve a terror management defense for women with high self-esteem. Future research should investigate whether high self-esteem women are more highly relational than low self-esteem women, and whether mortality salience motivates high self-esteem women to strive to meet cultural expectations of female communality.

Finally, future research is necessary to better understand the unconscious processes underlying the close relationship terror management defense that induce individuals to initiate conflict resolution. In particular, researchers should examine whether people adopt an automatic approach (vs. avoid) strategy toward the troubled relationship partner after thinking about death. A personalized Implicit Association Test

(in which the troubled relationship partner's name, nickname, and initials are used as stimuli) could be employed to investigate this question.

Conclusions

This study presents novel findings regarding the terror management function of close relationships. Results indicated that troubled close relationships serve as a terror management defense for avoidant individuals and women with high self-esteem. These findings expand upon both the terror management and attachment literature, suggesting that, in contrast to what was previously thought, close relationships are important to avoidant individuals. In addition, the results suggest that previous conflicting findings regarding the moderating roles of gender and self-esteem on mortality salience effects may be reconciled by examining these variables in conjunction with one another. This study generates several avenues for future research. In particular, this research demands further investigation of possible explanations for the novel findings as well as further study of the generalizability of the effects—to real-world settings and older populations.

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Appendix A

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Instructions: Please indicate your level of agreement with each statement using the scale below:

| | | | |
|-------------------|----------|-------|----------------|
| 1 | 2 | 3 | 4 |
| Strongly Disagree | Disagree | Agree | Strongly Agree |

1. _____ I feel that I'm a person of worth, at least on an equal plane with others.
2. _____ I feel that I have a number of good qualities.
3. _____ All in all, I am inclined to feel that I am a failure.
4. _____ I am able to do things as well as most other people.
- *5. _____ I feel I do not have much to be proud of.
- *6. _____ I take a positive attitude toward myself.
- *7. _____ On the whole, I am satisfied with myself.
8. _____ I wish I could have more respect for myself.
- *9. _____ I certainly feel useless at times.
- *10. _____ At times I think I am no good at all.

* - Astericks denote items used for the shortened version of the scale.

Appendix B

Attachment Style Questionnaire (Hazan & Shaver, 1987)

Which of the following best describes your feelings?

_____ I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, love partners want me to be more intimate than I feel comfortable being.

_____ I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to merge completely with another person, and this desire sometimes scares people away.

_____ I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't often worry about being abandoned or about someone getting too close to me.

Appendix D

Positive and Negative Affect Scales (Watson, Clark, & Tellegen, 1988)

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate **to what extent you feel this way right now**. Use the following scale to record your answers.

| 1 | 2 | 3 | 4 | 5 |
|--------------------------------|------------|-------------|-------------------------------|-----------|
| very slightly or not at all | a little | moderately | quite a bit | extremely |
| ___ cheerful | ___ sad | ___ active | ___ angry at self | |
| ___ disgusted | ___ calm | ___ guilty | ___ enthusiastic | |
| ___ attentive | ___ afraid | ___ joyful | ___ downhearted | |
| ___ bashful | ___ tired | ___ nervous | ___ sheepish | |
| ___ sluggish | ___ amazed | ___ lonely | ___ distressed | |
| ___ daring | ___ shaky | ___ sleepy | ___ blameworthy | |
| ___ surprised | ___ happy | ___ excited | ___ determined | |
| ___ strong | ___ timid | ___ hostile | ___ frightened | |
| ___ scornful | ___ alone | ___ proud | ___ astonished | |
| ___ relaxed | ___ alert | ___ jittery | ___ interested | |
| ___ irritable | ___ upset | ___ lively | ___ loathing | |
| ___ delighted | ___ angry | ___ ashamed | ___ confident | |
| ___ inspired | ___ bold | ___ at ease | ___ energetic | |
| ___ fearless | ___ blue | ___ scared | ___ concentrating | |
| ___ disgusted with self | ___ shy | ___ drowsy | ___ dissatisfied with self | |

Appendix E

Literary Preference Questionnaire

Please read the following short passage from a novel and answer the questions below it.

The automobile swung clumsily around the curve in the red sandstone trail, now a mass of mud. The headlights suddenly picked out in the night—first on one side of the road, then on the other—two wooden huts with sheet metal roofs. On the right near the second one, a tower of coarse beams could be made out in the light fog. From the top of the tower a metal cable, invisible at its starting-point, shone as it sloped down into the light from the car before disappearing behind the embankment that blocked the road. The car slowed down and stopped a few yards from the huts.

The man who emerged from the seat to the right of the driver labored to extricate himself from the car. As he stood up, his huge, broad frame lurched a little. In the shadow beside the car, solidly planted on the ground and weighed down by fatigue, he seemed to be listening to the idling motor. Then he walked in the direction of the embankment and entered the cone of light from the headlights. He stopped at the top of the slope, his broad back outlined against the darkness. After a moment he turned around. In the light from the dashboard he could see the chauffeur's black face, smiling. The man signaled and the chauffeur turned off the motor. At once a vast cool silence fell over the trail and the forest. Then the sound of the water could be heard.

The man looked at the river below him, visible solely as a broad dark motion flecked with occasional shimmers. A denser motionless darkness, far beyond, must be the other bank. By looking fixedly, however, one could see on that still bank a yellowish light like an oil lamp in the distance. The big man turned back toward the car and nodded. The chauffeur switched off the lights, turned them on again, then blinked them regularly. On the embankment the man appeared and disappeared, taller and more massive each time he came back to life. Suddenly, on the other bank of the river, a lantern held up by an invisible arm back and forth several times. At a final signal from the lookout, the man disappeared into the night. With the lights out, the river was shining intermittently. On each side of the road, the dark masses of forest foliage stood out against the sky and seemed very near. The fine rain that had soaked the trail an hour earlier was still hovering in the warm air, intensifying the silence and immobility of this broad clearing in the virgin forest. In the black sky misty stars flickered.

How do you feel about the overall descriptive qualities of the story?

| | | | | | | | | |
|-------------|---|---|-------------|---|---|---|---|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| not at all | | | somewhat | | | | | very |
| descriptive | | | descriptive | | | | | descriptive |

Do you think the author of this story is male or female?

_____ male _____ female

Appendix F

Dependent Measures

For this task, you will be writing about an important person in your life (such as a close family member or friend) you have not been getting along with well.

When you have selected someone, please provide the following information about that person:

1. His or her initials: _____

2. His or her gender: M / F

3. His or her age: _____

4. This person is a:

_____ Friend _____ Family member _____ Romantic partner _____ Other

5. How important is this relationship to you?

| | | | | | | | |
|------------|---|---|---|---|---|---|-----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| Not at all | | | | | | | Extremely |
| Important | | | | | | | Important |

6. I would describe the problems I am experiencing with this person as:

| | | | | | | |
|-------|---|----------|---|---|-------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Minor | | | | | Major | |
| | | Moderate | | | | |

7. Do you believe your relationship with this person will improve in the future?

_____ No, definitely not

_____ No

_____ Probably not

_____ Maybe

_____ Probably

_____ Yes

_____ Yes, definitely

8. About how long do you think it will be until your relationship with this person improves, if it ever will?

_____ Less than one week

_____ Less than one month

_____ 1 to 2 months

_____ 2 to 6 months

_____ 6 months to 1 year

_____ More than 1 year

_____ Never

9. How likely is it that you will take the initiative to repair the relationship?

- Very unlikely
- Unlikely
- Somewhat unlikely
- Somewhat likely
- Likely
- Very likely

10. How likely is it that this person will take the initiative to repair the relationship?

- Very unlikely
- Unlikely
- Somewhat unlikely
- Somewhat likely
- Likely
- Very likely

11. How likely is it that a mutual effort will be undertaken to repair the relationship?

- Very unlikely
- Unlikely
- Somewhat unlikely
- Somewhat likely
- Likely
- Very likely

12. How much effort will you put in to repair the relationship?

- No effort
- Minimal effort
- Some effort
- Moderate effort
- Considerable effort
- Strong effort

13. How much effort will this person put in to repair the relationship?

- No effort
- Minimal effort
- Some effort
- Moderate effort
- Considerable effort
- Strong effort

14. In the future, I believe my relationship with this person will be:

- Much worse than now
- Worse than now
- Somewhat worse than now
- About the same as now

- Somewhat better than now
 Better than now
 Much better than now

15. I imagine my relationship with this person in the future as being:

- Very negative
 Moderately negative
 Slightly negative
 Neutral
 Slightly positive
 Moderately positive
 Very positive

16. I imagine my relationship with this person in the future as being:

- Extremely unpleasant
 Unpleasant
 Somewhat unpleasant
 Neither pleasant nor unpleasant
 Somewhat pleasant
 Pleasant
 Extremely pleasant

Relationship Satisfaction Measure (Wakimoto, 2011)

17. Please use the scale provided below to rate the extent to which you believe each adjective will apply to your relationship with this person in the future.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|--|---|--|--------------------------|-------------------------------|----------------------------------|
| Not at all applicable to our relationship | Only slightly applicable to our relationship | Somewhat applicable to our relationship | Just the same as an average relationship | True of our relationship | Very true of our relationship | Exactly true of our relationship |

- (a) _____ compatible
 (b) _____ lasting
 (c) _____ secure
 (d) _____ supporting
 (e) _____ relieving
 (f) _____ reciprocal
 (g) _____ close
 (h) _____ reliable

Table 1

Descriptive Statistics

| | <i>N</i> | <i>M</i> | <i>SD</i> | Min | Max |
|--|----------|----------|-----------|------|------|
| Will relationship improve (1=no, definitely not, 7=yes, definitely) | 220 | 5.19 | 1.34 | 1 | 7 |
| Likelihood P will initiate resolution (1=very unlikely, 6=very likely) | 219 | 4.27 | 1.25 | 1 | 6 |
| Likelihood partner will initiate resolution (1=very unlikely, 6=very likely) | 220 | 3.56 | 1.44 | 1 | 6 |
| Likelihood of mutual conflict resolution (1=very unlikely, 6=very likely) | 220 | 3.92 | 1.29 | 1 | 6 |
| Effort P will put in to repair relationship (1=none, 6=strong) | 220 | 4.38 | 1.14 | 1 | 6 |
| Effort partner will put in to repair relationship (1=none, 6=strong) | 220 | 3.81 | 1.44 | 1 | 6 |
| How much better relationship will be in future (1=much worse, 6=much better) | 220 | 5.27 | 1.17 | 1 | 7 |
| Future positivity of relationship (1=very negative, 7=very positive) | 219 | 5.54 | 1.31 | 1 | 7 |
| Future pleasantness of relationship (1=very unpleasant, 7=very pleasant) | 220 | 5.50 | 1.20 | 1 | 7 |
| Z-scored composite improvement variable (for first 9 items) | 220 | 0.13 | 0.70 | 1.86 | 1.41 |
| Time until resolution (1=less than one week, 7=never) | 220 | 3.80 | 1.91 | 1 | 7 |
| Future Relationship Satisfaction Scale | 220 | 4.68 | 1.55 | 3 | 7 |
| Importance of relationship (1=not at all, 7=extremely) | 220 | 5.85 | 1.31 | 1 | 7 |
| Severity of relationship problems (1=minor, 7=major) | 220 | 3.98 | 1.57 | 1 | 7 |
| Self-esteem measured prior to study | 216 | 2.88 | 0.59 | 1.40 | 4.00 |
| Self-esteem measured at the end of the study | 220 | 3.06 | 0.54 | 1.70 | 4.00 |
| Negative Affect Scale | 220 | 1.75 | 0.55 | 1.00 | 3.82 |
| Positive Affect Scale | 220 | 2.79 | 0.71 | 1.22 | 4.52 |

Table 2

Correlations among Variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------------------|---------|--------|---------|---------|--------|---------|---------|---------|
| 1. Improve | --- | | | | | | | |
| 2. Self_initiate | .41*** | --- | | | | | | |
| 3. Partner_initiate | .52*** | .27*** | --- | | | | | |
| 4. Mutual_effort | .55*** | .48*** | .75*** | --- | | | | |
| 5. Self_effort | .49*** | .68*** | .36*** | .51*** | --- | | | |
| 6. Partner_effort | .60*** | .34*** | .81*** | .76*** | .54*** | --- | | |
| 7. Better_worse | .73*** | .41*** | .40*** | .43*** | .51*** | .49*** | --- | |
| 8. Pos_neg | .69*** | .49*** | .46*** | .50*** | .53*** | .56*** | .76*** | --- |
| 9. Pleas_unpleas | .69*** | .51*** | .46*** | .51*** | .56*** | .53*** | .77*** | .84*** |
| 10. Time | -.47*** | -.17* | -.45*** | -.43*** | -.13 | -.41*** | -.29*** | -.35*** |
| 11. Future_RS | .67*** | .46*** | .52*** | .56*** | .53*** | .59*** | .71*** | .79*** |
| 12. Rel_import | .42*** | .37*** | .17* | .25*** | .48*** | .31*** | .53*** | .52*** |
| 13. Prob_severity | -.47*** | -.21** | -.32*** | -.33*** | -.08 | -.29*** | -.27*** | -.37*** |
| 14. SE_pr | .17* | .15* | .17* | .20** | .08 | .19** | .10 | .15* |
| 15. SE_study | .12 | .08 | .07 | .11 | .08 | .14* | .06 | .11 |
| 16. Neg_affect | -.15* | -.05 | -.12 | -.14* | -.01 | -.11 | -.09 | -.12 |
| 17. Pos_affect | .13 | .15* | .10 | .10 | .18** | .13* | .09 | .05 |

| | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|-------------------|---------|---------|---------|------|-------|---------|---------|-----|
| 9. Pleas_unpleas | --- | | | | | | | |
| 10. Time | -.35*** | --- | | | | | | |
| 11. Future RS | .80*** | -.36*** | --- | | | | | |
| 12. Rel_import | .53*** | .00 | .56*** | --- | | | | |
| 13. Prob_severity | -.38*** | .37*** | -.33*** | .08 | --- | | | |
| 14. SE_pr | .16* | -.10 | .15* | .02 | -.16* | --- | | |
| 15. SE_study | 0.12 | -.11 | .09 | -.01 | -.09 | .75*** | --- | |
| 16. Neg_affect | -.17* | .00 | -.11 | -.05 | .22** | -.30*** | -.41*** | --- |
| 17. Pos_affect | 0.06 | .12 | .04 | .05 | -.09 | .27*** | .35*** | .03 |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3

Condition x Attachment x Gender Frequency Table

| | Secure | | Avoidant | | Anxious-Ambivalent | |
|---------|--------|-----|----------|-----|--------------------|-----|
| | Women | Men | Women | Men | Women | Men |
| MS | 45 | 29 | 18 | 4 | 7 | 3 |
| Control | 29 | 23 | 27 | 10 | 11 | 10 |

Table 4

Condition x Attachment ANOVA for Expectations for improvement

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|------------------------|----------------|-----------|------|----------|----------|
| Condition | 0.95 | 1 | 0.95 | 2.05 | 0.02 |
| Attachment | 4.60 | 1 | 4.60 | 9.98** | 0.05 |
| Condition x Attachment | 2.53 | 1 | 2.53 | 5.48* | 0.03 |
| Error | 85.32 | 185 | 0.46 | | |

Note. * $p < .05$. ** $p < .01$. Only secure and avoidant participants were included in the analysis. Numbers were rounded to two-decimals after calculations were made.

Table 5

Condition x Attachment ANOVA for Time until resolution

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|------------------------|----------------|-----------|-------|----------|----------|
| Condition | 0.50 | 1 | 0.50 | 0.14 | 0.00 |
| Attachment | 24.11 | 1 | 24.11 | 6.71** | 0.03 |
| Condition x Attachment | 12.57 | 1 | 12.57 | 3.50 | 0.02 |
| Error | 664.57 | 185 | 3.59 | | |

Note. ** $p < .01$. Only secure and avoidant participants were included in the analysis. Numbers were rounded to two-decimals after calculations were made.

Table 6

Condition x Attachment ANOVA for Future relationship satisfaction

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|------------------------|----------------|-----------|-------|----------|----------|
| Condition | 2.87 | 1 | 2.87 | 1.35 | 0.01 |
| Attachment | 30.33 | 1 | 30.33 | 14.3*** | 0.07 |
| Condition x Attachment | 7.91 | 1 | 7.91 | 3.73* | 0.02 |
| Error | 392.47 | 185 | | | |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Only secure and avoidant participants were included in the analysis. Numbers were rounded to two-decimals after calculations were made.

Table 7

Condition x Self-Esteem ANCOVA for Expectations for improvement

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|-------------------|----------------|-----------|------|----------|----------|
| Condition | 0.12 | 1 | 0.12 | 0.24 | 0.00 |
| ZSelf-Esteem (SE) | 4.38 | 1 | 4.38 | 9.12** | 0.04 |
| Condition x SE | 0.00 | 1 | 0.00 | 0.00 | 0.00 |
| Error | 104.75 | 218 | 0.48 | | |

Note. ** $p < .01$. Numbers were rounded to two-decimals after calculations were made.

Table 8

Condition x Self-Esteem ANCOVA for Time until resolution

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|-------------------|----------------|-----------|-------|----------|----------|
| Condition | 1.00 | 1 | 1.00 | 0.27 | 0.00 |
| ZSelf-Esteem (SE) | 12.47 | 1 | 12.47 | 3.40 | 0.02 |
| Condition x SE | 3.69 | 1 | 3.69 | 1.01 | 0.00 |
| Error | 798.88 | 218 | 3.67 | | |

Note. Numbers were rounded to two-decimals after calculations were made.

Table 9

Condition x Self-Esteem ANCOVA for Future relationship satisfaction

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|-------------------|----------------|-----------|-------|----------|----------|
| Condition | 0.52 | 1 | 0.52 | 0.22 | 0.00 |
| ZSelf-Esteem (SE) | 14.99 | 1 | 14.99 | 6.34** | 0.03 |
| Condition x SE | 0.51 | 1 | 0.51 | 0.22 | 0.00 |
| Error | 515.58 | 218 | 2.37 | | |

Note. ** $p \leq .01$. Numbers were rounded to two-decimals after calculations were made.

Table 10

Condition x Gender ANOVA for Expectations for improvement

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|--------------------|----------------|-----------|------|----------|----------|
| Condition | 0.22 | 1 | 0.22 | 0.45 | 0.00 |
| Gender | 0.00 | 1 | 0.00 | 0.00 | 0.00 |
| Condition x Gender | 0.66 | 1 | 0.66 | 1.34 | 0.01 |
| Error | 109.62 | 222 | 0.49 | | |

Note. Numbers were rounded to two-decimals after calculations were made.

Table 11

Condition x Gender ANOVA for Time until resolution

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|--------------------|----------------|-----------|------|----------|----------|
| Condition | 1.42 | 1 | 1.42 | 0.38 | 0.00 |
| Gender | 0.77 | 1 | 0.77 | 0.21 | 0.00 |
| Condition x Gender | 3.90 | 1 | 3.90 | 1.05 | 0.00 |
| Error | 827.80 | 222 | 3.73 | | |

Note. Numbers were rounded to two-decimals after calculations were made.

Table 12

Condition x Gender ANOVA for Future relationship satisfaction

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|--------------------|----------------|-----------|------|----------|----------|
| Condition | 2.51 | 1 | 2.51 | 1.04 | 0.00 |
| Gender | 0.11 | 1 | 0.11 | 0.04 | 0.00 |
| Condition x Gender | 0.07 | 1 | 0.07 | 0.03 | 0.00 |
| Error | 538.18 | 222 | 2.42 | | |

Note. Numbers were rounded to two-decimals after calculations were made.

Table 13

Condition x Gender x Self-Esteem ANCOVA for Expectations for improvement

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|-------------------------|----------------|-----------|------|----------|----------|
| Condition | 0.09 | 1 | 0.09 | 0.20 | 0.00 |
| Gender | 0.02 | 1 | 0.02 | 0.05 | 0.00 |
| ZSelf-Esteem (SE) | 2.67 | 1 | 2.67 | 5.59* | 0.02 |
| Condition x Gender | 0.40 | 1 | 0.40 | 0.85 | 0.00 |
| Condition x SE | 0.08 | 1 | 0.08 | 0.17 | 0.00 |
| Gender x SE | 0.09 | 1 | 0.09 | 0.19 | 0.00 |
| Condition x Gender x SE | 1.85 | 1 | 1.85 | 3.88* | 0.02 |
| Error | 102.16 | 214 | 0.48 | | |

Note. * $p < .05$. Numbers were rounded to two-decimals after calculations were made.

Table 14

Condition x Gender x Self-Esteem ANCOVA for Time until resolution

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|-------------------------|----------------|-----------|-------|----------|----------|
| Condition | 2.08 | 1 | 2.08 | 0.57 | 0.00 |
| Gender | 1.01 | 1 | 1.01 | 0.28 | 0.00 |
| ZSelf-Esteem (SE) | 11.13 | 1 | 11.13 | 3.05 | 0.01 |
| Condition x Gender | 5.95 | 1 | 5.95 | 1.63 | 0.01 |
| Condition x SE | 2.99 | 1 | 2.99 | 0.82 | 0.00 |
| Gender x SE | 1.83 | 1 | 1.83 | 0.50 | 0.00 |
| Condition x Gender x SE | 5.54 | 1 | 5.54 | 1.52 | 0.01 |
| Error | 781.52 | 214 | 3.65 | | |

Note. Numbers were rounded to two-decimals after calculations were made.

Table 15

Condition x Gender x Self-Esteem ANCOVA for Future relationship satisfaction

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|-------------------------|----------------|-----------|-------|----------|----------|
| Condition | 1.46 | 1 | 1.46 | 0.62 | 0.00 |
| Gender | 0.05 | 1 | 0.05 | 0.02 | 0.00 |
| ZSelf-Esteem (SE) | 6.99 | 1 | 6.99 | 2.97 | 0.01 |
| Condition x Gender | 0.17 | 1 | 0.17 | 0.07 | 0.00 |
| Condition x SE | 0.17 | 1 | 0.17 | 0.07 | 0.00 |
| Gender x SE | 1.98 | 1 | 1.98 | 0.84 | 0.00 |
| Condition x Gender x SE | 11.08 | 1 | 11.08 | 4.71* | 0.02 |
| Error | 503.82 | 214 | 2.35 | | |

Note. * $p < .05$. Numbers were rounded to two-decimals after calculations were made.

Table 16

Condition x Gender x Self-Esteem ANCOVA for Relationship importance ratings

| Source | Sum of Squares | <i>df</i> | MS | <i>F</i> | η^2 |
|-------------------------|----------------|-----------|-------|----------|----------|
| Condition | 0.07 | 1 | 0.07 | 0.04 | 0.00 |
| Gender | 0.70 | 1 | 0.70 | 0.42 | 0.00 |
| ZSelf-Esteem (SE) | 0.05 | 1 | 0.05 | 0.03 | 0.00 |
| Condition x Gender | 1.49 | 1 | 1.49 | 0.90 | 0.00 |
| Condition x SE | 0.10 | 1 | 0.10 | 0.06 | 0.00 |
| Gender x SE | 0.20 | 1 | 0.20 | 0.12 | 0.00 |
| Condition x Gender x SE | 15.90 | 1 | 15.90 | 9.62** | 0.04 |
| Error | 353.63 | 214 | 1.65 | | |

Note. ** $p < .01$. Numbers were rounded to two-decimals after calculations were made.

Table 17

Simple Effects Analyses by Attachment Style for Condition x Attachment Interactions

| DV | Attachment | Mean Difference | <i>t</i> | <i>df</i> | Std. Error of Diff. | 95% CI of Diff. | |
|-------------|------------|--------------------|----------|-----------|---------------------------|-----------------|----------------|
| | | | | | | Lower Bound | Upper Bound |
| Improvement | Secure | -0.10 | -0.85 | 128 | 0.12 | -0.33 | 0.13 |
| | Avoidant | 0.41 | 2.13* | 57 | 0.19 | 0.02 | 0.80 |
| Time | Secure | 0.46 | 1.36 | 128 | 0.34 | -0.21 | 1.12 |
| | Avoidant | -0.69 | -1.34 | 57 | 0.51 | -1.71 | 0.34 |
| Future RS | Secure | -0.18 | -0.71 | 128 | 0.25 | -0.68 | 0.32 |
| | Avoidant | 0.73 | 1.79 | 57 | 0.41 | -0.09 | 1.54 |

Simple Effects Analyses by Condition for Condition x Attachment Interactions

| DV | Condition | Mean Difference | <i>t</i> | <i>df</i> | Std. Error of Diff. | 95% CI of Diff. | |
|-------------|-----------|--------------------|----------|-----------|---------------------------|-----------------|----------------|
| | | | | | | Lower Bound | Upper Bound |
| Improvement | MS | 0.09 | 0.53 | 94 | 0.17 | -0.25 | 0.43 |
| | Control | 0.60 | 4.32*** | 91 | 0.14 | 0.33 | 0.88 |
| Time | MS | -0.22 | -0.48 | 94 | 0.46 | -1.14 | 0.70 |
| | Control | -1.36 | -3.41*** | 91 | 0.40 | -2.16 | -0.57 |
| Future RS | MS | 0.43 | 1.18 | 94 | 0.37 | -0.30 | 1.16 |
| | Control | 1.34 | 4.54*** | 91 | 0.30 | 0.75 | 1.93 |

Note. * $p < .05$. ** $p < .01$. *** $p \leq .001$. Only secure and avoidant participants were included in the analysis. Numbers were rounded to two-decimals after calculations were made.

Table 18

Simple Interactions for Condition x Gender x Self-Esteem Effects

| DV | Level of IV | Source | Sums of Squares | df | MS | F | |
|-------------------------|--------------------|--------------------|-------------------|--------|-------|--------|-------|
| Improvement | High SE | Condition | 0.03 | 1 | 0.03 | 0.08 | |
| | | Gender | 0.01 | 1 | 0.01 | 0.02 | |
| | | Condition x Gender | 1.75 | 1 | 1.75 | 4.00* | |
| | | Error | 46.27 | 106 | 0.44 | | |
| | Low SE | Condition | 0.09 | 1 | 0.09 | 0.16 | |
| | | Gender | 0.06 | 1 | 0.06 | 0.11 | |
| | | Condition x Gender | 0.04 | 1 | 0.04 | 0.07 | |
| | | Error | 58.67 | 108 | 0.54 | | |
| | Future RS | MS | Gender | 0.19 | 1 | 0.19 | 0.08 |
| | | | ZSelf-esteem (SE) | 1.95 | 1 | 1.95 | 0.85 |
| | | | Gender x SE | 8.82 | 1 | 8.82 | 3.82* |
| | | | Error | 238.02 | 103 | 2.31 | |
| Control | | Gender | 0.02 | 1 | 0.02 | 0.01 | |
| | | SE | 6.41 | 1 | 6.41 | 2.68 | |
| | | Gender x SE | 2.544 | 1 | 2.53 | 1.06 | |
| | | Error | 265.8 | 111 | 2.4 | | |
| Relationship Importance | | High SE | Condition | 1.67 | 1 | 1.67 | 0.97 |
| | | | Gender | 0.01 | 1 | 0.01 | 0.00 |
| | Condition x Gender | | 11.52 | 1 | 11.52 | 6.68** | |
| | Error | | 182.82 | 106 | 1.73 | | |
| | Low SE | Condition | | 1 | | | |
| | | Gender | | 1 | | | |
| | | Condition x Gender | | 1 | | | |
| | | Error | | 108 | | | |

Note. * $p < .05$. ** $p \leq .01$. Numbers were rounded to two-decimals after calculations were made.

Table 19

Mean Scores on the DVs as a Function of Condition and Attachment Style

| | Mortality Salience | | | | Control | | | |
|-------------|--------------------|-----------|----------|-----------|----------|-----------|----------|-----------|
| | Secure | | Avoidant | | Secure | | Avoidant | |
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Improvement | 0.23 | 0.68 | 0.14 | 0.74 | 0.33 | 0.62 | -0.27 | 0.72 |
| Time | 3.69 | 1.92 | 3.91 | 1.88 | 3.23 | 1.87 | 4.59 | 1.91 |
| Future RS | 4.9 | 1.50 | 4.47 | 1.55 | 5.08 | 1.33 | 3.74 | 1.48 |

Note. Improvement scores are presented as z-scores.

Table 20

Mean Scores on the DVs as a Function of Condition, Gender, and Self-Esteem

| | High SE | | | | | | | |
|--------------|---------|------|---------|------|------|------|---------|------|
| | Women | | | | Men | | | |
| | MS | | Control | | MS | | Control | |
| | M | SD | M | SD | M | SD | M | SD |
| Improvement | 0.40 | 0.63 | 0.10 | 0.74 | 0.12 | 0.64 | 0.32 | 0.61 |
| Time | 3.29 | 2.00 | 4.03 | 2.34 | 4.00 | 1.93 | 3.35 | 1.73 |
| Future RS | 5.21 | 1.35 | 4.65 | 1.56 | 4.68 | 1.41 | 4.99 | 1.14 |
| Rel. Import. | 6.29 | 1.01 | 5.37 | 1.65 | 5.64 | 1.33 | 6.05 | 1.23 |
| | Low SE | | | | | | | |
| | Women | | | | Men | | | |
| | MS | | Control | | MS | | Control | |
| | M | SD | M | SD | M | SD | M | SD |
| Improvement | 0.03 | 0.88 | 0.01 | 0.64 | 0.12 | 0.45 | 0.02 | 0.79 |
| Time | 3.97 | 1.79 | 3.59 | 1.79 | 4.14 | 1.66 | 3.83 | 1.88 |
| Future RS | 4.36 | 1.92 | 4.60 | 1.54 | 4.94 | 1.09 | 4.27 | 1.85 |
| Rel. Import. | 5.73 | 1.46 | 6.20 | 1.03 | 5.57 | 1.28 | 5.63 | 1.31 |

Note. Improvement scores are presented as z-scores.

Figure Captions

Figure 1. Mean relationship importance ratings as a function of condition (MS vs. control), gender, and self-esteem (high vs. low).

Figure 2. Mean expectations for improvement scores as a function of condition (MS vs. control) and attachment style (secure vs. avoidant).

Figure 3. Mean time until resolution as a function of condition (MS vs. control) and attachment style (secure vs. avoidant).

Figure 4. Mean anticipated future relationship satisfaction as a function of condition (MS vs. control) and attachment style (secure vs. avoidant).

Figure 5. Mean expectations for improvement scores as a function of condition (MS vs. control), gender, and self-esteem (high vs. low).

Figure 6. Mean anticipated future relationship satisfaction as a function of condition (MS vs. control), gender, and self-esteem (high vs. low).

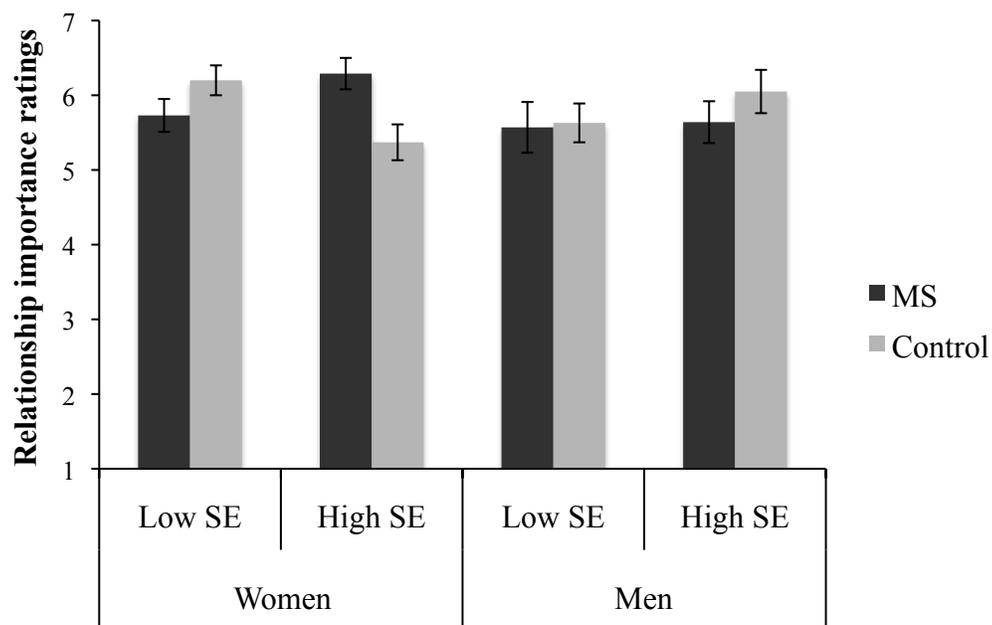


Figure 1. Mean relationship importance ratings as a function of condition (MS vs. control), gender, and self-esteem (low vs. high). Error bars represent one standard error above and below the mean for each group.

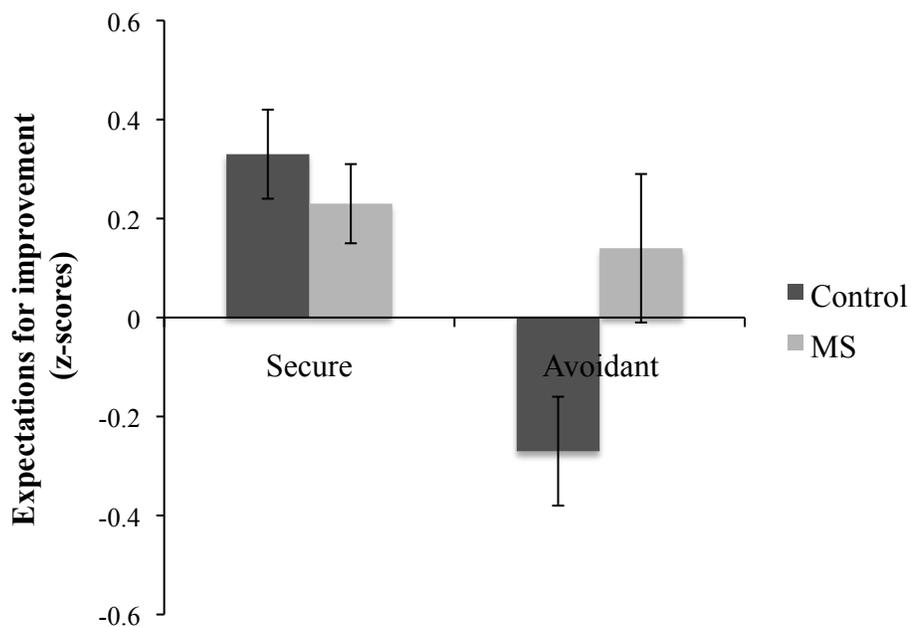


Figure 2a. Mean expectations for improvement scores between conditions for each attachment style. Error bars represent one standard error above and below the mean for each group.

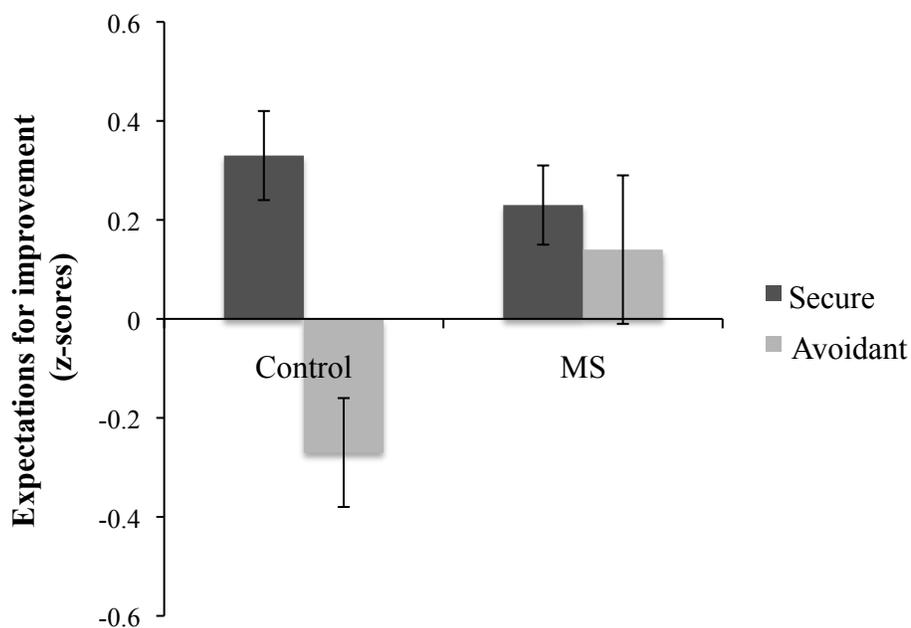


Figure 2b. Mean expectations for improvement scores between attachment groups for each condition. Error bars represent one standard error above and below the mean for each group.

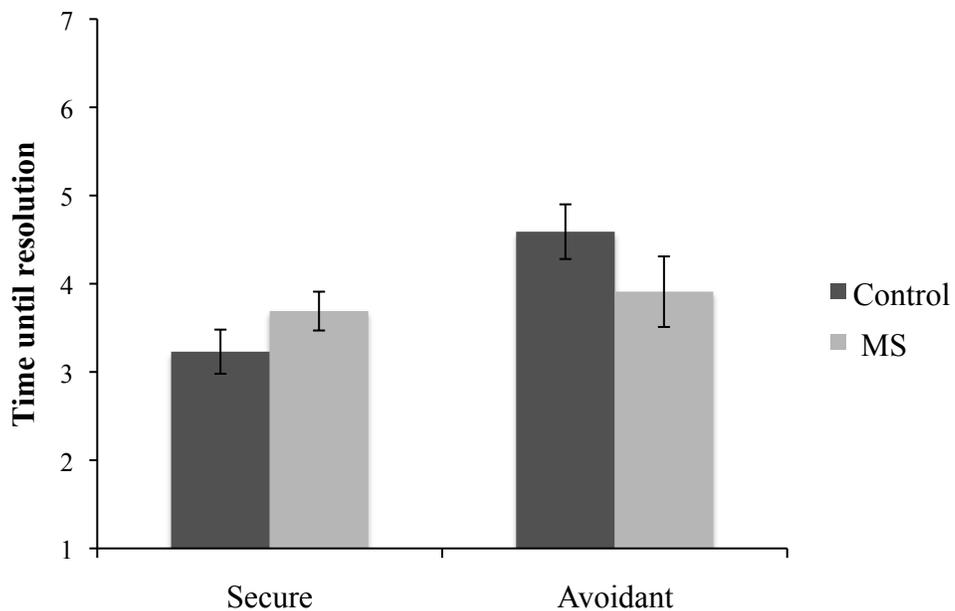


Figure 3a. Mean time until resolution between conditions for each attachment style. Error bars represent one standard error above and below the mean for each group.

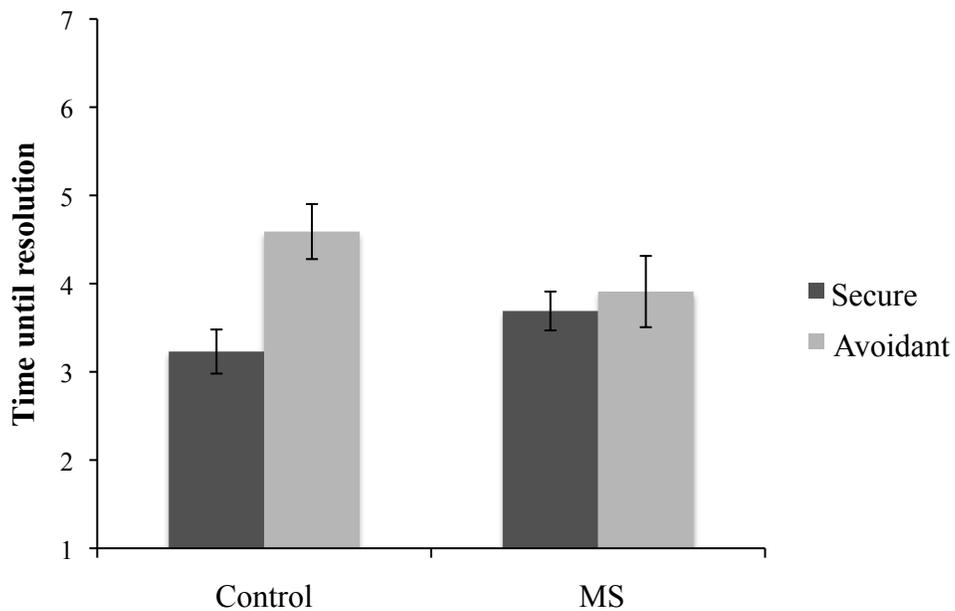


Figure 3b. Mean time until resolution between attachment groups for each condition. Error bars represent one standard error above and below the mean for each group.

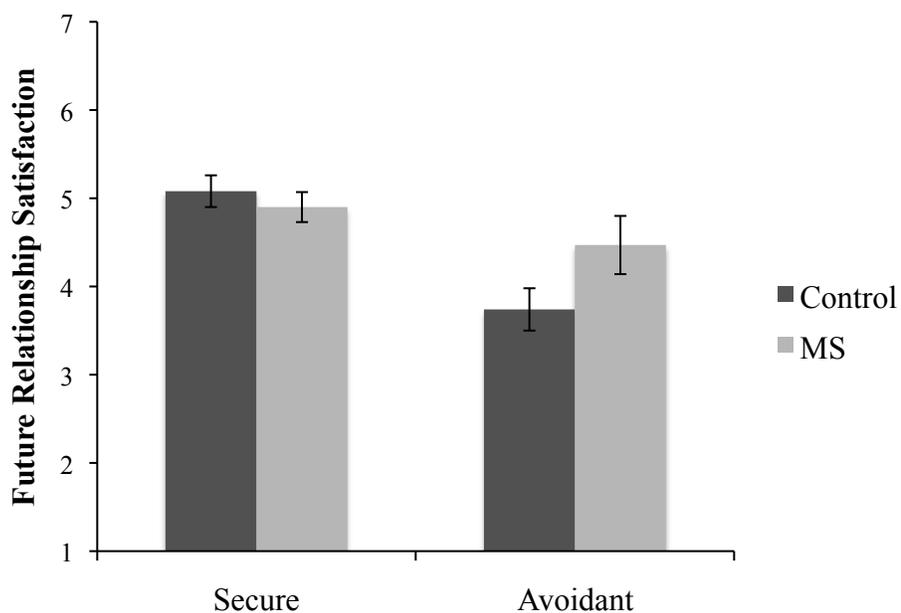


Figure 4a. Mean anticipated future relationship satisfaction between conditions for each attachment style. Error bars represent one standard error above and below the mean for each group.

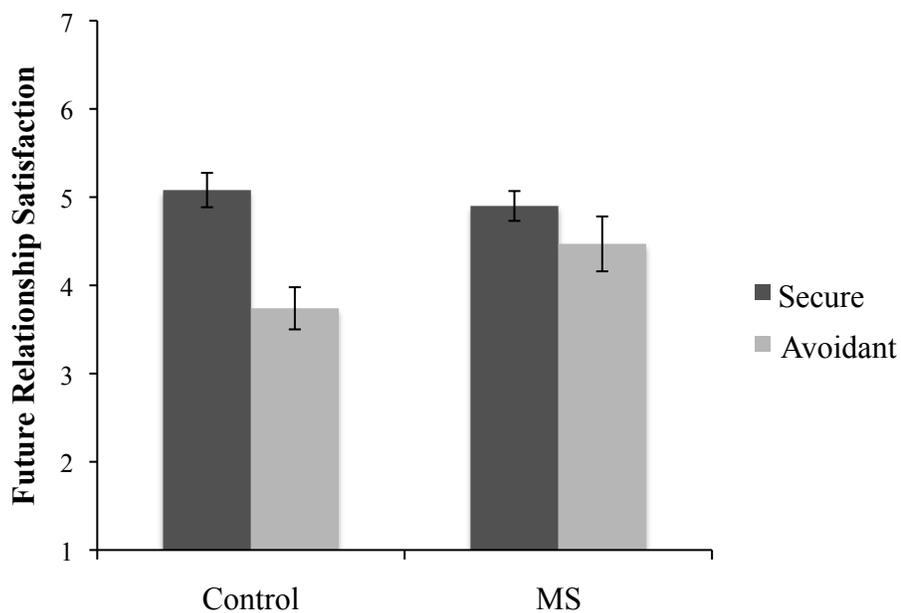


Figure 4b. Mean anticipated future relationship satisfaction between attachment groups for each condition. Error bars represent one standard error above and below the mean for each group.

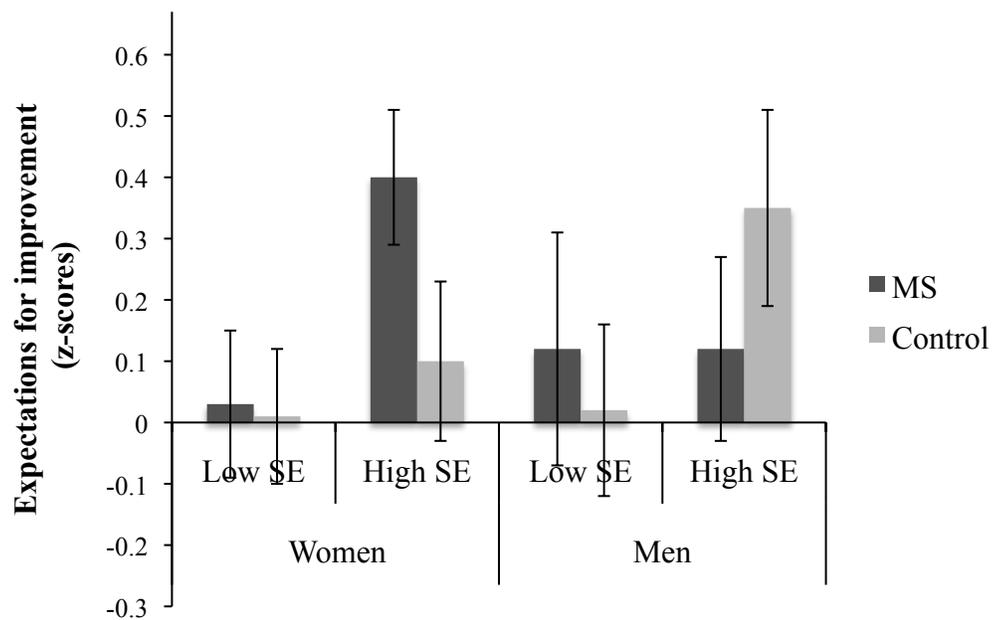


Figure 5. Mean expectations for improvement scores as a function of condition (MS vs. control), gender, and self-esteem (low vs. high). Expectation for improvement scores are presented as z-scores. Error bars represent one standard error above and below the mean for each group.

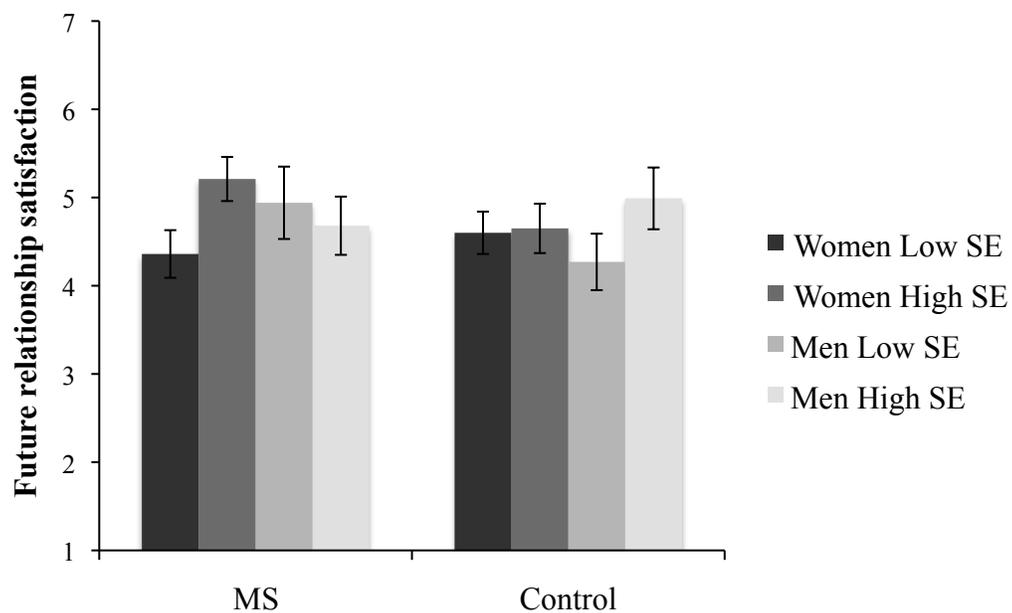


Figure 6. Mean anticipated future relationship satisfaction as a function of condition (MS vs. control), gender, and self-esteem (low vs. high). Error bars represent one standard error above and below the mean for each group.