

CLOSE RELATIONSHIPS BUFFER THE EFFECTS OF MORTALITY SALIENCE  
AMONG DEPRESSED INDIVIDUALS

by

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## ABSTRACT

People with depression often experience a lack of meaningfulness in the world around them, leaving them especially vulnerable to concerns about death. Although the existential anxieties of depressed individuals have been commented upon by many psychologists, very little work has examined the association between depression and thoughts of mortality. According to the perspective of terror management theory, people find meaning in life by adhering to belief systems (i.e., cultural worldviews) and living up to the standards of value of their culture (i.e., self-esteem). However, given that depression is associated with an ineffective functioning of a person's worldview, these individuals may respond to reminders of death with stronger defensiveness in an attempt to uphold what little views they have left. Unfortunately, previous terror management research has focused extensively on the extent to which persons with depression focus on thoughts of nationalism and American pride, leaving the question of what exactly becomes cognitively accessible for depressed individuals when thoughts of mortality are salient. The present research examined what highly depressed persons are likely to think about following reminders of death (Study 1), and whether boosting aspects of this anxiety-buffering system provide protection against mortality salience on the accessibility of death-related thought and worldview defense (Study 2).

## INTRODUCTION

People with depression often experience a lack of faith in themselves or in the meaningfulness of the world around them, leaving them especially vulnerable to concerns about death. Although the existential concerns of depressed individuals have been commented upon by many psychologists (Crumbaugh, 1968; Emmons, 1992; Kunzendorf & Maguire, 1995; Lipkus, Dalbert, & Siegler, 1996; Yalom, 1980), very little work has examined the association between depression and thoughts of death (Simon, Greenberg, Harmon-Jones, Solomon, & Pyszczynski, 1996; Simon, Arndt, Greenberg, Pyszczynski, & Solomon, 1998). According to the perspective of terror management theory (Greenberg, Solomon, & Pyszczynski, 1986), people find meaning in life by adhering to belief systems (i.e., cultural worldviews) and living up to the standards of value of their culture (i.e., self-esteem). However, given that depression is associated with an ineffective functioning of a person's worldview, these individuals may respond to reminders of death with stronger defensiveness in an attempt to uphold what little views they have left (Simon et al., 1996; 1998). Unfortunately, previous terror management research has focused extensively on the extent to which persons with depression focus on thoughts of nationalism and American pride (Simon et al., 1996; 1998), leaving the question of what exactly becomes cognitively accessible for depressed individuals when thoughts of mortality are salient. The purpose of the present research was to examine what highly depressed persons are likely to think about following reminders of death (Study 1), and whether boosting aspects of this anxiety-buffering system provides protection against mortality salience on the accessibility of death-related thought and worldview defensiveness (Study 2).

## **Terror Management Theory (TMT)**

Terror management theory (Greenberg et al., 1986), a social psychological perspective, states that humans share with other animals' an instinct for survival, but possess a unique ability for abstract thought, which gives rise to an awareness of the inevitability of death. This combination of mortality salience combined with the instinct for life has the potential to create anxiety (or "terror"). According to theorists (Greenberg et al., 1986; 1997), individuals are able to manage their concerns about death by means of a two-part cultural anxiety buffer. The first part is a belief in a cultural worldview, a shared conception of reality that imbues life with order, meaning, and permanence. Individuals can glean significance by subscribing to their belief systems, and gain a feeling of immortality by contributing to, and therefore becoming a part of, a movement larger than themselves. The second part of the dual defense against mortality awareness is self-esteem. Individuals gain self-esteem by believing that they are living up to the standards required of them by their worldview. Overall, people spend a large amount of energy on these defenses (i.e., cultural worldviews, self-esteem) because of the value that they have in managing anxiety created by thoughts of death.

A considerable body of evidence supports two hypotheses derived from the theory. First, according to the *anxiety-buffer hypothesis* (e.g., Greenberg et al., 1997), if cultural worldviews and self-esteem provide protection against the awareness of death, then strengthening the effectiveness of these structures should decrease death-related thought and defensiveness, while weakening these mechanisms should increase the two. This hypothesis has been supported by research demonstrating that false positive feedback (i.e., a self-esteem boost) leads to lower levels of self-reported anxiety,

physiological arousal, and anxiety-related defensiveness (Greenberg, Pyszczynski, Solomon, Pinel, Simon, & Jordan, 1993; Greenberg et al., 1993), as well as decreasing defensive responses to death-related thought (Harmon-Jones et al., 1997). Further, affirming one's worldview has been shown to facilitate lesser physiological and self-reported anxiety in response to mortality salience as opposed to arguing against it (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994).

The second hypothesis is the *mortality salience hypothesis*, which states that if cultural worldviews and self-esteem provide protection against mortality awareness, then reminding people of their death should increase their need for these structures. Thus, in the presence of mortality salience, people are especially likely to react positively to others who support their worldview and negatively toward those who threaten it. This practice is called worldview defense. For example, Greenberg and colleagues (1986) exposed participants to either thoughts of mortality or a control (physical pain). Participants then read two essays created by researchers: one from the perspective of a foreign student praising the United States (e.g., "the United States is the greatest country in the world") and one from a foreign student opposing the United States ("The United States is the worst country in the world"). The study found that after thinking death, as opposed to the control, participants were more likely to express greater liking for the author supporting America than the one opposing it. Additional work demonstrates that after reminders of death, people are likely to increase in-group bias (Harmon-Jones, Greenberg, Solomon, & Simon, 1996), are reluctant to violate cultural norms (Greenberg, Simon, Porteus, Pyszczynski, & Solomon, 1995), and overestimate the consensus of their own beliefs (Pyszczynski et al., 1996). Overall, research suggests that defensive reactions are specific

to thoughts of death, as priming participants with physiological arousal and aversive thoughts such as pain, paralysis, death of a loved one, and failure do not elicit the same reactions (Simon et al., 1996).

Although a majority of terror management research has focused on the negative consequences of reminders of death, more recent work has found that mortality salience can promote health-benefitting outcomes as well. For instance, people who exhibit high Personal Need for Structure (PNS), or who routinely search for a sense of order to the world around them, are more likely to report increased meaning in life following MS (Vess, Routledge, Landau, & Arndt, 2009). Additionally, among participants with high, but not low self-esteem, heightened death awareness has been shown to increase satisfaction with life, subjective vitality, and exploration while decreasing negative affect, anxiety, and socially avoidant behavior (Routledge, Ostafin, Juhl, Sedikides, Cathey, & Liao, 2010). This suggests that high self-esteem individuals may experience greater well-being because their positive regard serves as a buffer against existential anxieties. But what about individuals who struggle daily in their evaluations of their self-concepts? The purpose of the present study was to examine how depressed individuals, who frequently struggle to maintain anxiety buffers such as self-esteem, respond to reminders of their mortality, and how boosting aspects of their anxiety buffering system provides protection against death awareness.

### **Terror Management Theory and Depression**

Depression is characterized by sadness, low self-worth, and feelings of tiredness (World Health Organization, 2012). More than 18 million Americans suffer from some form of depression (i.e., 9.5% of the adult population; Valenstein, Vijan, Zeber, Boehm,



& Buttar, 2001) and over 1 in 10 people worldwide have suffered from a major depressive episode in their lifetime (Bromet et al., 2011). Depression can be extremely debilitating. Around 80% of depressed individuals report a degree of functional impairment due to their depression, and 27% report serious difficulties in work or home life (Pratt & Brody, 2008). The prevalence of and difficulties caused by depression suggest that there is still much to learn about its causes and treatments. Given that depressed individuals experience problems in maintaining their self-esteem and interest in the world around them, terror management theory may offer valuable insight into how depressed individuals manage concerns about their mortality.

The inability for depressed individuals to maintain cultural worldviews has been supported by evidence from both research and clinical observations (Simon et al., 1998). For example, Crumaugh (1968) found a negative correlation between depression scores and meaning in life (also see Emmons, 1992; Kunzendorf & Maguire, 1995; Lipkus et al., 1996 for similar findings). Depressed individuals also display a heightened amount of thoughts of death and are less able to repress the cognitions associated with these thoughts (Kunzendorf & McLaughlin, 1988). The increased vulnerability to death-related cognition apparent in depression creates a greater need for anxiety buffers, which is accentuated by the inability of the depressed to maintain confidence in themselves or the meaningfulness of life. Therefore, after being reminded of their mortality, depressed persons should be more likely defend what faith in a worldview that they possess.

Although limited, there is evidence to support this possibility. In a series of studies, for instance, depressed and non-depressed individuals were exposed to thoughts of death or a neutral topic (watching television; Simon et al., 1996). Following this,

everyone read two essays (pro-American vs. anti-American) to assess for worldview defense. The results revealed that depressed participants strongly defended the United States and freedom of speech more than either non-depressed participants or those who were not given reminders of death. Additional research has shown that inducing mortality salience and then offering the opportunity to engage in worldview defense (i.e., praising the author of a pro-American article) raises well-being among depressed participants (Simon et al., 1998). This increase in well-being was also associated with greater self-reported meaning in life.

Although research demonstrates that depressed individuals are likely to respond to reminders of death with greater worldview defense, this work is limited because it has focused extensively on the meaningfulness of nationalistic constructs. One goal for the current studies was to examine what becomes cognitively accessible for depressed individuals when thoughts of mortality are salient. Understanding the aspects of life that become available for persons with depression following reminders of death would help to create meaning in life and increase well-being.

### **The Present Research**

The present research was designed with two purposes in mind. First, one goal was to examine the accessibility of different constructs (e.g., close relationships, self-esteem) among depressed and non-depressed individuals following a mortality salience manipulation. Specifically, I primed participants with either thoughts of death or an aversive control (i.e., academic pressure) and coded individuals' open-ended responses for different themes using the Linguistic Inquiry and Word Count program (LIWC; Pennebaker, Booth, & Francis, 2007), a program that analyzes open-ended responses

using pre-defined dictionaries. Based on these results, the second goal of this work was to examine whether the predominant theme (i.e., close relationships) served as a buffer against reminders of death for individuals who scored high on depression. To do this, depressed and non-depressed individuals were primed with either mortality salience or public speaking (the control condition). They were then asked to write about a time that they felt especially loved (close social relationships), a time they felt particularly patriotic (nationalism), or given no cue (control). The dependent variables consisted of a measure of death-thought accessibility and worldview defense that have been used in previous research (e.g., Cox, Goldenberg, Arndt, & Pyszczynski, 2007; Greenberg et al., 1994). To the extent that close relationships buffer concerns about death (Study 1), then depressed individuals should report lower death-thought accessibility and exhibit reduced worldview validation following mortality salience and thoughts of a loved one. Following Simon and colleagues (1996; 1998), a second condition was included whereby individuals were primed with thoughts of nationalism. Although it was expected that depressed persons would also report fewer death concerns and defensiveness following mortality salience and a nationalistic prime (Simon et al.), it was hypothesized that these effects would not be as low as the close relationship condition.

### STUDY 1

The goal of this first study was to identify what constructs become cognitively accessible for depressed individuals when reminders of death are salient. After completing the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), participants were asked to write about their thoughts and feelings associated with death (the experimental condition) versus academic failure (the control condition).

Failure was chosen as a control condition to activate thoughts of an aversive experience that was not the same as mortality salience. Participants' responses to the death manipulation were processed through LIWC (Pennebaker et al., 2007), a writing analysis software program, to assess for conceptual themes in people's written responses. Given the exploratory nature of this experiment, no hypotheses were made prior to data analyses.

## **Method**

### **Participants**

Participants were 34 males and 67 females (1 missing response) undergraduate students at Texas Christian University between the ages of 18 to 23 years ( $M = 19.30$ ,  $SD = 1.20$ ). Participants were 78.4% Caucasian, 8.8% Hispanic, 7.8% African American, 3.9% Asian, and 1% Native American.

### **Materials and Procedure**

*Depression.* Participants first completed the Beck Depression Inventory (BDI; Beck et al., 1961;  $\alpha = .78$ ), a self-reported inventory assessing a participant's current level of depression symptomology using 21 items answered on a four-point scale. Participants chose the statement with which they agreed most in scaled four-statement groupings such as "I do not feel bad. / I feel sad. / I am sad all of the time and can't snap out of it. / I am so sad or unhappy that I can't stand it."

*Mortality salience.* Participants were randomly assigned to receive a question about death or another aversive topic (Greenberg, Solomon, & Pyszczynski, 1990). In the mortality salience condition, the question was: "Please briefly describe the emotions that the thought of your own death arouse in you." In the control condition, participants were

asked a parallel question about academic failure (“Please briefly describe the emotions that the thought of academic failure arouses in you”).

Responses to the mortality salience manipulation were analyzed with Language Inquiry and Word Count software (LIWC; Pennebaker et al., 2001). The default dictionary is designed to code for six different psychological constructs: (a) social words (e.g., friend, family), (b) affective words (e.g., positive emotion, negative emotion), (c) cognitive processes (e.g., insight, certainty), (d) perception words (e.g., feel, hear), (e) biological processes (e.g., body, health), and (f) relativity (e.g., motion, time). Additionally, the dictionary assesses for words that are associated with seven “current concerns” that participants are thinking about: (a) work, (b) achievement, (c) leisure, (d) home, (e) money, (f) religion, and (g) death. This last category (death) served as a manipulation check for the mortality salience prime. The LIWC dictionary is the most widely used quantitative method for assessing psychologically meaningful word usage (Neuendorf, 2002; Pennebaker et al., 2003). In the current study, LIWC scores were calculated by summing the total word count for each category divided by the total word count (e.g., number of social-related words/total words utilized).

## Results

*Manipulation check.* In order to test the effectiveness of the mortality salience manipulation, a two-tailed independent *t*-test was run to examine the effect of the death condition on the accessibility of death-related words in LIWC. The results found that people in the death condition ( $M = 3.45$ ,  $SD = 1.93$ ) were significantly more likely to think about death than the control condition ( $M = .04$ ,  $SD = .20$ ),  $t(100) = 12.04$ ,  $p \leq 12.04$ ,  $\eta^2 = .59$ .

*LIWC findings.* A moderated regression was used to examine whether depression (centered) interacted with mortality salience (dummy coded: death = 0, control = 1) to affect the frequency of the LIWC responses. The results revealed no significant effects of mortality salience and depression on any of the seven “current concerns,”  $ps \geq .30$ . Additionally, although there was no significant interaction between the death condition and depression on five of the psychological constructs (i.e., affective, cognitive, perceptual, biological, & relativity),  $ps \geq .39$ , there was a significant 2-way interaction on people’s use of social words,  $b = -.29$  ( $SE = .15$ ),  $t = 1.97$ ,  $p = .05$ ,  $R^2_{\text{partial}} = .20$  (see Figure 1).

Simple slope tests (Rosenthal & Rosnow, 1985) demonstrated that within the mortality salience condition, highly depressed individuals used more social words compared to those low in depression,  $b = .26$  ( $SE = .11$ ),  $t = 2.34$ ,  $p = .02$ ,  $R^2_{\text{partial}} = .05$ . There was no significant effect of depression within the control condition,  $b = -.02$  ( $SE = .09$ ),  $t = -.25$ ,  $p = .81$ ,  $R^2_{\text{partial}} = .001$ . Looked at differently, participants in the death condition used more social words than those who thought about public speaking at both low depression,  $b = -1.40$  ( $SE = .60$ ),  $t = -.32$ ,  $p = .02$ ,  $R^2_{\text{partial}} = .001$ , and high levels of depression  $b = -2.08$  ( $SE = .58$ ),  $t = -3.62$ ,  $p < .001$ ,  $R^2_{\text{partial}} = .12$ . Overall, highly depressed who experienced mortality salience were much more likely to use social words than other groups.

## **Discussion**

Study 1 showed that social words become cognitively available to depressed people following mortality salience. Interestingly, there was no significant difference between conditions on “achievement” words, which in the past have been used as a proxy

of self-esteem defense (Routledge, Arndt, Sedikides, & Wildschut, 2008). These findings thus suggest that depressed individuals are more likely to think about close relationships when thoughts of death are salient. If this is the case, then it makes sense that activating thoughts of a close relationship should buffer against the cognitive effects of death anxiety. One goal for the following study was to see if depressed individuals report fewer concerns about death and are less defensive following thoughts of mortality and a close relationship prime. Additionally, given that I was unable to assess for nationalistic constructs using the LIWC standard dictionary, one question is whether thoughts of a close relationship will be more effective than thoughts of American nationalism in helping depressed persons manage concerns about mortality. Therefore, an additional goal for the second experiment was to build upon Simon et al.'s (1996; 1998) findings to test the effectiveness of both nationalism and close relationships as effective buffers against thoughts of mortality.

## STUDY 2

Previous research (Simon et al., 1996) has demonstrated that depressed individuals are more likely to defend aspects of their worldview (i.e., American beliefs) than non-depressed participants. Additionally, activating thoughts of American nationalism following reminders of death are likely to increase the well-being of depressed participants (Simon et al., 1998). However, this line of research only used thoughts of nationalism as a measure of worldview defense. Study 2 built upon the findings by Simon and her colleagues, as well as the preliminary findings from Study 1. Because close social relationships became cognitively available to depressed individuals following reminders of death (Study 1), they should be an effective buffer, potentially

more effective than nationalism. Therefore, in Study 2, participants scoring high or low on depression experienced either mortality salience or a control manipulation and were then primed with thoughts of either a close social relationship or nationalism. Their death-thought awareness and level of worldview defense were measured. Based on the results of the first experiment, it was hypothesized that depressed individuals would report lower levels of death-thought accessibility and worldview defense following thoughts of mortality and close relationships. I did not expect that the same pattern of results would emerge following a prime of American nationalism.

## **Method**

### **Participants**

Participants were 58 males and 132 females undergraduate students at Texas Christian University who ranged in age from 17 to 44 years ( $M = 19.43$ ,  $SD = 2.70$ ). Participants were 78.7% Caucasian, 9.4% Hispanic, 5.6% Asian, 3.5% African American, 2.4% “Other” and .3% Native American.

### **Materials and Procedure**

*Depression.* Participants completed the same measure of depression as described in Study 1 ( $\alpha = .84$ ).

*Mortality salience.* Participants were assigned to either a mortality salience or control group. The mortality salience group answered 15 True/False Questions from the Fear of Death scale (“I am very much afraid to die;” Templer, 1970). In the control condition, participants answered parallel questions about public speaking (“I am very much afraid to speak in public”). This type of manipulation has been used previously to elicit thoughts of death (Arndt, Vess, Cox, Goldenberg, & Lagle, 2009).



*Relationship prime.* Participants were randomly assigned to one of two different conditions. In the relationship condition, individuals were asked to write about “a time someone close to you was available, supportive, and loving”). In contrast, in the nationalism condition, participants were asked to recall “a time where you felt patriotic.” Both groups then answered three questions evaluating their responses: “How did writing about this event make you feel?,” “How important is this event to you?,” and “How difficult was it to think of an event to write about?” Each question was answered on a 9-point scale (1 = *very negative/not at all*; 9 = *very positive/very much so*).

*Death-thought accessibility.* To the extent that close relationships buffer death concerns in depressed populations, then individuals should be less likely to think about death following a mortality salience and close relationship prime. In the current study, participants were asked to complete a word-stem task as a measure of death cognition. The task has been used extensively in previous terror-management research (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994; Mikulincer & Florian, 2000), and consists of 25 word fragments, six of which can be as death-related or neutral words (e.g., KI \_\_ ED can be completed as *kissed* or *killed*, SK \_\_ L can be completed as *skill* or *skull*). Death-thought accessibility scores were the total number of death-related word completions.

*Moral transgressions.* Consistent with previous research (Cox, Goldenberg, Arndt, & Pyszczynski, 2007), a second dependent variable consisted of participants’ responses to a series of four vignettes about a moral wrongdoing (e.g., the head executive of a scholarship fund stealing the money; Florian & Mikulincer, 1997) or an attack on American values (e.g., burning an American flag; Cox et al., 2007). Participants were

asked to read the vignettes carefully and then answer the question “How severe is this wrongdoing?” on a 7-point scale ranging from 1 (*not at all*) to 7 (*very*). The items for the four vignettes were averaged to get a worldview defense score ( $\alpha = .51$ ).

## Results

*Manipulation check.* In order to test the effectiveness of the mortality salience manipulation, a two-tailed independent *t*-test was run to examine the effect of the death condition on the number of death-related completions in the word-completion task. The results found that people in the death condition ( $M = 1.35, SD = .93$ ) were significantly more likely to think about death than the control condition ( $M = 1.13, SD = .84$ ),  $t(285) = 2.11, p = .04, \eta^2 = .02$ .

*Death-thought accessibility and worldview defense.* A moderated regression was used to examine the influence of mortality salience (death = 0, public speaking = 1), prime (relationship = 0, nationalism = 1), and depression (centered) on death-thought accessibility and worldview defense scores. Although there was no significant 3-way interaction on death-thought accessibility scores,  $b = .03 (SE = .06), t = .55, p = .59, R^2_{\text{partial}} = .002$ , there was a significant 3-way interaction on worldview defense,  $b = -.15 (SE = .08), t = 1.95, p = .05, R^2_{\text{partial}} = .02$  (see Figures 2 and 3).

Simple slope tests (Rosenthal & Rosnow, 1985) demonstrated that highly depressed individuals responded to reminders of death and a close relationship prime with less worldview defense compared to people scoring low on depression,  $b = -.11 (SE = .05), t = 2.46, p = .02, R^2_{\text{partial}} = .03$ . Simple slope tests for depression following mortality salience and nationalism primes was non-significant,  $b = .04 (SE = .04), t = 1.16, p = .25, R^2_{\text{partial}} = .007$ . Further, results appeared to be specific to mortality salience

given that there was no significant effect of depression in both nationalism and relationship conditions following thoughts of public speaking,  $ps \geq .21$ .

Looked at differently, there were significant differences between close relationship and nationalism conditions at low and high levels of depression following thoughts of death but not public speaking ( $ps \geq .83$ ). Specifically, after experiencing mortality salience, highly depressed individuals primed with relationships exhibited less worldview defense than those primed with nationalism,  $b = .64$  ( $SE = .31$ ),  $t = 2.10$ ,  $p = .04$ ,  $R^2_{\text{partial}} = .02$ . Conversely, after experiencing mortality salience, individuals low on depression were marginally less defensive after being primed with nationalism compared to relationships,  $b = -.49$  ( $SE = .32$ ),  $t = 1.52$ ,  $p = .13$ ,  $R^2_{\text{partial}} = .01$ .

### **Discussion**

The present results revealed two important findings. First, building on the results of the first experiment, depressed individuals who thought about a close social relationship were less defensive following reminders of death compared to those who thought about nationalism. While it has been shown that giving depressed individuals an opportunity to defend their worldview can increase well-being (Simon et al., 1998), the current experiment suggests that some aspects of their worldview could be more effective than others. Specifically, activating thoughts of a close relationship appears to be more effective at buffering concerns about death than thoughts of nationalism (Simon et al., 1996; 1998). Second, although the results revealed a significant effect of mortality salience and relationship primes on worldview defense, there was no significant effect on death thought accessibility scores. There are two possible explanations for these non-significant effects. First, people are likely to engage in terror management defenses

following a delay – that is, when thoughts of mortality are outside of focal attention but on the fringes of consciousness (Greenberg et al., 1997). Given the short delay between when thoughts of death were manipulated and assessed, different effects may emerge following a longer distraction period. Second, previous research has not assessed the buffering effects of worldview validation on death-thought accessibility scores in depressed populations. Although the word fragment task has been used extensively in previous research, it may have lacked the necessary sensitivity for this particular study.

### GENERAL DISCUSSION

From the perspective of terror management theory, depressed individuals are unable to maintain faith in their cultural worldviews, leaving them vulnerable to concerns about their mortality (Simon et al., 1996, 1998). Simon and colleagues (1998), for example, showed that depressed persons became less defensive following reminders of death and thoughts of nationalism. However, their research was limited by the fact that the participants were only given the opportunity to defend one aspect of their worldview – that is, nationalistic beliefs. Building on this work, the present research sought to examine the effectiveness of different anxiety-buffering mechanisms for depressed individuals when mortality concerns are salient. Study 1 demonstrated that persons with depression are more likely to think about close relationships when mortality concerns are salient. Study 2 showed that following reminders of death, giving depressed participants the opportunity to think about a close relationship lowered their need for worldview defense more effectively than nationalism. Overall, the current studies demonstrate the importance of close social relationships to depressed individuals following reminders of death.

Although terror management theory has long posited that self-esteem and cultural worldviews provide protection against the awareness of death, more recent evidence suggests that close relationships also serve a terror management function (Mikulincer, Florian & Hirschberger, 2003). For instance, research has shown that reminders of death lead people to initiate interactions with other people, increase their desire to be part of a group (versus being alone), heighten feelings of personal competence and reduce fear of rejection, and increase people's need for intimacy and commitment in romantic relationships (see Mikulincer et al. for a review). Although research has examined the role that close romantic relationships and other social identifications (e.g., being a part of a group) play in terror management processes, questions about the role of relationship partners in depressed populations have escaped empirical scrutiny. The present research is the first to my knowledge to demonstrate that depressed individuals are more likely to think about close relationships when reminders of death are salient and activating thoughts of a close other provides a source of existential comfort when managing concerns about mortality.

This research also contributes to the body of evidence suggesting that giving depressed people the opportunity to engage in worldview defense in response to mortality salience can be beneficial (Simon et al., 1998). Unlike previous research, however, the current work suggests that not all forms of worldview defense are equal, and taking a one-size-fits-all approach could lead to use of a construct unimportant to one's death-anxiety buffering system. Specifically, nationalism is the only form of worldview validation that has been researched in depressed populations (Simon et al., 1996; 1998). Study 2 found that close relationships were more effective at reducing worldview defense

than thoughts of nationalism for depressed persons following a mortality salience manipulation. These findings stress the importance of first making sure to find a relevant aspect of a certain group's worldview when researching that group. It is also possible that some aspects of people's worldviews are universally more important than others

Additionally, while dwelling on existential matters has been shown to be beneficial for the general population (Vess et al., 2009, Routledge et al., 2010), this does not seem to be the case for depressed populations; in fact, quite the opposite. For example, mortality salience appears to be a genuine issue for the depressed, as they show increased vulnerability to thoughts of death and react more strongly than the rest of the population (Nolen-Hoeksema, 2001). This shows the need to take into greater account the existential concerns of the depressed in both clinical and research settings. The present research showed the need for a greater understanding of what could be used most effectively to combat these concerns (i.e., thoughts of close relationships vs. nationalism). Further, the results suggest that it is important to consider the thought processes of the depressed. The depressed often think differently from the general population, and in the study of depression, researchers should not assume that the depressed will think or react similarly to others. Where nationalism could be the most effective buffer in the general population, it was not for depressed participants. This shows that when researching depression, researchers should not assume that other measures or manipulations will have exactly the same effect.

Although the present findings supported my hypotheses, there are some limitations to this work. First, there was a disproportionate number of men and women who participated in the research. Given that a large number of the participants were

women, this might have influenced the results. Specifically, women are two to three times more likely to experience Major Depressive Disorder than men (Weissman, Bland, Canino, Faravelli, & Greenwald, 1996) and report worse symptomology as well (Clancy & Grove, 1974). This could lead to a misrepresentation of the prevalence and severity of depression in our population. Further, the current studies were comprised solely of undergraduate students, which is not representative of clinical populations.

Another limitation was, as discussed earlier, the lack of differences in death-thought accessibility observed in the second experiment. These findings are inconsistent with previous research (Mikulincer, Florian, Birnbaum, & Malishkevich, 2002), in which priming with close relationships lowered death cognition. This could be due to a lack of sensitivity of the scale. It could also be due to the fact that each group was given the opportunity to affirm some aspect of their worldview. Thinking about either relationships or nationalism may have successfully buffered against death-related thought, eliminating any between-group differences. This finding suggests the need for a true control condition. It would be beneficial to measure reactions to mortality salience when depressed individuals are given no opportunity to imbue meaning in a worldview.

One interesting direction for future research is to test the effectiveness of close relationships in ameliorating symptoms of depression. Simon and colleagues (1998) revealed that being given the opportunity to engage in worldview defense involving nationalism heightened the sense of meaningfulness in life in depressed participants. However, the present research only looked at death cognition and defensiveness as dependent variables. As depression and meaning have been shown to be negatively correlated (Crumbaugh, 1968), raising meaning should lower depressive thoughts and

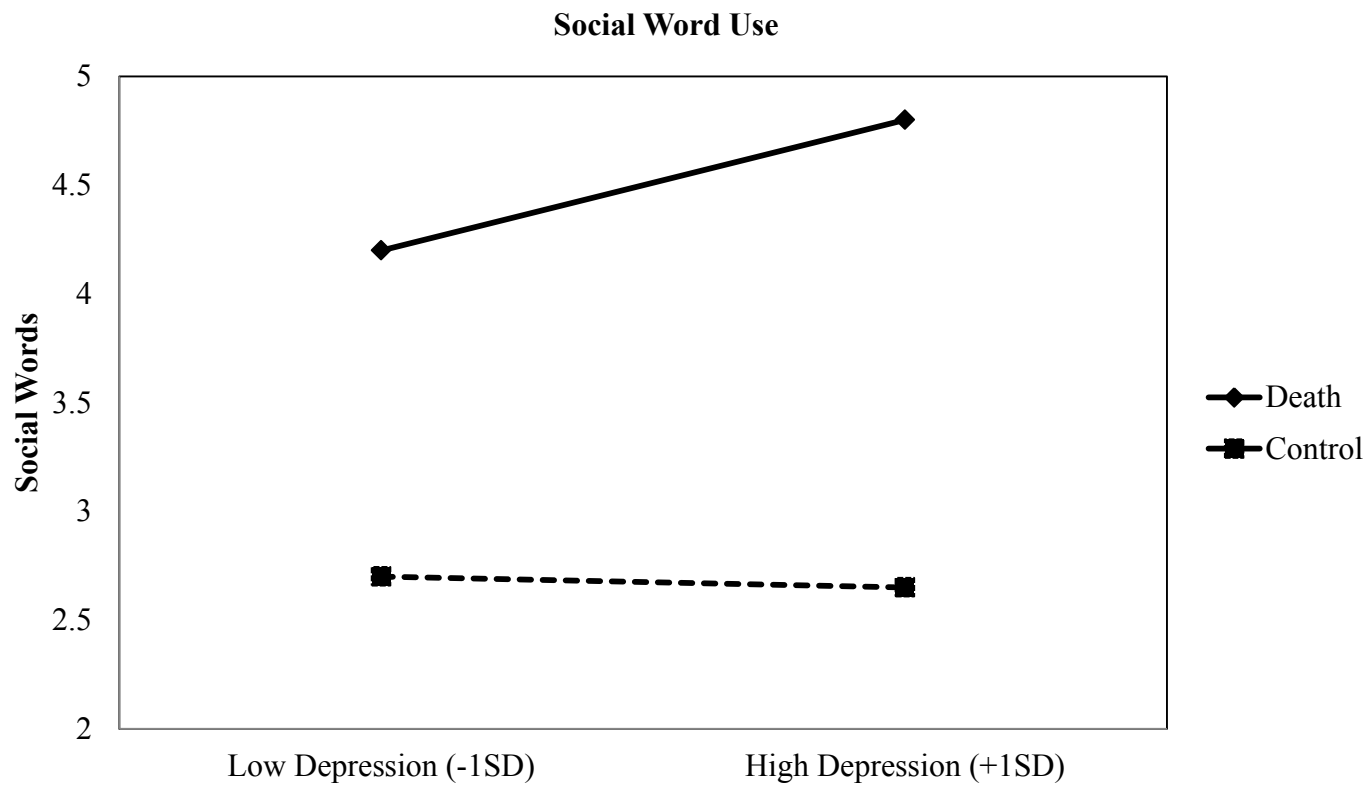
feelings. However, there has not been research on the effectiveness of worldview defense, and particularly close relationships, on easing depression. This step will be important for truly understanding the applicability of TMT in a clinical setting, and will be a true test of the generalizability of my findings on worldview defense and well-being.

Despite these limitations, the current findings offer valuable insight and have important implications on research involving depression, death cognition, and defensive attitudes and beliefs. The results suggest that when dealing with worldview defense, especially in depressed populations, simply assigning a one-size-fits-all opportunity to defend is not enough. Researchers need to be sensitive to the thoughts of the depressed, and take their thought processes into consideration when researching or treating them, as the best clues about ways to improve their well-being may be hidden in their minds, and may not be what the researcher expects.



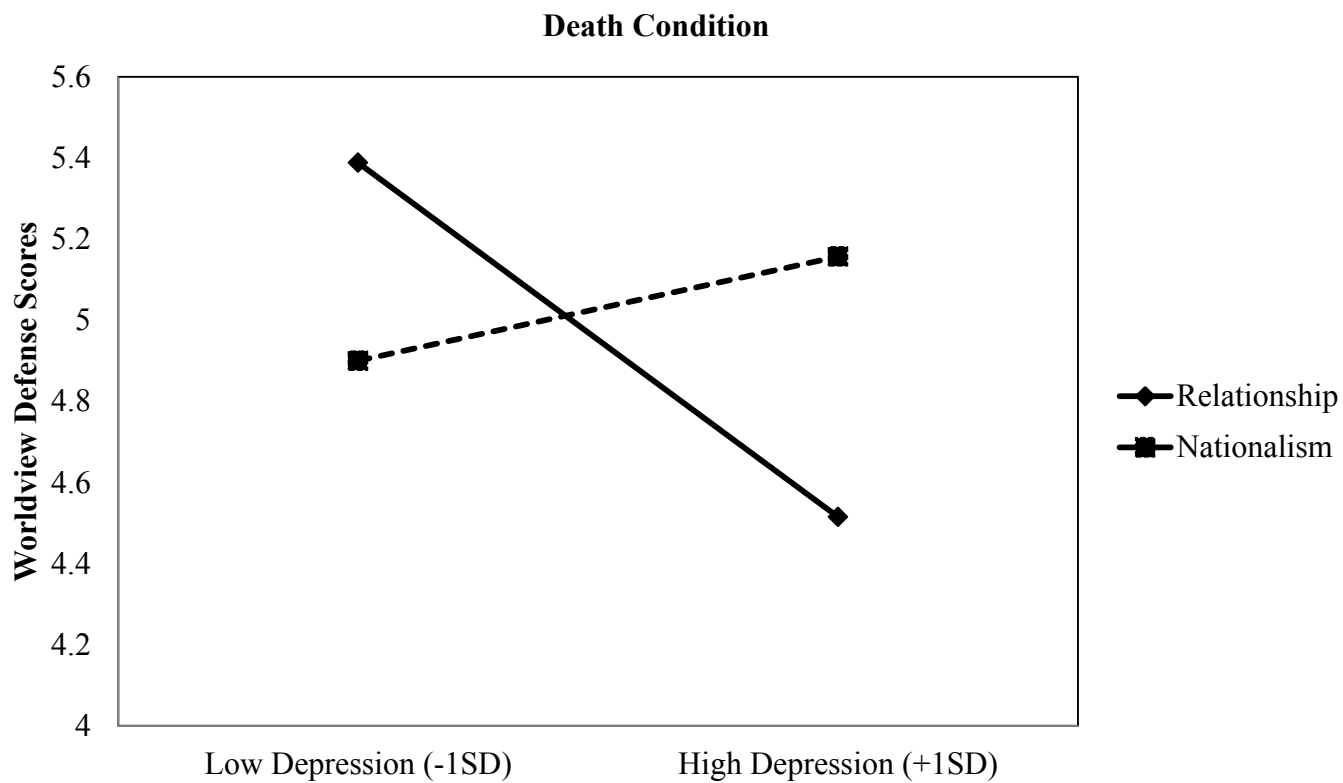
APPENDIX A

Figure 1. Use of social words after priming with mortality salience or control at high and low levels of depression (Study 1).



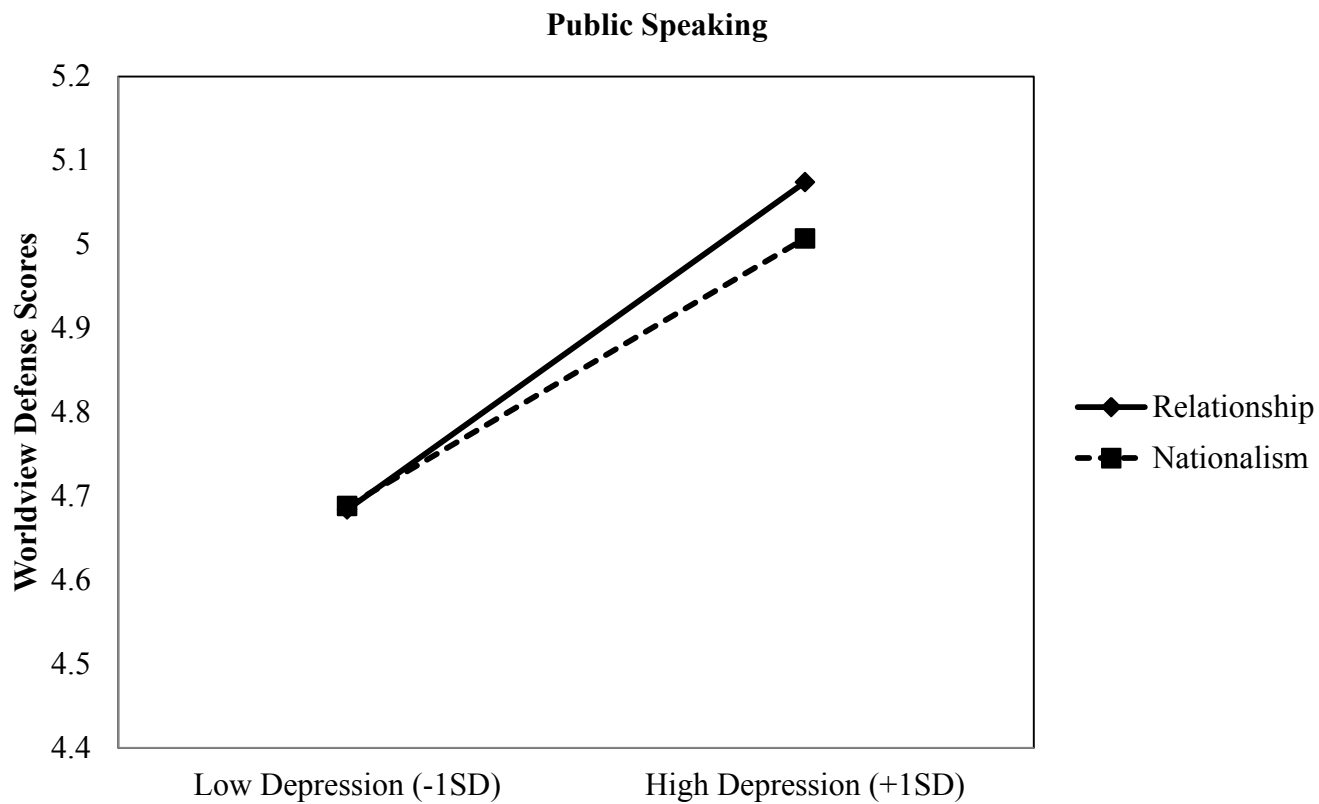
APPENDIX B

Figure 2. Worldview Defense following mortality salience after priming with relationships or nationalism at high and low levels of depression (Study 2).



APPENDIX C

Figure 3. Worldview Defense following public speaking prime after priming with relationships or nationalism at high and low levels of depression (Study 2).



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