To my mother, for twenty-five years of hard work, encouragement, and love
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The current study investigated whether recalling autobiographical memories (AMs) of survival threats would lead to increased interest in relationships and procreation in young adults (N = 160). Terror Management Theory (TMT; e.g., Rosenblatt et al., 1989) suggests that anxiety occurs when mortality is salient, and psychological mechanisms allowing one to “live on” after death are activated as anxiety buffers. In line with evolutionary theory, interest in relationships was hypothesized as one such mechanism as was interest in procreation. Both were expected to increase following a mortality salience induction (compared to control conditions). A novel and more ecologically valid method of mortality salience induction was developed, using AMs of survival threats as a technique. Interest in relationships and procreation was first assessed in an online pretest. At a delayed posttest, participants were randomly assigned to the Survival Threat, Anxiety, or Leisure Condition. AMs of survival threats or academic deadlines were shared, or a leisure activities questionnaire was completed. Following this, we assessed interest in relationships and procreation for a second time. The hypotheses were not supported. Results suggest that while sharing a survival threat AM made mortality salient, no increases in either relationship or procreation
interests occurred. Exploratory analyses determined other predictors of young adults’ (pretest) interest in relationships and procreation. Relationship status, sexual orientation, religiosity, and future time perspective were identified as predictors. The discussion focuses on methodological, measurement, and sample concerns regarding null findings, in addition to the exploratory results.
CHAPTER 1
INTRODUCTION

Like other animals, humans are driven by a self-preservation instinct, a drive to survive and to reproduce in order to continue our genetic lineage (Buss & Schmitt, 1993). Unlike other organisms, however, humans have the cognitive capacity to understand that we are living beings and that like all other living things we will one day die. The dissonance created by the conflicting survival drive and knowledge that there is ultimately no protection against death (i.e., mortality salience) has been studied extensively in the context of Terror Management Theory (TMT; e.g., Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). According to the theory, when one’s own mortality is made salient, this conflict has the potential to generate feelings of severe anxiety. Psychological mechanisms that serve to quell the anxiety then come into play; such mechanisms focus on allowing individuals to feel that, though they may physically die, they will ‘live on’ after death through various means (Mikulincer, Florian, & Hirschberger, 2003).

The research reviewed here first briefly summarizes the TMT literature. Existing mechanisms for anxiety reduction in the face of mortality salience, such as identification with cultural norms, have been studied extensively (Arndt, Greenberg, Pyszczynski, & Solomon, 1997) but recent work has also examined the development of romantic relationships as a way to reduce anxiety (Mikulincer & Florian, 2000). The current study extends the literature on TMT by more thoroughly investigating the evolutionary basis of the theory. In particular, the study not only considers the role that forming intimate relationships may play in reducing death-related anxiety, but also incorporates
intentions for procreation as an additional method people may use to feel that they will 'live on' after death.

In addition, the current research extends the TMT literature through the implementation of a new methodology, the use of autobiographical memories of survival threats as a way to induce mortality salience. TMT research has largely relied on individuals abstractly considering their own hypothetical death. The current research introduces recall of actually experienced autobiographical memories of survival threats as a more ecologically valid prompt for considering one's own mortality.

Next, a brief review of the functional approach to autobiographical memory suggests an alternative theoretical framework for understanding why increases in mortality salience might occur during recall of survival threat memories. The functional approach differs from TMT in that it does not include anxiety as a factor but instead suggests that recalling a memory of a survival threat serves as a reminder that life is finite and thereby changes one's future time perspective. This change in perspective leads to prioritizing developmental goals that pertain to an individual's current life phase.

This study specifically examines individuals in young adulthood, the developmental stage in which life trajectories regarding romantic relationships and procreation (i.e., getting married and having children) are likely to be important considerations. Thus, a brief section of the literature review focuses on the optimal age range for relationships and procreation. The study methods, results, and a discussion including study limitations are then presented.
Terror Management Theory: Mechanisms for Anxiety Reduction in the Face of Mortality

TMT is grounded in evolutionary theory and based on two assumptions: humans instinctually have a need to survive and have the awareness that their lives will someday end (for a review, see Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). The conflict created by the need for survival in the face of mortality generates helplessness and terror. TMT holds that reminders that life is finite will increase mortality salience and in turn activate psychological mechanisms that serve to alleviate the resulting anxiety. Identifying with a normative cultural worldview has been theorized as one mechanism and has been empirically validated. The norms, or worldview, of a culture provide subscribers with knowledge about the world and its organization (Arndt et al., 1997). In essence, culture helps the individual to structure an otherwise chaotic world into an orderly and navigable habitat that endures in the face of individual change. Identifying with a worldview is theorized to ease anxiety in response to mortality salience because cultural norms are enduring or ‘immortal.’ Through membership in a culture or cultural subgroup (e.g., identification with a political party, with a sports team; Arndt et al., 1997), individuals can feel that part of them will ‘live on’ through the culture even when their own life ends (Rosenblatt et al., 1989). For example, the Republican Party will continue after any given Republican has died.

The collected literature on TMT demonstrates that when mortality is made salient (through contemplating and writing about one’s own death), people more strongly identify with and uphold the norms of their culture and more strongly reject other worldviews (For a review, see Mikulincer et al., 2003). For example, participants primed with mortality salience have been shown to display increased levels of aggression.
toward someone who threatens their worldview (McGregor et al., 1998), to more negatively evaluate members of religious out-groups (Greenberg et al., 1990), to recommend more severe punishments for those who jeopardize the culture’s values (e.g., prostitutes; Rosenblatt et al., 1989), and to recommend greater rewards for heroes who have upheld those values (Rosenblatt et al., 1989).

Cultural worldview has been widely agreed upon as a psychological mechanism protecting against death-related anxiety. More recently, Mikulincer and Florian (2000, Study 5) suggested that intimate relationships may provide an alternative mechanism. The authors conducted a study focusing on desire for intimacy in potential romantic relationships. Participants were assigned either to a neutral condition, in which a scale on leisure activities was completed, or to a mortality salience condition. Mortality was made salient through the completion of the Fear of Personal Death Scale (Florian & Kravetz, 1983) which includes items such as, “I fear death because of the cessation of creative activities.” Following the manipulation, participants were asked to consider the type of romantic relationship they would most like to have, and with that relationship in mind, completed Sharabany’s (1994) Intimacy Scale. Those in the mortality salience condition reported more desire for intimacy in an intimate relationship than did those in the neutral condition.

In the context of TMT, relationships are thought to reduce anxiety stemming from mortality salience by allowing the individual to identify or conform with the cultural norm of forming a partnership that leads to marriage (Mikulincer et al., 2003). The positive value placed on relationships in most societies implies that maintaining these relationships helps one to follow and therefore uphold the standards set forth by the
culture. Doing so should thereby result in a decrease in anxiety as would any identification with a cultural norm. From this, we can predict that those confronted with thoughts of their own death may be motivated to seek out relational partners and thereby to conform to cultural expectations. This interpretation falls short, however, of truly embracing the evolutionary basis on which TMT rests. Evolutionary theory would suggest that individuals value intimate relationships not because of their symbolic value in conforming to societal norms but particularly because of the opportunities they provide for procreation and child-rearing. Thus, the current research builds on Mikulincer and Florian’s (2000) research by not only examining level of intimacy in hoped for romantic relations but also examining interest in procreation in response to mortality salience induction.

**Investigating the Evolutionary Basis: Incorporating Procreation**

More than a century ago, Charles Darwin proposed the now well-known and widely-accepted theory on the *Origin of Species by Means of Natural Selection* (i.e., Theory of Evolution). According to his theory, organisms are driven by the instinct to survive and procreate. As a result of challenges that posed threats to these instincts, species-specific mechanisms designed to assist in survival and procreation arose over time to give future generations an advantage over such threats (Darwin, 1859). These mechanisms would allow each particular species to better navigate and interact with its environment. As fellow products of biology, humans have also developed physical and psychological mechanisms designed to aid in survival and procreation (Buss, 1995).

From an evolutionary perspective, intimate relationships help to address basic issues confronting humanity by providing preservation benefits (Mikulincer et. al, 2003; Buss & Schmitt, 1993). Relationships present opportunities for sexual activity, clearly
increasing the likelihood of procreation. Human ancestors who were successful at establishing and maintaining relationships with those of the opposite sex were more likely to keep their genetic lineage alive by procreating and obtaining the support needed to ensure the survival of the offspring than were those unsuccessful ancestors (Mikulincer et al., 2003; Baumeister & Leary, 1995; Buss & Schmitt, 1993). Thus, if forming relationships continuously aided in procreation, a preference for obtaining romantic partners versus not obtaining them would have evolved. As such, one area thoroughly studied in evolutionary psychology is that of mate selection (for a review, see Buss, 2007). Though individuals routinely seek out partners in order to mate regardless of survival threat, TMT suggests that individuals would likely feel an increase in overall desire to form romantic partnerships and particularly to procreate when survival threats were made salient. Thus, the current research does not examine specific mate selection parameters but focuses on the overall tendency towards forming relationships and interest in procreating in relation to study conditions that elicit mortality salience.

Increasing Ecological Validity: Autobiographical Memories of Survival Threats

To date, TMT researchers have typically made mortality salient by having participants complete open-ended questions concerning their own death (as compared to a neutral or an aversive but non-death related control condition). That is, salience is induced through a highly abstract and hypothetical process of thinking about one’s eventual demise. The following are instructions given to participants in a typical mortality salience condition:

Please briefly describe the emotions that the thought of your own death arouses in you," and "Jot down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead. (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994, p. 628)
Note, however, that many people also have non-hypothetical autobiographical memories of survival-threatening events from their own lives: times that they felt to some extent that their life might be threatened. Not only can humans abstractly understand that one day they will die but humans remember experiences in which survival felt threatened (e.g., a car accident). Previous research on flashbulb memories (Brown & Kulik, 1977), memories of personally significant public events involving shocking news (i.e., usually death-related events such as the JFK assassination, the Challenger explosion, the 9-11 terrorist attacks), and intrusive memories of personal traumatic experiences (i.e., survival-threatening situations such as abuse; e.g., Krans, Naring, Becker, & Holmes, 2009) have shown that memories high in intensity and personal consequentiality are reported as better remembered than emotionally neutral memories (for a review, see Simula, 2008). From these findings, it appears people are specifically attending to and remembering threatening events. While these memories are of extreme examples, less serious survival threats such as a car accident, a close call in traffic, or a sports accident may also occur in everyday life. Examining autobiographical memories of these events provides a chance to elicit mortality salience based on naturally occurring events instead of the hypothetical scenario approach taken in typical TMT research. In the current study, autobiographical memories of more common survival threats will be employed as a method of inducing mortality salience. The study investigates whether recalling such memories results in an increased interest in forming relationships and having children.

Autobiographical memory researchers have shown that memory-sharing serves social functions such as increasing intimacy in existing romantic relationships (Alea &
Bluck, 2007). A brief review of the functional approach to autobiographical memory details how an increase in interest in relationships and procreation might occur when autobiographical memories of survival threats are recalled. The functional approach differs from TMT in that it does not identify a role for death-related anxiety in understanding why mortality salience may lead to increased interest. Instead, functional theory suggests that recalling a memory of a survival threat reminds one that life could end at any time, and changes a person’s perspective on the amount of time they have left to live. The knowledge that life ends is brought to mind and thereby shortens one’s sense of future timeline, making current life phase goals feel more pressing.

**The Functional Approach to Autobiographical Memory**

Though most researchers taking a functional perspective examine proximal functions of memory (e.g., how sharing a specific memory leads immediately to increased intimacy; Alea & Bluck, 2007), one might also suggest that the way the entire autobiographical memory system currently functions is a product of evolutionary history (Baddeley, 2009; c.f. Kihlstrom, 2009). If autobiographical memory is indeed a species-specific adaptation, it should function in ways that serve basic survival and procreation needs of the human organism. While having long-term memory of one’s life may be generally adaptive, autobiographical memories with specific sorts of content may serve different functions. For instance, remembering an event in which one’s mortality was made salient may allow an individual to avoid dangerous situations in the future (i.e., to survive; Krans, Naring, Becker, & Holmes, 2009). This link between remembering survival-threatening events and avoiding future danger is straightforward. Recalling survival-threatening events that make mortality generally salient may also, however,
strengthen the drive to achieve basic species goals such as social bonding, particularly bonding that will lead to procreation.

As such, the current study focuses on whether autobiographical remembering can function to increase interest in relationships and in procreation. In terms of previous theory, this would be categorized as a social function of autobiographical remembering (Bluck & Alea, 2002). The social function generally includes formation and maintenance of social bonds, but other examples include using autobiographical memories to teach or inform others, to elicit or increase empathy (Ainsworth, Bluck, & Baron, 2008; Gold, Baron, & Bluck, 2009), and to increase shared intimacy in existing relationships (Alea & Bluck, 2007). Though some research has examined the function of sharing positive memories, the potential functions of negative, survival-related memories like those included in the current study have yet to be investigated.

A functional approach to autobiographical memory predicts the same outcome from thinking about survival threats as does TMT, but with one distinction. TMT research has primarily assessed how people manage the death-related anxiety stemming from survival threats through identifying with cultural norms that make them feel ‘immortal’ (e.g., I may die but I will live on through my culture which is long-lasting) or more recently through desire for intimacy in romantic relationships. In line with the functional approach, however, it may be that the act of remembering the survival threat leads to increased desire for intimate relations and procreation without eliciting feelings of severe anxiety. Instead, remembering makes cognitively salient that life has an ending.
This idea dovetails nicely with empirical evidence guided by Socioemotional Selectivity Theory (SST) in the lifespan development literature. SST research has found that perceived time left to live significantly influences the pursuit of social goals, specifically relations with close others (Carstensen, Isaacowitz, & Charles, 1999). In particular, results show that when individuals perceive the end of life to be near either in naturalistic situations (i.e., aging, facing disasters such as SARS, 9-11, or personal diagnosis such as HIV; Fung & Carstensen, 2006) or in experimentally induced situations (Fung & Carstensen, 2004) there is an increase in the desire to spend time with close social partners (i.e., particularly with family members) and a desire to maintain intimate meaningful social relations.

In relating SST findings to functional theory, this suggests that recalling an autobiographical memory involving a survival threat may remind the individual that life is finite, and that their life trajectory has a limited timeline. This reminder of death helps the individual to reprioritize their current goals. That is, recalling a survival threat should direct the rememberer toward achieving age-appropriate social-developmental goals. For individuals in young adulthood particularly, recalling survival-threatenin events may heighten the need to achieve the pressing developmental task of forming a romantic partnership and producing offspring.

**Normative Life Phase for Romantic Partnership Formation and Procreation**

Given the study's focus on relationships and procreation, lifespan developmental theory (Baltes, 1987) was used to identify individuals in the normative age range for forming relationships expected to lead to procreation. While people of all ages should show reactions to their mortality being made salient, those in late adolescence and young adulthood are most likely to respond with the need to form relationships and
procreate. Those in life phases who can no longer have children, or who already have (i.e., late/midlife and beyond), should instead be more likely to identify with larger cultural norms (e.g., political affiliation) to ward off feelings of anxiety. From a lifespan developmental perspective (Baltes, 1987), individuals in the early adulthood phase face the developmental task of forging intimacy versus facing isolation (Erikson, 1950). That is, they should be considering their life trajectory concerning the building of relationships leading to potential marriage and childbearing (Berk, 2007). Data from the 2006 United States census provide support for this age range as that in which marriage and family planning are important. Data show mean age for first marriage (males: 28, females: 26) and age range for highest birth rate (females and males: 25-29) fall within the young adulthood life phase (Center for Disease Control, 2008a; 2008b). Additionally, research on age-graded social norms has shown 19 to 25 years of age to be the range designated as appropriate or expected for marriage (Neugarten, Moore, & Lowe, 1996). As such, the current study focused on participants between the ages of 18 and 29, the age range marking the early adulthood phase and the onset of the intimacy versus isolation crisis in which individuals should be planning for, or forming, intimate relationships (Erikson, 1950).

The Current Study

The current study investigated the effect of recalling autobiographical memories of survival threats on participants’ interest in relationships and procreation. Interest in relationships was measured by participants’ desire for intimacy (as assessed in other studies; e.g., Mikulincer & Florian, 2000) but also the personal importance of marriage and desired timing of marriage. Interest in procreation was measured by assessing childbearing motivations (Miller, 1994), importance of having children, desired age for
childbearing, and number of children desired. Each of these constructs was assessed at pretest and posttest, which were separated by a minimum of three days (maximum of nine days). After the pretest, participants were assigned to either the experimental condition or one of two control conditions. In the experimental condition, participants shared an autobiographical memory of a time when they felt their survival was threatened (Survival Threat Condition). In the first control condition, participants shared an autobiographical memory of a time when an academic deadline caused feelings of anxiety (Anxiety Condition). This control condition was included to allow for investigation into whether any observed effects were due specifically to the survival threat or to anxiety more generally. The topic of academic deadline was chosen because of its relevance to participants in the included age range and its ability to elicit anxiety that is neither death-related nor related to other events that would change time perspective through priming endings. The second control condition was based on previous neutral control conditions used in TMT research (e.g., Mikulincer & Florian, 2000). Participants completed a questionnaire on frequency of engagement in various leisure activities. This condition (Leisure Condition) was included as a standard control previously used in the TMT literature against which to examine the effects of the mortality salience condition. Completing the leisure activities questionnaire kept the general autobiographical focus consistent across conditions by requiring the participant to draw on past experiences.

Five focused hypotheses were developed for this study:

1. Pretest ratings of interest in relationships will be similar across all conditions. Following the experimental manipulation, participants in the Survival Threat Condition will report higher levels of interest in relationships as compared to participants in the Anxiety Condition and Leisure Condition.
2. Pretest ratings of interest in procreation will be similar across all conditions. Following the experimental manipulation, participants in the Survival Threat Condition will report higher levels of interest in procreation as compared to participants in the Anxiety Condition and the Leisure Condition.

3. If participants in the Survival Threat Condition do report greater interest in relationships and procreation at the posttest, TMT predicts increases in interest should be related to reporting greater death-related anxiety in relation to their shared memory.

4. Alternatively, the functional approach predicts that any increases in interest in relationships and procreation at posttest should be related to changes in future time perspective.

5. The study also explored possible moderators of the predicted effects. Measures of self-esteem and religiosity were examined as moderators of changes in interest in relationships and procreation due to mortality salience. Both have been shown to reduce the level of death-related anxiety felt following the mortality salience induction in previous research.
CHAPTER 2
METHODS

Participants

The sample (N = 160; gender balanced) consisted of college undergraduates aged 18 to 25 (M = 19.78, SD = 1.52). The sample size was distributed as follows: 80 participants were randomly assigned to the Survival Threat Condition, 40 to the Anxiety Condition, and 40 to the Leisure Condition. This optimal design allows for comparison of the experimental condition to a combined control condition, thereby increasing statistical power (McClelland, 1997).

The sampled age range marks the young adulthood phase of life and reflects Erikson’s (1950) psychosocial stage in which individuals face the task of intimacy versus isolation. Participants were recruited from the University of Florida’s Psychology Department participant pool and psychology classes. All participants received course credit for participation. While it may be the case that young adults not attending university pursue partnership and family planning goals earlier than those enrolled, this does not present a confound as the effects were expected for any individual in the young adulthood age range that has not yet achieved these goals. Those who already have children or have been married were excluded from the study because they were not expected to be as likely to respond to mortality salience inductions through an increased interest in relationships and procreation.

Study Design

The study was a 3 (Condition: Survival Threat, Anxiety, Leisure) by 2 (Time: pretest, posttest) mixed design with Condition as a between-groups variable and Time as a repeated measure. Again note that the study conditions were intentionally
imbanced to allow for comparison of the Survival Threat Condition with a combined control condition, in addition to comparisons across the three conditions. The major dependent variables were interest in relationships and interest in procreation.

**Procedure**

Pretest study materials were administered through SurveyMonkey.com, allowing online remote access. Online data collection is increasingly favored as it decreases potential costs while maintaining level of response rate and quality of data (Fricker and Schonlau, 2002; Pealer, Weiler, Pigg, Miller & Dorman, 2001; Chang, 2005). For individuals in the young adult age range, the online format is a comfortable and familiar form of assessment as internet usage is common in daily life.

At the beginning of the pretest, participants were informed that the study concerned differences in past events and lifestyle choices so as to conceal the specific study hypotheses. All participants completed the informed consent and demographic information. The remaining measures were presented in the following order: major dependent variables (relationships and procreation, counterbalanced), Future Time Perspective Scale, State Anxiety Inventory (counterbalanced), Religious Orientation Scale, and Self-Esteem Scale. Following completion of the online pretest, participants had three to nine days to complete the in-lab posttest session. The pre and posttest were separated in time to ensure that participants’ posttest responses were reflective of their feelings at the moment and not based on memory of responses from the pretest.

The posttest session was completed in person so as not to deviate from previous TMT methodology too drastically, and to ensure that participants clearly focused on the condition manipulation instructions. Though this was conducted in-lab, measures continued to be presented on a computer in order to reduce any effects due to format
change from pretest to posttest. Participants were randomly assigned (balanced by
gender) to either the experimental condition or one of the two control conditions. In the
experimental condition (Survival Threat Condition), participants shared an
autobiographical memory of an event in which they experienced a survival threat. One
confound in recalling a survival-threatening event is that it is likely to also be an anxiety-
evoking event. To control for this, ensuring that only survival-related anxiety is
responsible for the obtained effects, the Anxiety Condition was employed. Participants
shared a memory of a specific time in which they faced an anxiety-inducing academic
deadline (Anxiety Condition). This condition required sharing a memory that was not
related to survival threats or to other endings in any way, but was a time of anxiety. The
use of an academic event ensured that this was both common and meaningful for
individuals attending university.

The second control condition was modeled from a condition that has been
frequently used in the TMT literature (e.g., Mikulincer & Florian, 2000). In this condition
(Leisure Condition), participants completed a questionnaire on frequency of
engagement in various leisure activities. Inclusion of this condition allowed for
comparing the mortality salience effects to a standard neutral control condition used in
previous TMT research. That is, it allowed for testing of effects against a condition in
which no effects were expected due to the neutral or slightly positive nature of the
experimental manipulation in this condition. While participants did not recall a specific
memory in this condition, completing the leisure activities questionnaire required the
participant to draw on past experiences, therefore incorporating autobiographical
memory across all conditions.
Depending on their assigned condition, the participant was given three minutes to identify a survival-threat memory, academic deadline memory, or leisure pursuits of interest. Next, they shared their memory in the form of a typed narrative (i.e., into an on-screen text box) or completed the leisure activities task (Appendix A includes memory-writing task instructions and leisure activity questionnaire instructions). In the memory writing task, participants were required to fill the text box, which included seven lines of text. When it appeared that the participant had finished his or her narrative, a standard prompt was provided to ensure that no additional information or detail could be remembered. Participants in the Leisure Condition shared their previous engagement in leisure pursuits through a leisure activities questionnaire (Appendix B) and were allotted the same amount of time for completion. When it appeared that the participant had finished the task, a standard prompt was provided to ensure all questions had been answered. Examples of narratives produced by the participants appear in Table 2-1.

Following the experimental manipulation, participants in all conditions completed a word pronunciation filler task for a total of three minutes. This task was included because previous TMT research has shown that mortality salience effects occur after a brief distraction, when thoughts of death are outside of consciousness (Greenberg et al., 1994). Next, an implicit mortality salience manipulation check was administered, followed by measures of interest in relationships and measures of interest in procreation (counterbalanced). The Future Time Perspective Scale and State Anxiety Inventory were then administered in counterbalanced order. Lastly, the Memory Qualities Questionnaire was administered. After all measures were completed, participants were debriefed according to IRB standards.
Measures

Background and Control Measures

Demographics

Self-reports of demographic and background information (e.g., age, gender, sexual orientation, current relationship status, current relationship length, perceived health) were collected using a standard questionnaire.

Memory measures

The Memory Qualities Questionnaire (MQQ; Bluck, Levine, & Laulhere, 1999) was used to assess participants' ratings of their shared memory’s (or leisure pursuits’) personal significance, vividness, and emotionality (Appendix C). See Table 2-2 for memory quality means by condition. On average, memories shared by the Survival Threat and Anxiety Conditions were only somewhat personally significant but were still very vivid and emotionally negative. However, those in the Leisure Condition felt that their memories of engagement in leisure activities were very personally significant and vivid, and contained quite a bit of positive emotionality.

The MQQ included these ratings, along with questions regarding feelings during the actual event, frequency of recall, and date of the event. The final questionnaire contained eleven items and all ratings were made on 5-point Likert-type scales where 1 = not at all and 5 = very much, except for the question concerning memory date, which was a free response item.

The MQQ was modified for the current study to also assess the extent to which the participant felt his/her survival was threatened or felt anxious at the time of the narrated event, and the extent to which the participant felt anxious during memory recall. These
items were used as explicit manipulation checks and are discussed in the manipulation check section below.

**Measures of Major Interest**

**Interest in relationships**

Interest in relationships was assessed in two ways. First, a questionnaire assessing personal marriage attitudes included the following items:

1. How important is it for you to get married?
2. If it were just up to you, what would be the ideal time for you to get married?

Responses to the first item were measured on a 7-point Likert scale ranging from 1 (Very important) to 7 (Not at all important). Responses to the second item were measured on a 7-point Likert scale ranging from 1 (As soon as possible) to 7 (In the very distant future). The first item was created specifically for the current study, and the second item was taken from previous work on desires about marriage and parenthood (Plotnick, 2007). This questionnaire is presented in Appendix D.

Additionally, interest in relationships was assessed using a slightly modified version of Sharabany's (1994) Intimacy Scale, which consisted of 32 items (e.g., attachment, loyalty; Cronbach’s α = 0.87; Appendix E). Following previous work (Mikulincer & Florian, 2000), participants completed the scale while considering the relationship they would ideally hope to have with a romantic partner. Each item was rated on a 7-point scale from not at all (1) to very much (7). A total desire for intimacy score was calculated by averaging the 32 items.

**Interest in procreation**

Interest in procreation was also assessed in two ways. First, a questionnaire concerning personal childbearing attitudes included the following items:
1. How important is it for you to have children?
2. If it were just up to you, what is the ideal time to have your first child?
3. If it were just up to you, what size would you ideally like your future family to be?

Responses to the first item were measured on a 7-point Likert scale ranging from 1 (Very important) to 7 (Not at all important). Responses to the second item were measured on a 7-point Likert scale ranging from 1 (As soon as possible) to 7 (In the very distant future). Responses to the third item were measured on a 7-point Likert scale ranging from 1 (Small) to 7 (Very large). The first and third items were created specifically for the current study. The second item was taken from previous work on desires about marriage and parenthood (Plotnick, 2007). This questionnaire is presented in Appendix F.

Interest in procreation was also assessed using a modified version of Miller's (1994) Childbearing Questionnaire (CBQ; Appendix G). The questionnaire contained a total of 17 items that reflect positive motivations toward childbearing (e.g., having a child to carry on family traditions). These items are divided into three subscales: Traditional Parenthood (Cronbach’s α = 0.85), Satisfactions of Childbearing (Cronbach's α = 0.90), and Feeling Needed and Connected (Cronbach’s α = 0.93).

**Potential Mediators**

**Anxiety**

State anxiety was measured using Marteau and Bekker's (1992) State Anxiety Inventory (Cronbach’s α = 0.89; Appendix H). This assessment is a shortened version of Speilberger's (1983) 40-item State-Trait Anxiety Inventory, and has shown to be a reliable and valid measure. It includes six items on 7-point Likert-type scales, ranging from 1 (Not at all) to 7 (Very much). The mean across all items is used as the total score. Higher scores reflect higher levels of state anxiety.
Future time perspective

Changes in future time perspective were assessed using Carstensen and Lang’s (1996) Future Time Perspective Scale (Cronbach’s α = 0.89; Appendix I). This scale includes ten items (e.g., My future seems infinite to me) rated on 7-point Likert-type scales ranging from 1 (Very untrue) to 7 (Very true). The mean across items represents the total score. Higher scores indicate a greater and more unlimited sense of future time perspective.

Potential Moderators

Religiosity

Religiosity was measured to determine its impact on death-related anxiety in response to the mortality salience induction using the Religious Orientation Scale (ROS; Allport and Ross, 1967). The scale consists of 20 items divided into two subscales: intrinsic (Cronbach’s α = 0.92) and extrinsic (Cronbach’s α = 0.74) religiosity. Responses were rated on a 5-point Likert-type scale where 1 = strongly agree and 5 = strongly disagree (Friedman & Rholes, 2009). All items are reversed for scoring. Higher means indicate higher levels of that form of religiosity for each subscale. High levels of religiosity have previously been shown to protect against the effects of mortality salience inductions (Friedman & Rholes, 2009).

Self-esteem

Self-esteem was assessed using Rosenberg’s Self-Esteem Scale (1965; Cronbach’s α = 0.88). The scale consists of ten items rated on 4-point Likert-type scales where 1 = strongly agree and 4 = strongly disagree. High levels of self-esteem have previously been related to lesser effects in response to mortality salience inductions (Greenberg et al., 1992).
Filler and Manipulation Check Measures

Pronunciation filler task

Previous TMT research has shown that time delays between mortality salience inductions and outcome measures are necessary in order to capture an effect (Greenberg et al., 1994). This task was used to create a 3-minute filler between administration of the mortality salience induction and posttest measures of interest in relationships and procreation. The task required participants to rate the subjective ease of pronunciation of numerous words using 7-point Likert-type scales (1 = easy; 4 = medium; 7 = hard). This task was chosen because of its neutral content. Performance on this task was not evaluated.

Mortality salience manipulation checks

Two manipulation checks were administered to ensure that mortality was made salient in the Survival Threat Condition. Greenberg and colleagues’ (1994) word completion task was administered as a manipulation check of whether implicit mortality salience was higher in the Survival Threat Condition than in the two control conditions (Appendix J). This task includes 20 incomplete words which are completed by filling in the missing letters. The words have been chosen to measure accessibility of death-related thoughts. Six of the presented words are ambiguous, meaning they could have a death-related completion or a neutral completion. For instance, “COFF_ _” could either be completed to make the word, “coffin” or “coffee”. If the mortality salience manipulation was successful, participants in the experimental condition would complete more death-related words than those in either of the control conditions.

An explicit mortality salience manipulation check was also conducted. A single item was presented on the MQQ that assessed the extent to which participants felt they
may die during the shared event. Responses were made on 5-point Likert scales ranging from 1 = not at all to 5 = very much.

**Anxiety manipulation checks**

Two manipulation checks were administered to ensure that both the Survival Threat Condition and Anxiety Condition felt anxious during their shared event and when recalling it in the experimental session. Responses were made on 5-point Likert scales ranging from 1 = not at all to 5 = very much.
Table 2-1. Example narratives produced by participants in the survival threat and anxiety conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Narrative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survival</strong></td>
<td>Although the rapids were very minimal, my inexperience caused me to flip my kayak. Because I had a previous training session, I immediately recalled what to do in the situation. I reached for the strap that connected me to the kayak to release myself. As I reached my hands around, I felt no such strap. After about three seconds, I went into panic mode... Because the river was so shallow, I reached my hands down and began to push against the river bed to allow my head to surface for air. The river was only shallow enough to do this for a time or two and I was not getting enough air, I thought I was going to die. I was ... playing with my cousins in our apartment. My aunt and her boyfriend were watching over us. We heard his footsteps coming up and we all hid thinking it was fun and games. He took one look around and was filled with rage which scared all of us. He caught my brother and started whipping him with this rubber car part. I was really scared, sad, and paralyzed. I thought that I would actually die... It felt like it went on forever even though it probably only lasted minutes. The sound of my brother yelling made me even more scared and sad. I felt helpless and I just wanted my aunt's boyfriend to disappear. I've never forgotten that moment.</td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
<td>I had a huge final exam to take that would determine whether I got a B or C in the class. Since I was applying to dental schools, my final grades had a huge impact so I was extremely anxious to get anything below a B. I studied constantly the entire week before, always feeling nervous that I wasn't preparing fully or well enough... Walking to the exam and waiting for the exam to begin, I just kept imagining checking my scores and whether I would be relieved or devastated. Even during the exam, coming across challenging questions made my heart race and that anxiety continued to build. I recently had an exam that took place the morning after I took the GRE at 8:30am. I finished the GRE at about 5pm and drove home, ate dinner, and by time I sat down to study it was already almost 7pm. I felt very anxious and worried about how I would do on this exam, and I had a hard time concentrating. I tried hard to read over my notes but I kept getting distracted. I felt hopeless and decided to take a quick rest before continuing, and I felt more anxious when I woke up because I felt I was wasting my time. I began to feel worried that if I did not do well on this exam that I would fail and have to drop the class. This led to more procrastination and more worry that lasted until after I finished the exam.</td>
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Table 2-2. Mean scores by condition on items from the Memory Qualities Questionnaire

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<tr>
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<th>Survival Threat condition</th>
<th>Anxiety condition</th>
<th>Leisure condition</th>
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<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
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<tr>
<td>Personal Significance</td>
<td>2.99</td>
<td>1.05</td>
<td>2.73</td>
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<tr>
<td>Vividness</td>
<td>4.24</td>
<td>0.75</td>
<td>4.02</td>
</tr>
<tr>
<td>Positive Emotionality</td>
<td>1.84</td>
<td>1.02</td>
<td>1.76</td>
</tr>
<tr>
<td>Negative Emotionality</td>
<td>3.22</td>
<td>1.17</td>
<td>3.37</td>
</tr>
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</table>
CHAPTER 3
RESULTS

The study results are presented in three sections beginning with the preliminary analyses. The next section details main analyses addressing the first two study hypotheses concerning condition by time effects on interest in relationships and interest in procreation. Due to null findings on the first two hypotheses, further hypotheses outlined in the Introduction could not be tested. Given that condition manipulations did not influence interest in relationships and procreation from pretest to posttest, some exploratory analyses were conducted that focus on identifying other predictors that do influence participants’ (pretest) interest in forming partnerships and having children.

Preliminary Analyses

Several issues were addressed through preliminary analyses. Manipulation checks were performed to ensure that the mortality salience and anxiety manipulations were successful. Next, constructs previously demonstrated to reduce mortality salience induction effects were examined to confirm that random assignment to conditions was successful in regard to those variables. Findings from these analyses basically confirm that the condition manipulations and random assignment were successful. Potential covariates such as order of administration, background variables and demographics were then investigated for possible inclusion in the main analyses.

Manipulation Checks

Analyses were conducted to determine whether participants who received the mortality salience induction showed heightened awareness of mortality (explicit and implicit salience). Analyses also determined whether the participants in the two anxiety conditions (i.e., Survival Threat Condition, Anxiety Condition) actually experienced
greater anxiety during the recalled event, as well as during the experiment (as compared to the Leisure Condition).

**Explicit Mortality Salience: Extent to Which Participant Thought They Might Die**

This manipulation check assessed the extent to which participants thought they might die during the remembered event (i.e., during the survival threatening event, anxiety inducing event, or during previous leisure activities). Supporting the condition manipulation, condition differences emerged, $F(2, 158) = 183.41, p < 0.001, \eta_p^2 = 0.70$. Follow-up $t$-tests revealed that participants in the Survival Threat Condition ($M = 3.79, SD = 0.99$) more strongly felt that they would die during the event than those in either the Anxiety Condition ($M = 1.29, SD = 0.72$) or the Leisure Condition ($M = 1.21, SD = 0.56$), $t(119) = 14.32, p < 0.001$ and $t(118) = 15.12, p < 0.001$, respectively. The Anxiety Condition and Leisure Condition did not differ, $t(79) = 0.47, p = 0.64$.

**Implicit Mortality Salience: Accessibility of Death-Related Words**

The implicit manipulation check was a 25-item word completion task in which six embedded items could be completed in a death-related way. These items were summed for each participant, creating a possible range of zero to six. An ANOVA with condition as the independent variable and the total number of death-related words as the dependent variable revealed no condition differences, $F(2, 158) = 0.02, p = 0.98, \eta_p^2 = 0.00$. Means by condition were: Survival Threat Condition, $M = 2.00, SD = 0.87$; Anxiety Condition, $M = 2.02, SD = 0.88$; Leisure Condition: $M = 2.03, SD = 0.89$.

Previous research has shown that when mortality is made salient, participants complete approximately two death-related words, with the control conditions typically completing less. For example, in the first study to use this word completion task, those in the
mortality salience condition identified an average of 2.08 death-related words while those in the control condition only identified 0.62 (Greenberg, Pyszczynski, Solomon, Simon, and Breus, 1994, Study 4). In the present study, both control conditions identified more death-related words than would typically be expected: the majority of the sample identified the words buried (73%) and killed (69%). Re-running the analyses with participants’ scores on only the four other death-related words moved the effect toward significance (i.e., more words correctly identified in the Survival Threat Condition) but it still did not reach traditional levels: $F(2, 158) = 1.81, p = 0.17, \eta_p^2 = 0.02$.

**Anxiety at Time of Event**

The study included death-related anxiety (survival threat memory shared) and academic anxiety (academic deadline memory shared) conditions, as well as the Leisure Condition (no anxiety). This manipulation check assessed the extent to which participants chose a memory in which they had felt anxious (i.e., as per the study instructions) about either a death-related or academic event. Condition differences emerged, $F(2, 158) = 108.57, p < 0.001, \eta_p^2 = 0.58$. Those in the Anxiety Condition ($M = 4.56, SD = 0.67; t(79) = 11.10, p < 0.001$) and Survival Threat Condition ($M = 4.63, SD = 0.79; t(118) = 13.20, p < 0.001$) both reported feeling more anxious at the time of the event than did those in the Leisure Condition ($M = 2.23, SD = 1.10$). The Anxiety Condition and Survival Threat Condition did not differ, $t(119) = 0.45, p = 0.66$. Results show that participants recalled events in line with study instructions so that anxiety was effectively manipulated.
Anxiety During Memory Sharing Task

In addition to assessing anxiety felt during the event, anxiety felt while recalling the event in the experimental session was examined. Condition differences emerged, $F(2, 158) = 7.14, p < 0.01, \eta_p^2 = 0.08$. As expected, those in the Anxiety Condition ($M = 2.49, SD = 1.14$; $t(79) = 3.27, p < 0.01$) and the Survival Threat Condition ($M = 2.42, SD = 1.09$; $t(118) = 3.51, p < 0.01$) felt more anxious during the task than did those in the Leisure Condition ($M = 1.70, SD = 1.02$). The Anxiety Condition and Survival Threat Condition did not differ, $t(119) = -0.30, p = 0.77$. Note that although the Survival Threat Condition and Anxiety Condition did report greater anxiety than those in the Leisure Condition, their level of anxiety falls between a little (2) and somewhat (3) on the five-point scale. While means were quite high in the two anxiety conditions for anxiety at the time of the event, anxiety during the experimental session was relatively low.

Verifying Random Assignment

Two analyses confirmed that random assignment to conditions was successful in regards to constructs previously examined in mortality salience research.

Religiosity

Previous research has observed high levels of religiosity to have a protective effect when individuals are exposed to mortality salience inductions. Thus, two separate univariate ANOVAs were conducted for the intrinsic and extrinsic subscales of the Religious Orientation Scale to determine any differences across conditions at pretest. Results revealed no significant differences, intrinsic: $F(2, 158) = 0.15, p = 0.86, \eta_p^2 = 0.00$; extrinsic: $F(2, 158) = 0.91, p = 0.40, \eta_p^2 = 0.01$. 
Self-Esteem

Previous research has found an association between high self-esteem and weakened effects following mortality salience inductions. A univariate ANOVA was conducted to determine whether self-esteem levels differed across conditions at pretest. No significant differences were found, $F(2, 158) = 0.22, p = 0.81, \eta^2_p = 0.00$.

Potential Covariates

Order of administration, demographic, and background variables were assessed to determine whether these should be included in the main analyses. Only gender showed effects and was thus included in all main analyses as an independent variable.

Order

Since the major dependent variables (i.e., Personal Marriage Attitudes Scale, Sharabany’s Intimacy Scale, Personal Childbearing Attitudes Scale, Childbearing Questionnaire) were presented in counterbalanced order, a MANOVA was conducted with order (A, B) as an independent variable and Time (pretest, posttest) as a repeated measure, with all of the major study variables as the dependent variables. There were no order effects, $\Lambda = 1.00, p = 0.99, \eta^2_p = 0.00$.

Gender

A MANOVA was conducted with gender as the independent variable and all major study variables as dependent variables. Results showed significant effects of gender on several of the major dependent variables, $\Lambda = 0.79, p < 0.01, \eta^2_p = 0.22$. Thus gender was included as an independent variable/predictor in the main analyses.

Ethnicity

Ethnicity was dummy-coded as Caucasian and non-Caucasian due to inadequate sampling of separate minority groups. A MANOVA was then conducted with ethnicity as
an independent variable and all major study variables as the dependent variables. No differences were found, $\Lambda = 0.86, p = 0.39, \eta_p^2 = 0.14$. It is acknowledged that collapsing across all ethnic minority groups is not a sufficient method for identifying true ethnicity differences.

**Relationship Status**

A MANOVA was conducted with relationship status (i.e., currently single, currently in a relationship) as the independent variable and all major study variables as dependent variables. No effects were found, $\Lambda = 0.85, p = 0.13, \eta_p^2 = 0.15$.

**Main Analyses**

The main analyses were designed to address the study hypotheses. Hypotheses 1 and 2 predicted condition by time effects on measures of relationships, and on measures of procreation. Hypotheses 3–4 were in regards to possible mediators of obtained effects, and Hypothesis 5 concerned potential moderators of such effects. As the expected effects were not obtained for Hypothesis 1 and 2, Hypotheses 3–5 could not be tested. Instead, because condition was not related to individuals’ interest in relationships or procreation, some exploratory analyses are presented that examine whether demographics (e.g., gender), background variables (e.g., perceived health), or psychological constructs (e.g., sense of future time perspective) predict such interest.

**Interest in Relationships**

To examine whether participants’ ratings of interest in relationships differed as a function of the manipulation, a 2 (Condition [Optimal Design]: Survival Threat Condition, Control Conditions) x 2 (Gender: Male, Female) x 2 (Time: Pretest, Posttest) MANOVA was conducted with Condition and Gender as between-groups variables and Time as a repeated measure. The dependent variables were scores on the measures of interest in
relationships (Sharabany’s Intimacy Scale, and the two individual items from the Personal Marriage Attitudes Scale).

The MANOVA showed no significant main effect for Time, $\Lambda = 0.98$, $p = 0.09$, $\eta_p^2 = 0.02$, or interaction between Condition and Time, $\Lambda = 1.00$, $p = 0.95$, $\eta_p^2 = 0.00$. A significant three-way interaction between the measures of interest in relationships, Time, and Gender was found, $\Lambda = 0.92$, $p < 0.01$, $\eta_p^2 = 0.08$. Follow-up univariate analyses revealed an interaction between Time and Gender on only the first item of the Personal Marriage Attitudes scale, $\Lambda = 0.95$, $p < 0.01$, $\eta_p^2 = 0.05$. Men rated marriage/forming a long-term partnership as more important at posttest ($M = 1.82$, $SD = 1.00$) than at pretest ($M = 2.04$, $SD = 1.21$; $t(78) = 2.16$, $p < 0.05$) regardless of condition. For women, the opposite was true: marriage/forming a long-term partnership was seen as less important at posttest ($M = 1.90$, $SD = 1.40$) than at pretest ($M = 1.70$, $SD = 1.24$; $t(81) = -2.06$, $p < 0.05$).

Sharabany’s Intimacy Scale did not show any effects. Note, however, that this may be due to a ceiling effect. On a seven-point scale, the overall mean at pretest was 6.01 ($SD = 0.44$) and at posttest was 6.02 ($SD = 0.47$). As such, it would have been very difficult for individuals to show increases on this measure, regardless of condition.

All analyses were also conducted using the three-level Condition variable (i.e., Survival Threat Condition, Anxiety Condition, Leisure Condition). No Condition or Condition by Time effects were observed. The first hypothesis was not supported.

**Interest in Procreation**

To investigate whether participants’ ratings of interest in procreation differed as a function of the condition manipulation, a 2 (Condition [Optimal Design]: Survival Threat...
MANOVA was conducted with Condition and Gender as between-groups variables and Time as a repeated measure. The dependent variables were scores on the measures of interest in procreation (three subscales of the CBQ: Traditional Parenthood, Satisfactions of Childrearing, and Feeling Needed and Connected; three individual items from the Personal Childbearing Attitudes scale).

The MANOVA showed no significant main effect for Time, $\Lambda = 1.00, p = 0.71, \eta^2_p = 0.00$, or interaction between Condition and Time, $\Lambda = 0.99, p = 0.45, \eta^2_p = 0.01$. As with the measures of interest in relationships, this indicates that ratings of interest in procreation did not differentially change from pretest to posttest as an effect of the manipulation. The second hypothesis was not supported. Again, note that ceiling effects were observed on the first item of the Personal Childbearing Attitudes Scale (i.e., “How important is it for you to have children?”) and on the Satisfactions of Childrearing subscale of the CBQ. Means for the first item of the Personal Childbearing Attitudes Scale were 1.76 ($SD = 1.34$) at pretest and 1.90 ($SD = 1.45$) at posttest. For the Satisfactions of Childrearing subscale, mean score was 1.92 ($SD = 1.11$) at pretest and 1.95 ($SD = 1.00$) at posttest. Both were measured on seven-point scales with “one” indicating very important.

A significant interaction between the measures of interest in procreation and Gender was found, $\Lambda = 0.92, p < 0.05, \eta^2_p = 0.08$. Follow-up univariate ANOVAs failed to reveal simple main effects of gender on two of the measures of interest in procreation. A trend toward significance on the first item of the Personal Childbearing Attitudes scale was likely driving the interaction, $F(1, 159) = 2.43, p = 0.12, \eta^2_p = 0.01$. 
Women ($M = 1.82, SD = 1.35$) rated childbearing as more important than did men ($M = 2.17, SD = 1.38$).

The MANOVA was also conducted with the three-level Condition variable (i.e., Survival Threat Condition, Anxiety Condition, Leisure Condition). Results did not differ from those presented above.

**Exploratory Analyses: Identifying Predictors of Interest in Relationships and Procreation**

Manipulating mortality salience did not affect interest in relationships and procreation. Therefore, exploratory analyses (i.e., stepwise regressions) were performed to identify other possible predictors of young adults’ interest in forming partnerships and having children. Because this procedure can yield highly sample-specific results and can capitalize on chance, the alpha level was adjusted to $p < 0.01$. This conservative $p$-value both reduces the likelihood of a Type I error and adjusts for the inflated degrees of freedom associated with the stepwise regression procedure (Field, 2009). Nevertheless, the following results should be considered with caution and require replication. Note that the Personal Marriage Attitudes and Personal Childbearing Attitudes scales were omitted from these analyses because they consist of single-item measurements. Only Sharabany’s Intimacy Scale and the Childbearing Questionnaire subscales were examined. The main hypothesis-testing analyses showed that scores on relationship and procreation measures did not change from pretest to posttest. Only pretest scores were utilized in these exploratory analyses, however, to ensure that variables were not at all biased by the manipulation, and to assess young adults’ general interest in marriage and having children. A correlation matrix including all variables entered in the regression models appears in Table 3-1.
Predictors of Interest in Relationships

Stepwise (backward) regression analyses were used to determine the extent to which demographics, background variables, intrinsic religiosity, extrinsic religiosity, self-esteem, and future time perspective predict level of interest in relationships. This form of regression was used due to the exploratory (i.e., not hypothesis-driven) nature of the following analyses, and the backward selection method was used to reduce the risk of making a Type II error (Field, 2009). With Sharabany’s Intimacy Scale scores as the criterion variable, the following were entered into the regression: gender (i.e., male, female), ethnicity (i.e., Caucasian, non-Caucasian), sexual orientation (i.e., heterosexual, bi- or homo-sexual), relationship status (i.e., single, partnered), perceived health (i.e., very good to very poor), intrinsic religiosity, extrinsic religiosity, self-esteem, and future time perspective.

Scores on Sharabany’s Intimacy Scale were predicted by relationship status ($\beta = -0.21$) and future time perspective ($\beta = 0.24$), adjusted $R^2 = 0.07$, $F(2, 158) = 9.27$, $p < 0.001$. Participants who were in a relationship $t(158) = -2.79$, $p < 0.01$ and those with a more open-ended sense of future time, $t(158) = 3.21$, $p < 0.01$, desired more intimacy with their ideal partner (Table 3-2).

Predictors of Interest in Procreation

Stepwise (backward) regressions were again utilized with the same model structure as described for the relationship interest variable. Separate regressions were conducted for each of the subscales of the Childbearing Questionnaire.

Scores on the Traditional subscale of the Childbearing Questionnaire (e.g., having a child to carry on family traditions) were significantly predicted by sexual orientation ($\beta = 0.24$), and intrinsic religiosity ($\beta = 0.50$), adjusted $R^2 = 0.34$, $F(5, 155) = 18.04$, $p <$
Participants who identified as more exclusively heterosexual, $t(155) = 3.31$, $p < 0.01$, and as more intrinsically religious, $t(156) = 7.52$, $p < 0.001$ were more highly motivated to have children for Traditional reasons (Table 3-3).

Scores on the Satisfactions of Childrearing subscale (e.g., seeing one’s child become a success) of the Childbearing Questionnaire were significantly predicted by sexual orientation ($\beta = 0.24$) and future time perspective ($\beta = -0.21$), adjusted $R^2 = 0.14$, $F(4, 156) = 7.24$, $p < 0.001$. Guiding a child toward success in life was more highly motivating for participants who reported themselves as being more exclusively heterosexual, $t(156) = 3.18$, $p < 0.01$. Participants with a more open-ended sense of future time, $t(156) = -2.87$, $p < 0.01$, were also more highly motivated to have a child who would one day become a success in life under their guidance (Table 3-4).

Finally, scores on the Feeling Needed and Connected subscale (e.g., having a helpless baby to love and protect) of the Childbearing Questionnaire were predicted by intrinsic religiosity ($\beta = 0.28$), adjusted $R^2 = 0.13$, $F(3, 157) = 8.68$, $p < 0.001$. Participants with higher levels of intrinsic religiosity were more highly motivated to have children to feel needed and useful, $t(157) = 3.67$, $p < 0.001$ (Table 3-5).
Table 3-1. Intercorrelations of demographics, background variables, and psychological constructs with Sharabany’s Intimacy Scale and three subscales of the Childbearing Questionnaire

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
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<tbody>
<tr>
<td>1. Gender</td>
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<td>2. Ethnicity</td>
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<td>3. Sexual Orientation</td>
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<td>4. Relationship Status</td>
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<td>6. Intrinsic Religiosity</td>
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<td>8. Self-Esteem</td>
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<td>9. Future Time Perspective</td>
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<td>Traditional</td>
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<td>12. Satisfactions of Childrearing</td>
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<td>13. Feeling Needed &amp; Connected</td>
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Note. *p < 0.05, **p < 0.01
Table 3-2. Stepwise regression with scores on Sharabany’s Intimacy Scale as criterion variable

<table>
<thead>
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<th>Predictor variable</th>
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<th>β</th>
</tr>
</thead>
<tbody>
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<td>-0.21*</td>
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<tr>
<td>Future Time Perspective</td>
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<td>0.03</td>
<td>0.24*</td>
</tr>
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*Note. Relationship status: 1 = partnered, 2 = single. * p < 0.01.

Table 3-3. Stepwise regression with scores on the Traditional subscale of the Childbearing Questionnaire as criterion variable

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<th>Predictor variable</th>
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<td>0.24**</td>
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<td>Intrinsic Religiosity</td>
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<td>0.50**</td>
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*Note. * p < 0.01, ** p < 0.001.

Table 3-4. Stepwise regression with scores on the Satisfactions of Childrearing subscale of the Childbearing Questionnaire as criterion variable

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<th>β</th>
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<td>0.24*</td>
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<tr>
<td>Future Time Perspective</td>
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<td>-0.21*</td>
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*Note. * p < .01.

Table 3-5. Stepwise regression with scores on the Feeling Needed and Connected subscale of the Childbearing Questionnaire as criterion variable

<table>
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<th>Predictor variable</th>
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<td>Intrinsic Religiosity</td>
<td>0.47</td>
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<td>0.28**</td>
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*Note. ** p < .001.
CHAPTER 4
DISCUSSION

The present study was conducted to extend research based on Terror Management Theory (TMT; e.g., Rosenblatt et al., 1989). Autobiographical memories were used as a new methodology, and the study investigated not only relationships but also procreation as buffers for existential anxiety. Young adults were sampled as forming long-term partnerships and having children are salient goals in this stage of development.

Typically, TMT research has induced mortality salience through the use of hypothetical open-ended questions that encourage consideration of how the dying process may physically and emotionally feel (e.g., Greenberg et al., 1994). As a more ecologically valid approach, the present study had participants recall actual times that they felt they had a ‘brush with death.’ That is, they recalled autobiographical memories of times in their life when they felt that they might have died. Participants recalled events such as automobile accidents, altercations with highly aggressive strangers, choking on food or other objects, and domestic abuse. Negative and traumatic memories have often been found to be highly vivid, detailed, and emotional even years after the event (e.g., Porter & Birt, 2001; Porter & Peace, 2007). Thus having participants recall death-related memories from their own lives was expected to be an effective reminder of mortality and thereby a successful mortality salience induction.

In response to mortality salience inductions, TMT researchers have gathered a wealth of evidence indicating that when mortality is made salient, individuals embrace cultural worldviews as a defense against the anxiety that arises. When reminded of death and their own mortality, participants strongly invest in their own worldview (e.g.,
their religious or political beliefs) and strongly reject the worldview of others so as to alleviate anxiety (Arndt et al., 1997). Romantic relationships have also been proposed as defense mechanisms against anxiety (Mikulincer & Florian, 2000). Building on that research, the current study predicted that making mortality salient would lead to increased interest in relationships (Hypothesis 1). More clearly grounded in TMT’s evolutionary roots, increased mortality salience was also expected to increase interest in procreation (Hypothesis 2). Like all other animals, humans have a survival instinct that spurs us to live long enough to pass on our genetic material through producing and caring for offspring.

Findings from the current study did not support Mikulincer and Florian’s (2000) findings. Although the mortality salience induction appears to have worked reasonably well, neither interest in relationships (Hypothesis 1) nor interest in procreation (Hypothesis 2) increased following the mortality salience induction (as compared to control groups). Hypotheses 3–5, which examined mediators and moderators of expected effects based on the initial hypotheses, could thus not be tested. As presented in the Results, methodological issues, measurement ‘ceiling’ effects, and developmental norms concerning forming partnerships and having children in young adulthood may be responsible for the null findings. Because considering one’s own mortality was not predictive of increased interest in relationships or procreation, some exploratory analyses were conducted to identify variables that might indeed be related to individuals’ interest in these areas. Findings from those analyses suggest some clear predictors of both interest in relationships and in procreation, as discussed below. Finally, a summary of study limitations and general study conclusions are presented.
Methodological Issues: Inducing Mortality Salience through Memory-Sharing

Given that the primary hypotheses were not supported, it was crucial to examine whether study methods may have been responsible. Analyses were undertaken to ensure that the study design and experimental manipulation were effective. This included ensuring that random assignment had been successful, particularly for variables associated with weakened mortality salience effects. It also included manipulation checks to ensure that the novel autobiographical method for inducing mortality salience had been successful. Analyses conveyed that this manipulation was effective. Manipulation checks showed that participants in the Survival Threat Condition experienced higher levels of anxiety (vs. those in the Leisure control condition) both when the event occurred, and during recall of the event in the experimental session. The extent to which participants thought they would die during the event was also assessed, showing that those in the Survival Threat Condition felt more explicit mortality salience than did the control conditions. Note, however, that implicit mortality salience (as assessed by a death-related word completion task) did not differ across conditions. Participants across the sample were largely identifying the same two words, “buried” and “killed,” which may simply be frequently used vocabulary in this sample. As such, this aspect of the manipulation checks, whether implicit mortality salience was induced, remains unclear. If implicit mortality salience was not induced, then this may be one reason for the null findings.

Though the manipulation of mortality salience through autobiographical memory sharing appears to have worked reasonably well as per most of the manipulation checks, it may also have presented some issues leading to null findings. Typical TMT studies have participants imagine their own future death, a scenario that does not allow
for ‘escaping death.’ In the present study, however, having participants recall survival threatening autobiographical memories may have simply reminded them that though they may have almost died, they did not die. An indication of this was found in participants’ reports of how anxious they felt during the experimental session. Scores for the Survival Threat Condition, while higher than reports from the Leisure Control Condition, fell between a little and somewhat. Instead of resulting in high levels of anxiety during the experimental session, recalling an event that did not actually end their life lead to lower than expected levels of anxiety that were likely not much different than would have been felt at pretest. Thus, the weaker anxiety levels may have contributed to the absence of change in interest in relationships and procreation across time.

The autobiographical memory procedure is more ecologically valid as individuals actually do remember and re-tell important life events, but don’t often sit and contemplate their own future death. The induction, however, may have also been too strong. Previous research on TMT has shown a curious pattern that high impact mortality salience inductions are less effective than the subtle inductions typically used. For instance, Greenberg et al. (1994, Study 1) showed that participants who were asked to “dig deeper” into thoughts about death by imagining they had just been diagnosed with terminal cancer were less responsive to mortality salience inductions than were participants who were exposed to the standard open-ended question induction. The authors suggest that the deeper induction was less effective because participants may have continued to consciously attend to thoughts of death after the induction and throughout the rest of the experimental session. Mortality salience effects only occur
when there is a delay in measurement after the induction, hence the use of filler tasks between induction and measurement of dependent variables. Because recall of the survival threatening memory was very vivid, as previous research has shown for recall of negative memories, it is possible that the participant continued to think about it through or after the filler task. While extending the filler task to help thoughts of death pass from consciousness may be successful in future research, it may be the case that TMT doesn’t allow for mortality being made salient in ecologically valid ways that are more impactful than hypothetical scenarios. Additionally, the restrictions of the theory, namely that a filler task must be included in order to ensure that death-related thoughts are implicit and not consciously attended to, negatively impacts ecological validity in that it doesn’t align with how people may remember or think about death as they encounter it in daily life.

In sum, there are always concerns when implementing a new methodology. According to the manipulation checks used in the current study, recalling autobiographical memories of survival threats appears to be a relatively effective manipulation of mortality salience. Participants reported feeling anxious in the Survival Threat Condition during the event, and (to a lesser extent) during recall of the event. They also chose events in which they sincerely felt that they might die. One issue with the procedure however is that, because participants shared a remembered event that they did in fact live through, this may have allowed for feelings of ‘escaping death.’ Alternatively, reliving an autobiographical memory of a survival threat may have been too strong and realistic an induction, promoting death-related thoughts that withstood
the necessary delay period for obtaining effects of mortality salience on dependent variables.

**Measurement Issues: Ceiling Effects**

Another possible reason for null findings may be ceiling effects (Lammers & Badia, 2005) on some of the assessments of interest in relationships and in procreation. Note, however, that ceiling effects were not observed on all measures and yet null findings were still observed. Very high mean scores occurred for two of the three measures of interest in relationships and on three of the six measures of interest in procreation at the pretest. Given these scores, increases at the posttest would be extremely hard to detect. Regardless of condition, participants’ reports indicated very high desires for intimacy, forming a long-term partnership, and childbearing. Specifically, having children who were successful and contributing to society was highly endorsed.

While these ceiling effects may have been obtained in part because of lack of measurement sensitivity, the high scores obtained may also accurately reflect interest in relationships and procreation in the current sample. The sample was comprised of young adults who are in a developmental life phase in which forming partnerships and having children are important developmental goals (Erikson, 1950). The next section will discuss how the life phase of the current study’s sample directly influenced the high levels of interest in relationships and procreation, as well as the absence of change on the assessments that did not yield ceiling effects.

**Getting Married, Having Kids: Norms of Young Adulthood**

The high scores found in the current study reflecting the importance placed on forming partnerships and having children are not only in line with what evolutionary theory would predict for individuals in the reproductive age range (Buss, 2007), but also
with societal norms concerning the developmental tasks of young adulthood. Eriksonian theory (1950) identifies young adulthood as a life phase centered on the intimacy-versus-isolation developmental task, suggesting that young adults are concerned with forming intimate social relations and planning for long-term partnerships. Empirical research also shows that young adults have more partnership goals than older individuals (Wrosch & Heckhausen, 1999). Recent research on developmental timing found that serious relationships are typically sought out and formed toward the end of adolescence, with most people having their first “in love” experience around age 17 (Regan, Durvasula, Howell, Ureño, & Rea, 2004). The Center for Disease Control found that over 70% of men and women between the ages of 25 and 44 had been married, with the median age at marriage being 27 for men and 25 for women (Center for Disease Control, 2008b).

Planning for and having a child during young adulthood is also normative. The median age for first-time mothers was 25 in 2008 (Center for Disease Control, 2008a) and cultural norms specify young adulthood as the correct time for childbearing, as is evidenced by the stigma associated with “off-time” (Neugarten, 1968) teenage pregnancy or having children in midlife (e.g., after 40). Previous research supports the current study’s findings, showing that young adults (particularly females) have very high motivation for having children, (Boucai & Karniol, 2008).

In sum, though the ceiling effects on several measures in the current study posed problems for measuring pre-post changes, the high scores obtained likely reflect young adults’ true motivations. Forming a long-term partnership and starting a family are normative and important developmental goals of young adulthood.
As discussed earlier, reminders of one’s own mortality did not increase motivation for forming a partnership or having children. Motivations toward these developmental goals were, instead, high across this young adult sample. Given the high level of motivation towards intimacy and childbearing goals, some further exploratory analyses were conducted to determine what factors predict young adults’ levels of interest in forming long-term relationships and motivations for having children. The following section reviews results of those analyses.

**Predictors of Young Adults’ Interest in Relationships and Procreation**

Analyses examined demographics (gender, ethnicity, and relationship status), background variables (perceived health status, intrinsic religiosity, and extrinsic religiosity), and psychological constructs (self-esteem, future time perspective).

**Interest in Relationships**

Desire for intimacy in an ideal relationship was predicted by current relationship status and also by one’s future time perspective. Participants desired more intimacy if they were currently in a relationship (vs. being single). This finding is supported by previous literature that links satisfaction in one’s current relationship with higher intimacy goals (Zimmer-Gernbeck & Petherick, 2006). Desires for intimacy were also predicted by future time perspective. Participants who viewed their future as more positive and open-ended expressed greater desire for intimacy in ideal relationships. This finding seems to contradict past research on future time perspective, which has shown that as one perceives the future to be more limited, greater emphasis is placed on close relationships (e.g., Carstensen, Isaacowitz, & Charles, 1999; Lang & Carstensen, 2002). Note, however, that the previous literature has found emphasis to be placed on maintaining relationships with loved ones that the individual is already
attached to, whereas the present study asked participants to imagine an “ideal” relationship with a partner that they do not already know.

**Interests in Childbearing**

Participants’ scores on the Traditional subscale of the Childbearing Questionnaire were predicted by sexual orientation and intrinsic religiosity. Though the sample was only slightly diverse regarding sexual orientation (5% bisexual or homosexual), heterosexual participants were more motivated to have children for traditional reasons, such as “Providing my parents with a grandchild.” Participants with higher levels of intrinsic religiosity were also more motivated to have children for traditional reasons. These findings likely stem from the inclusion of the following item in the Traditional subscale: “Fulfilling my religious beliefs about family life.” The connection is clear for high levels of intrinsic religiosity; however, this item may have been less motivating for non-heterosexual participants due to the typically negative views of same-sex relationships held by religious organizations or individuals (Whitehead, 2010).

Scores on the Satisfactions of Childrearing subscale were also predicted by sexual orientation. Specifically, heterosexual participants reported more motivation. All items on the subscale would be applicable to participants of any sexual orientation, such as “Having my child be a success in life” and “Guiding and teaching my child,” but participants with bisexual or homosexual orientations were less motivated by these reasons. Overall lower levels of motivation toward childbearing for non-heterosexual individuals may stem from the complicated decisions that come with same-sex parenthood and the associated stigma in current society (Goldberg, 2010). Note, however, that effects of sexual orientation were only found on the Traditional and Satisfactions of Childrearing subscales of the Childbearing Questionnaire. Scores were
consistent across orientations when the childbearing motivation was “Feeling Needed and Connected.” This could be reflective of the general need to form social relationships, romantic or otherwise, in young adulthood regardless of sexual orientation.

More open-ended senses of future time were also associated with higher motivation in response to the Satisfactions of Childrearing subscale. Participants who viewed their future as less limited were more motivated to have children who could benefit from their parental guidance and become successes in life, whereas participants with more limited senses of future time had lower scores on the Satisfactions of Childrearing subscale. This may reflect the “weighty” responsibility of childbearing – those who perceive their time as limited may not feel that enough time is left to raise a child. This may also be related to the academic responsibilities that the current sample carries. All participants were enrolled in the university and are likely to be devoting the next few years of life to school. Thus, participants who perceived their future to be limited may not yet be able to plan for life in the time following schooling.

Scores on the Feeling Needed and Useful subscale were predicted by high levels of intrinsic religiosity. The association between religiosity and motivation for children has been found in previous research, with very religious young adults or young adults raised by very religious parents being likely to want children more, and to want a larger number of children (Pearce, 2002). In relation to this particular subscale, recent research has found that more religious individuals have a greater need to belong (Okulicz-Kozaryn, 2010). Feeling needed and useful through a child may satisfy that need.
In summary, being in a relationship or having a more open-ended future time perspective was related to greater desire for intimacy or interest in relationships. Heterosexual orientation and higher levels of intrinsic religiosity were related to more traditional motivations for having children. Heterosexual orientation was also linked to scores on the Satisfactions in Life subscale of the Childbearing Questionnaire, along with more open-ended future time perspectives. Finally, feeling needed and useful was a motivator for participants high in intrinsic religiosity. While some of these results (e.g., relationship status and religiosity) map onto previous research concerning young adults’ family planning goals, findings regarding the link between sexual orientation and future time perspective have not been largely explored in a young adult population. Future research examining young adults’ motivations toward marriage and having children would benefit from incorporating a more diverse sample in terms of sexual orientation and student status to determine whether these predictors are effective outside of the current sample.

**Limitations**

Limitations of the study were discussed in the Methodology and Measurement Issues sections above but are briefly summarized here. First, this study incorporated a new autobiographical memory methodology for inducing mortality salience to extend TMT findings. This method of induction was potentially too strong, such that individuals continued thinking about the death-related event throughout the experimental session. Past research suggests this would have resulted in null effects. Another limitation of the autobiographical memory induction was that it may have unintentionally reminded participants that they could have died, but in fact did not die. This sense of ‘escaping death’ may have also undermined obtaining expected effects. Future research using
autobiographical memories to induce mortality salience should consider the possibility that this induction produces stronger effects than the typical abstract TMT inductions, and should thus include longer filler tasks to account for the potency of those memories.

The measurements of interest in relationships and procreation produced ceiling effects on several assessments, thereby drastically reducing the possibility of finding change from pre- to posttest. Future research would benefit from using more sensitive measures that can register smaller changes, and using wider age samples so as to capture individuals before and after the normative window for forming partnerships and family planning. For example, a sample of early midlife adults may yield an increase in interest in procreation. These individuals are quickly reaching the developmental deadline for having children (Heckhausen, Wrosch, & Fleeson, 2001) and thus may show a heightened evolutionary drive to reproduce in response to reminders of their own mortality.

In sum, this was the first study to attempt using autobiographical memories to induce mortality salience. Future research could benefit from utilization of more effective filler tasks to offset the potency of the survival threatening memory, more sensitive assessments of the measures of interest, and a sample with greater age variability.

**Conclusion**

Though the hypotheses were not supported, the current study added several new components to the literature on Terror Management Theory by utilizing a new methodology, more thoroughly investigating the theory’s evolutionary roots, and incorporating lifespan developmental theory in identifying the sample most affected by the proposed defense mechanisms (i.e., relationships, procreation). Additionally, the study provided evidence that tests of Terror Management Theory may not be upheld
when inductions are too ecologically valid. Mortality salience manipulations drawn from real life events may be too ‘high impact’ to produce effects, and the necessary inclusion of the filler task between thoughts of death and measurement of dependent variables deviates from how thoughts or memories of death may occur in daily life. The study also provided further understanding of the factors that motivate young adults’ general interest in relationships and procreation, regardless of mortality salience. While some of the observed predictors (i.e., relationship status, religiosity) mapped onto previous research with young adults, replication and future research could focus on the effects of sexual orientation and future time perspective on young adults’ interests in relationships and procreation. Findings from this study should help to inform future research on the functions of autobiographical memories, young adulthood and developmental timing of life events, as well as future research focusing on more ecologically valid methods for testing Terror Management Theory.
APPENDIX A
EXPERIMENTAL CONDITION MANIPULATION: WRITING TASK INSTRUCTIONS

Survival Threat Memory Task

In the space below, please briefly describe a specific event from your own life in which you had an experience where something happened that, at least for a moment, you thought you might die. Describe all the emotions that you were feeling as this happened. Jot down, as specifically as you can, what happened to you in the moments leading up to this threatening event and what happened, and what you were thinking and feeling while you were experiencing this. Focus only on how you were feeling during the event itself, and not what happened or how you felt once the event was over.

Anxiety Condition Memory Task

In the space below, please briefly describe a specific event from your own life in which you were faced with an upcoming academic deadline (exam, assignment, term paper, etc) that made you feel very anxious. Describe all the emotions that this aroused in you. Jot down, as specifically as you can, what happened to you in the moments leading up to this anxiety-producing event and what happened and what you were thinking and feeling while you were experiencing this. Focus only on how you were feeling during the event itself, and not what happened or how you felt once the event was over.

Leisure Condition Task

On the questionnaire below, please rate how frequently you engage in the following leisurely activities in your own life using the scale below. Respond to all items based on things that you have actually done in your life, not things that you might want to do in future.
APPENDIX B
FREQUENCY OF LEISURE ACTIVITIES QUESTIONNAIRE

Instructions: On the questionnaire below, please rate how frequently you have engaged in the following leisurely activities in the past using the scale below. Respond to all items based on things that you have actually done in your life, not things that you might want to do in future. Please answer every question and feel free to use any point on the scale.

How often have you done the following just for fun?
1. Driving
   1 2 3 4 5 6 7
   Very Often
   Rarely

2. Gardening
   1 2 3 4 5 6 7
   Very Often
   Rarely

3. Attending sports events
   1 2 3 4 5 6 7
   Very Often
   Rarely

4. Outdoor activities (e.g., rock climbing)
   1 2 3 4 5 6 7
   Very Often
   Rarely

5. Knitting/Sewing
   1 2 3 4 5 6 7
   Very Often
   Rarely

6. Other crafts
   1 2 3 4 5 6 7
   Very Often
   Rarely

7. Volunteer work
   1 2 3 4 5 6 7
   Very Often
   Rarely
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18. Going out to bars  
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19. Entertaining at home  
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21. Looking after pets  
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22. Church activities  
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23. Dancing  
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24. Shopping  
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25. Indoor games (e.g., board games, cards)  
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26. Visiting family
1 2 3 4 5 6 7
Very Often

27. Going to parties
1 2 3 4 5 6 7
Very Often

28. Collecting things
1 2 3 4 5 6 7
Very Often

29. Exercising/fitness classes
1 2 3 4 5 6 7
Very Often

30. Spending time with friends
1 2 3 4 5 6 7
Very Often
APPENDIX C
MEMORY QUALITIES QUESTIONNAIRE

Instructions: A few moments ago, you completed a task about your own life. With the information you shared during that task in mind, please answer the following questions. Click on the number that best represents your response. Please answer every question and feel free to use any point on the scale.

1. When did this event occur? (month or season)__________ year __________

2. How personally significant is the information you shared?
not at all                 a little           somewhat              quite a bit         very much
1  2  3  4  5

3. How much has this information influenced the person you have become?
not at all                 a little           somewhat              quite a bit         very much
1  2  3  4  5

4. How vivid (clear in your mind) is the information you shared?
not at all                 a little           somewhat              quite a bit         very much
1  2  3  4  5

5. How emotionally positive was the information you shared?
not at all                 a little           somewhat              quite a bit         very much
1  2  3  4  5

6. How emotionally negative was the information you shared?
not at all                 a little           somewhat              quite a bit         very much
1  2  3  4  5

7. When completing this task and thinking about the information you shared, how anxious did you feel?
not at all                 a little           somewhat              quite a bit         very much
1  2  3  4  5

8. How anxious did you feel at the time of the event?
not at all                 a little           somewhat              quite a bit         very much
1  2  3  4  5

9. At the time of the event, to what extent did you feel that your survival was threatened?
not at all                 a little           somewhat              quite a bit         very much
1  2  3  4  5

10. How frequently do you talk about the information you shared?
not at all                 a little           somewhat              quite a bit         very much
1  2  3  4  5
11. How frequently do you think about the information you shared?
not at all   a little   somewhat   quite a bit   very much
        1       2        3           4            5

12. When completing that task, to what extent were you reliving your life experience?
not at all   a little   somewhat   quite a bit   very much
        1       2        3           4            5

13. Sometimes people know something happened without being able to really remember it. As you think about the experience, how much do you actually remember it happening (rather than just knowing that it happened).
not at all   a little   somewhat   quite a bit   very much
        1       2        3           4            5
APPENDIX D
PERSONAL MARRIAGE ATTITUDES QUESTIONNAIRE

Instructions: Please answer each of the following questions and feel free to use any point on the scale.

1. How important is it for you to get married or form a long-term partnership?
   1 2 3 4 5 6 7
   Very important Not at all important

2. If it were just up to you, what would be the ideal time for you to get married?
   1 2 3 4 5 6 7
   As soon as possible In the very distant future
APPENDIX E
SHARABANY’S INTIMACY SCALE

Instructions: Please consider the romantic partner you would ideally like to have a relationship with. If you're currently in a relationship, please keep in mind that you're considering the ideal partner, not a specific or familiar person. With this ideal relationship partner in mind, please read each statement and rate how important it is to you using the scale below. Please answer every question and feel free to use any point on the scale.

1 2 3 4 5 6 7
Not at all Neutral Very much

In my ideal relationship:

1. I would feel free to talk with my partner about almost everything.
2. If my partner did something which I did not like, I could always talk with him/her about it.
3. I would talk with my partner about my hopes and plans for the future.
4. I would tell my partner when I have done something that other people would not approve of.
5. I would know how my partner feels about things without him/her telling me.
6. I would know which kinds of books, games, and activities he/she likes.
7. I would know how my partner feels about me.
8. I could tell when he/she is worried about something.
9. I would feel close to him/her.
10. I would like him/her.
11. When my partner is not around I would miss him/her.
12. When my partner is not around I would keep wondering where he/she is and what he/she is doing.
13. The most exciting things would happen when I am with my partner.
14. I could do things with my partner that are quite different from what other people do.
15. It would bother me to have other people around and join in when the two of us are doing something together.
16. I would stay with my partner when he/she wants to do something that other people do not want to do.
17. When something nice happens to me I would share the experience with him/her.
18. Whenever my partner wants to tell me about a problem I would stop what I am doing and listen for as long as he/she wants.
19. I would offer my partner the use of my things (like clothes, food, or books).
20. If my partner wants something I would let him/her have it even if I want it too.
21. I could be sure my partner will help me whenever I ask for it.
22. I could plan how we'll spend our time without having to check with him/her.
23. If I want my partner to do something for me all I would have to do is ask.
24. I could use my partner’s things without asking permission.
25. Whenever you see me you could be pretty sure that my partner is also around.
26. I would like to do things with him/her.
27. I would work with my partner on some of his/her hobbies.
28. I would work with my partner on something of importance to him/her.
29. I would know that whatever I tell my partner is kept secret between us.
30. I would not go along with others to do anything against my partner.
31. I would speak up to defend my partner with others who say bad things about him/her.
32. I would tell people nice things about my partner.
Instructions: Please answer each of the following questions and feel free to use any point on the scale.

1. How important is it for you to have children?
   
   |   |   |   |   |   |   |
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   | Very important | Not at all important |

2. If it were just up to you, what is the ideal time to have your first child?
   
   |   |   |   |   |   |   |
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   | As soon as possible | In the very distant future |

3. If it were just up to you, what size family would you ideally like to have (circle one)?
   
   |   |   |   |   |   |   |
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   | Very small | Very large |
APPENDIX G
MILLER’S CHILDBEARING QUESTIONNAIRE

Instructions: People have many different reasons for wanting and having children. Please read the following reasons and indicate the extent to which they represent your desire for having children. Please answer every question and feel free to use any point on the scale.

How important to you are each of the following reasons for having children:

1. Having a child who will carry on my family traditions

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2. Being the center of a large, active family

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Very Important

3. Strengthening marriage through a child

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Very Important

4. Fulfilling my religious feelings about family life

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Very Important

5. Providing my parents with a grandchild

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Very Important

6. Fulfilling my potential by having children

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Very Important

7. Having my child be a success in life

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Very Important

8. Playing with my child

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Very Important
9. Having my child contribute to society

Very Important

Not at all Important

10. Guiding and teaching my child

Very Important

Not at all Important

11. Sharing childraising with my partner

Very Important

Not at all Important

12. Experiencing the special love and closeness that a child provides

Very Important

Not at all Important

13. Feeling needed and useful through my baby

Very Important

Not at all Important

14. Having my child provide me with companionship and support later in life

Very Important

Not at all Important

15. Having a helpless baby to love and protect

Very Important

Not at all Important

16. Feeling more complete as a person through my baby

Very Important

Not at all Important

17. Living a fuller, more enriched life through my child

Very Important

Not at all Important
APPENDIX H
STATE ANXIETY INVENTORY

Instructions: A few moments ago, you were asked to share some information about your life experiences. With this information in mind, please rate the extent to which each statement below characterizes how thinking about that information makes you feel right now using the scales provided. Please answer every question and feel free to use any point on the scale.

*Remembering the information I just shared makes me feel:*

1. calm
   1 2 3 4 5 6 7
   Not at all Very much

2. tense
   1 2 3 4 5 6 7
   Not at all Very much

3. upset
   1 2 3 4 5 6 7
   Not at all Very much

4. relaxed
   1 2 3 4 5 6 7
   Not at all Very much

5. content
   1 2 3 4 5 6 7
   Not at all Very much

6. worried
   1 2 3 4 5 6 7
   Not at all Very much

*Note.* Questions 1, 4, and 5 are reversed for scoring.
APPENDIX I
FUTURE TIME PERSPECTIVE SCALE

Instructions: A few moments ago, you were asked to share some information about your life experiences. With this information in mind, please rate the extent to which each statement below characterizes how thinking about that information makes you feel right now using the scales provided. Please answer every question and feel free to use any point on the scale.

1. Many opportunities await me in the future.
   1  2  3  4  5  6  7
   Not at all true Very true

2. I expect that I will set many new goals in the future.
   1  2  3  4  5  6  7
   Not at all true Very true

3. My future is filled with possibilities.
   1  2  3  4  5  6  7
   Not at all true Very true

4. Most of my life lies ahead of me.
   1  2  3  4  5  6  7
   Not at all true Very true

5. My future seems infinite to me.
   1  2  3  4  5  6  7
   Not at all true Very true

6. I could do anything I want in the future.
   1  2  3  4  5  6  7
   Not at all true Very true

7. There is plenty of time left in my life to make new plans.
   1  2  3  4  5  6  7
   Not at all true Very true
8. I have the sense that time is running out.
   1  2  3  4  5  6  7
Not at all
true
Very
true

9. There are only limited possibilities in my future.
   1  2  3  4  5  6  7
Not at all
true
Very
true

10. I experience time to be limited.
    1  2  3  4  5  6  7
Not at all
true
Very
true

Note. Questions 8, 9, and 10 are reversed for scoring.
APPENDIX J
WORD COMPLETION TASK

We are simply pre-testing this questionnaire for future studies. Please complete the following by filling letters in the blanks to create words. Please fill in the blanks with the first word that comes to mind. Write one letter per blank. Some words may be plural. Thank you.

1. BUR __ D
2. PLA __
3. __ OK
4. WAT __
5. DE __
6. MU __
7. __ NG
8. B __ T __ LE
9. M __ J __ R
10. P __ TURE
11. FL __ W __ R
12. GRA __
13. K __ GS
14. CHA __
15. KI __ ED
16. CL __ K
17. TAB __
18. W __ DOW
19. SK __ L
20. TR __
21. P __ P __ R
22. COFF __
23. __ O __ SE
24. POST __
25. R __ DI __

Note. Possible death fragments are #1(buried), #5(dead), #12(grave), #15(killed), #19(skull), & #22(coffin).
LIST OF REFERENCES


BIOGRAPHICAL SKETCH

Amanda Gesselman was born in LaGrange, Georgia in 1986. She graduated from Columbus State University in 2009 with a Bachelor of Science in psychology. Before enrolling in the University of Florida’s doctoral program, Amanda interned at the Army Research Institute for the Behavioral and Social Sciences at Fort Benning, where she assisted Army research psychologists on various projects relating to institutional training and instructive techniques. Amanda received her Master of Science from the University of Florida in the fall of 2011.