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LOYOLA UNIVERSITY CHICAGO

EXPLORING THE MORTALITY SALIENCE PARADOX:
THE EFFECTS OF HIGH-RISK EMPLOYMENT
ON INTERPERSONAL DECISION MAKING

A THESIS SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
MASTER OF ARTS
PROGRAM IN APPLIED SOCIAL PSYCHOLOGY

BY
BELLA ETINGEN
CHICAGO, IL
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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
LIST OF TABLES	v
ABSTRACT	vi
CHAPTER ONE: INTRODUCTION	1
CHAPTER TWO: METHODOLOGY	15
CHAPTER THREE: DATA ANALYSIS	20
CHAPTER FOUR: CONCLUSIONS AND FUTURE DIRECTIONS	24
APPENDIX A: SOLDIER QUESTIONNAIRE	25
APPENDIX B: EXPERIMENTAL GROUP QUESTIONNAIRE	29
APPENDIX C: CONTROL GROUP QUESTIONNAIRE	37
APPENDIX D: SOLDIER CONSENT SHEET	45
APPENDIX E: STUDENT CONSENT SHEET	48
APPENDIX F: SOLDIER DEBRIEFING	51
APPENDIX G: STUDENT DEBRIEFING	54
REFERENCES	57
VITA	59

LIST OF TABLES

Table	Page
1. Predicting subconscious death-thought accessibility and intimacy goals from mortality salience levels.	21

ABSTRACT

Past research concerning Terror Management Theory (TMT) has displayed self-esteem bolstering and cultural worldview validation to be the foundation of subconscious defense mechanisms against mortality salience (Solomon, Greenberg, & Pyszczynski, 1991). Recent studies have also identified intimacy and romantic commitment as form of such defense (Florian, Mikulincer & Hirschberger, 2002). The present study examines the effects of existential terror on people's intimacy-related milestone time frames, as well as the distinction between naturally occurring mortality salience (in a sample of soldiers) and the more standard form of laboratory induced mortality salience. It was hypothesized that employees of high-risk fields will have a significantly greater death-thought accessibility than members of the general population, and will significantly differ in the likeliness of placing the accomplishment of life milestones associated with intimacy at the top of their priorities list, time-wise. It was further hypothesized that students who receive the death-thought prime will have a significantly greater death-thought accessibility, and will significantly differ in the likeliness of placing accomplishments of life milestones associated with intimacy at the top of their priorities list, than undergraduates not primed with mortality salience. Data suggests that high-risk employees have significantly higher levels of death-thought accessibility naturally, as compared to laboratory induced levels, and that mortality salience causes individuals to desire earlier completion of intimacy related milestones.

CHAPTER ONE

INTRODUCTION

Most people probably do not think of their own mortality on a regular basis. A substantial number of occupations, however, pose daily life-and-death dangers for their constituents. From members of the armed forces to police officers to fire-fighters, a multitude of commonplace members of society are reminded of their mortality from the beginning to the end of every work day.

Furthermore, these individuals (along with professionals such as health care workers, funeral coordinators, and mortuaries) must face the psychological backlash that results from the subconscious anxiety that existential terror has been shown to cause. This particular variation of psychological strain, and the effects that it has on the behavior and decision making of the individuals exposed to it, has been studied for decades. The most prominent theory regarding this phenomenon is Terror Management Theory (TMT; Greenberg, Pyszczynski, & Solomon, 1997; Solomon, Greenberg, & Pyszczynski, 1991).

This study investigates the occurrence of existential terror both inside the laboratory (artificially induced) and outside of the laboratory (naturally occurring). One of the main tenets of TMT is that humans have built up defense mechanisms that protect them from the terror produced by the knowledge of their own mortality. This study focuses on one particular social defense mechanism – intimacy. Specifically, evaluating whether naturally occurring mortality salience leads to a greater need for intimacy as

compared to existential terror that is induced in a laboratory setting. I will be looking at whether mortality salience causes younger ages of marriage and procreation, more hasty marriages [in terms of shorter periods of pre-marital courtship] and whether these effects are stronger for people in high-risk jobs (i.e., the military). A better understanding of these issues is important given their negative implications, such as severe relationship dysfunction and ultimately, extremely high divorce rates.

Review of Literature

TMT is based on the idea that all human beings have ingrained instincts geared toward ensuring their survival. The superior cognitive abilities of the species, however, cause people to not only be aware of the fact that they are alive, but also to be aware of the imminent possibility that they will someday die. According to the theory, these conflicting internal states cause severe psychological strain, and result in crippling feelings of anxiety and terror. In order to combat these negative feelings and cognitions, the human psyche draws on subconscious defense mechanisms. The most common of these defenses are self-esteem bolstering and validation of one's cultural worldviews (Solomon, Greenberg, & Pyszczynski, 1991).

According to TMT, people with high self-esteem feel as though they fit into and are accepted by members of the society or culture to which they belong. People with low self-esteem, on the other hand, view themselves as living on the outskirts of their society and do not feel as though they fit in with other members of their culture. High self-esteem, therefore, allows individuals to believe that they are exemplary and valuable

members of an in-group (their cultural group). Belongingness serves as a protective function against existential terror, in that, those with high self-esteem feel sheltered by whatever protective functions their culture offers against death (be it in beliefs about prolonging life or what the afterlife entails). On the other hand, those with low-self esteem do not feel this sense of entitlement, and are less protected from feelings of anxiety due to death-related thoughts (Solomon, Greenberg, & Pyszczynski, 1991; Greenberg, Pyszczynski, & Solomon, 1997).

The defense of cultural worldviews stems from the same notion that a person's society serves a protective function against death-related terror. These worldviews form the structure of people's beliefs, related to everything from life to death and in between. They give structure and meaning to an otherwise disorganized and frightening existence. According to TMT, when individuals are faced with the thought of their own death, they hold tightly to their cultural worldviews in the face of existential terror to buffer the resulting anxiety. TMT studies have shown that, when primed with death-related thoughts, individuals are likely to reject and harshly judge those who do not hold beliefs in accordance with their cultural worldviews, and accept the people that do (Solomon, Greenberg, & Pyszczynski, 1991; Greenberg, Pyszczynski, & Solomon, 1997).

Though much of the research that has been done on TMT and its related anxiety-buffering defense mechanisms revolves around self-esteem maintenance and cultural worldview validation, further defense mechanisms and ramifications of existential terror have also been examined. In more contemporary studies concerning TMT other existing

anxiety buffers have been postulated. For example, the longing to be involved in close relationships, and the use of intimacy in place of cultural worldview validation and self-esteem maintenance as an anxiety-reducing function in the face of mortality salience, has recently been examined from a variety of perspectives.

Mortality Salience and Close Relationships

From an evolutionary standpoint, intimate relationships are the ultimate goal of all human beings. Co-existing with another person in harmony has the benefits of the efforts of not just an individual, but a cooperative entity, working to keep both parties alive and well; two people are now providing food and monetary support for the household, rather than one. Close relationships improve human being's chances of physical survival, because having a mate increases a person's chance at having improved amounts of food, better shelter, and more monetary success (Florian, Mikulincer & Hirschberger, 2002).

Furthermore, with finding a mate comes the increased chance of survival through symbolic immortality as well. Symbolic immortality refers to the notion that people can live on after their death through a contribution that they have made to society, be it an architectural structure, a life-saving medicinal discovery, or offspring. With the formation of an intimate relationship with a member of the opposite sex, a person's chances of mating increase drastically. Mating allows people to pass on their genetic make-up, thus symbolically living on through their offspring. The knowledge that a person has obtained symbolic immortality can act as an anxiety-buffer against death-related thoughts, by providing a sense of relief for human beings that even after they are gone, a piece of them

will live on via their offspring, and their offspring's offspring, for generation after generation (Florian, Mikulincer & Hirschberger, 2002).

Another function of intimate relationships is in the bolstering of people's self-esteem. According to Abraham Maslow's (1970) Hierarchy of Needs, human beings must achieve certain goals in order to obtain motivation to grow. Furthermore, people cannot move up in their goal priorities before the lower-level goals have been met. Needs of love and belongingness come before the two most important needs on the pyramid, esteem needs and self-actualization. By putting love and belongingness before these two needs, Maslow states that without fully achieving these needs, a person cannot achieve esteem needs or reach self-actualization. This theory is therefore stating that people need to first feel loved and wanted socially, in order to have a proper self-esteem and reach their full potential in life.

Taking this into account, it can be said that close relationships serve an incredibly important function in self-esteem formation and maintenance. Since self-esteem has been shown to serve as a defense mechanism against feelings of anxiety caused by mortality salience, and the formation of intimate relationships is directly related to the formation and maintenance of people's self-esteem, it is possible that close relationships themselves can also serve as such an anxiety buffering defense mechanism.

In a series of studies done by Florian, Mikulincer and Hirschberger (2002), the function of romantic commitment plays following mortality salience was examined. The results showed that after being made aware of their eventual death, participants reported a

stronger desire for relationship maintenance and feelings of commitment to their romantic partners. Furthermore, participants who were made to think about romantic commitment judged the social transgressions of others less harshly than did participants who were not made to think about their close relationships in any way. Romantic commitment, therefore, reduced the need of participants to activate their cultural worldview defenses by replacing that particular defense mechanism in the reduction of death anxiety. Florian et al. (2002) also showed that the thought of stable romantic relationships acts as an anxiety buffer, and when this defense mechanism is threatened, anxiety increases, demonstrating the importance of close relationships in reducing the effects of mortality salience.

Taken collectively, the literature in this area suggests that the formation of close relationships and the commitment to those relationships do indeed act as defense mechanisms against anxiety caused by thoughts of one's own eventual death. Furthermore, the results of these studies were not affected by participant's self-esteem levels, gender, or levels of neuroticism, showing that the results elicited by romantic commitment were not confounded by other variables.

Compromise of Mate-Selection Standards

Though the fact that close relationships serve as a defense mechanism against death anxiety has been established, the fact that mortality salience induction may have adverse effects on romantic relationships themselves must be examined as well. Specifically, the decision-making process that people go through to choose a partner, and

how existential terror could affect this process, warrants explanation.

Take into consideration the effect that occurs when an individual's held attitudes and their resulting behaviors do not coincide, for example. According to the theory of cognitive dissonance, engaging in a behavior that is not in compliance with one's attitude can cause modification of the attitude to better fit the behavior, thus relieving oneself of the unpleasant sensation of dissonance (Festinger & Carlsmith, 1959). This theory can be translated in terms of the standards a person upholds when selecting a partner for intimacy under conditions of mortality salience. Most human beings have some set of standards that come into play when choosing a romantic partner, and most people hold true to these standards while deciding whether to enter a close relationship with another individual. The priming of death related thoughts, however, can have a large impact on the strength of these convictions.

For instance, if an individual is experiencing anxiety due to death-related terror, and is using intimacy as a defense mechanism against this terror, this person might compromise this set of standards. Though their attitude (the pre-conceived set of held standards) and their behavior (the compromise of these standards) do not coincide, under the strain of mortality salience induction people's attitudes are not apt to change, since their sub-conscious is battling anxiety not cognitive dissonance. The resulting dissonance, in turn, is likely to cause feelings of shame or guilt within participants.

According to Tangney, Miller, Flicker, & Barlow (1996), guilt on the personal level is a "self-conscious" affect. It is experienced when a person's actions (or inactions)

do not coincide with their personal beliefs or morals. As opposed to embarrassment, when guilt is experienced it is centered on an action or inaction and the person's evaluation of their behavior. Guilt can be, and often is, an entirely personal experience. An audience is not necessary for a person to experience guilt; it is possible (and not uncommon) for this phenomenon to be based solely on one's interpretation of their own behavior, rather than how others may view them. What is necessary for feelings of guilt to arise, however, is for the individual at hand to have strong morals or an opinion about the behavior that they have displayed, and for their actions to be in direct violation of this moral standing or opinion (Tangney, et. al., 1996). It is evident, therefore, the reasons that feelings of guilt may be elicited by the compromise of a set of standards that an individual usually upholds, such as the standards that they use to judge grounds for intimacy and commitment with.

This view is supported by a study conducted by Hirschberger, Florian & Mikulelcer (2002). They sought to examine whether the mate selection standards of participants would be upheld following mortality salience induction. They hypothesized that participants were likely to compromise these standards. Their rationale was that, since desire for commitment and intimacy was arising as a defense mechanism against severe anxiety, the need for participants to form a committed intimate bond would be extraordinary. Due to the dire nature of their desire for closeness, participants would be likely to lower their standards in order to make the realization of this need less difficult and more immediate. Despite the fact that this compromise causes negative experiences

such as shame or guilt, the need for intimacy and commitment is so immense in this situation that it out-weighs participant's desire to quell these other negative emotional experiences.

In this study, participants were asked to rate the importance of a variety of categories with regard to a potential future romantic partner. After mortality salience induction, participants were then asked, when attempting to decide whether a partner was worthy of marriage, how much they would be willing to compromise their previously stated ideals in these categories. As predicted, participants displayed a high willingness to compromise their former ideals after mortality salience manipulations. (Hirschberger, Florian & Mikulelcer, 2002).

Hirschberger and colleagues (2002) also examined self-esteem levels, and found that participants with both participants with high self-esteem and low self-esteem were willing to compromise their standards for a future romantic partner following mortality salience. Participants with high self-esteem, however, were willing to make greater compromises than those with low self-esteem. Considering the fact that individuals with low self-esteem have lower standards to begin with, the high self-esteem group brought their standards down to the same level that the low self-esteem group did regarding the levels of compromise that they were willing to make. This factor furthers the notion that the need for intimacy and commitment is used as defense mechanism against death anxiety (Hirschberger, Florian & Mikulelcer, 2002).

Naturally Occurring Existential Terror: Posttraumatic Growth

In conjuncture with the body of TMT literature concerning artificially induced existential terror, the effects of naturally induced mortality salience have also been examined through the mechanism of Posttraumatic Growth (PTG; Tedeschi, Park, & Calhoun, 1998; Calhoun & Tedeschi, 1999). The PTG theory examines the effects that facing death due to severe/terminal illness or trauma caused by near-death experiences (e.g. natural disasters, physical assault, combat, etc.) has on human behavior. According to PTG theory, rather than act defensively toward the mortality salience caused by such occurrences, people tend to act in an offensive manner and mature or grow positively as individuals.

PTG research has identified three main categories of growth following experiences that cause the victims to face the reality of their own death: self-perception, life views, and close social relationships (Tedeschi, Park, & Calhoun, 1998). Growth in terms of self-perception represents the autonomy of the individual. Subsequent to a near-death experience, people have been shown to take greater responsibility over their lives, rely less on the help of others, and work harder in order to maintain a productive and functional individual existence. The life views category of growth entails a more philosophical maturation. With this form of development, people tend to re-organize their priorities and hold different values than they previously had, as well as to become more spiritual (Tedeschi, Park, & Calhoun, 1998).

In juxtaposition to these individualistic reactions, the close social relationship

category entails growth concerning intimacy and philanthropy. With this sector of maturation, individuals who have experienced a brush with death or the diagnosis of a terminal illness are likely to attempt to strengthen their existing relationships with others, and engage in more helping behaviors. Furthermore, this category ascertains that, after contemplating their own death, individuals are likely to more actively seek out intimate relationships than they would have otherwise (Tedeschi, Park, & Calhoun, 1998).

Though the self-perception and life views growth categories can be seen as comparable to the self-esteem bolstering and cultural worldview validation defenses presented by TMT, both pairs could be seen as being at opposite ends of a continuum. Whereas the defense mechanisms employed following artificially induced mortality salience tend to have more negative consequences in terms of human behavior, the growth categories discussed in PTG are on the positive end (behaviorally). The close relationship growth category, however, is directly related to the intimacy defense mechanism of the TMT literature. This undeviating relation further implies that human beings tend to crave close relationships to a greater degree after being made to think about their own death, be it in a natural or artificially induced manner.

Death Awareness Versus Death Reflection

In discussing the effects that dangerous professions have on the work behaviors of employees of high-risk jobs, Grant and Wade-Benzoni (2009) make a distinction between two forms of reaction to mortality salience: death awareness and death reflection. According to this narrative, death awareness elicits a defensive reaction in individuals

(such as that described by TMT), whereas death reflection induces a more benevolent reaction (such as that described by PGT).

Furthermore, Grant and Wade-Benzoni (2009) also make a distinction between the typology of exposure that various employment settings have as related to death awareness. Work-related causes of death reflection are described as either internal (caused by the nature of the job itself) or external (caused by an occurrence in the outside world during the workday), and acute (short and scarce or solitary events) or chronic (repetitive or constant exposure).

According to this theoretical framework, when exposure to death is a chronic occurrence in the workplace, it will cause employees to experience reactions related to death reflection rather than death awareness, due to desensitization. Moreover, younger employees (such as individuals in their late teens and twenties) are likely to display defensive reactions to mortality salience that are more in line with death awareness (and in turn, the defense mechanisms associated with TMT). This is primarily a consequence of differing coping strategies employed at different stages of life, as the younger a person is the more they feel they would be missing out on if their life was to be taken from them (Grant & Wade-Benzoni, 2009).

Hypotheses

In the present study, it is expected that employees of high-risk settings will display a high level of death contemplation, and consequently, above-average levels of death-thought accessibility. Furthermore, despite the fact that the mortality exposure of

their profession is both internal and chronic, due to the young age (late teens to late twenties) of the high-risk employee participants, it is expected that they will display more defensive reactions to mortality salience, rather than the more reflective reactions discussed in the PGT and death reflection literature.

This study examines separate groups: a sample of individuals employed in a high-risk setting, a group of undergraduate psychology students not in high risk settings, and a group of undergraduate psychology students primed with thought of death. Both groups of undergraduates will then be compared to the group of high-risk employees, to ensure that the groups are demographically comparable.

The purpose of this study is to examine the effects that being in dangerous (i.e., risk of death) employment settings has on their death-thought accessibility. It also examines the effect that mortality salience has on participant's willingness to re-arrange the time-frame of their life milestones, especially in terms of interpersonal relationship decision making. This research is exploratory in nature, with the goals of examining the difference that mortality salience has when induced naturally rather than in the laboratory.

I hypothesize that employees of high-risk fields will have a significantly different death-thought accessibility than members of the general population (i.e. the quasi-experimental comparison group members). I also expect that participants employed in such settings will significantly differ from the quasi-experimental group members in the likeliness of placing the accomplishment of life milestones associated with intimacy at

the top of their priorities list, time-wise. I also hypothesize that the undergraduate students who receive the death-thought prime will have a significantly greater death-thought accessibility, and will significantly differ in the likeliness of placing accomplishments of life milestones associated with intimacy at the top of their priorities list, than undergraduates not primed with mortality salience.

CHAPTER TWO

METHODOLOGY

The present research question is exploratory in nature, utilizing a quasi-experimental design with comparable control groups. Seventy-seven undergraduate introduction to psychology students at a large private Catholic university participated in this study, comprising the two undergraduate groups. Furthermore, thirty-five employees of a high-risk profession comprise the main group of interest, the “high-risk employee” group. All participants were recruited on a volunteer basis, and were between the ages of 18 and 30. No experimental manipulation was given to members of the high-risk employee group, as the effects of the nature of their employment is the variable in question and does not need to be further induced by the researcher.

Sampling Plan

The high-risk employee group was made up of thirty-five soldiers who were currently deployed in a dangerous area. The sample of deployed soldiers is one of convenience, and data were collected through a personal contact of the primary investigator. This contact person was sent informed consent and debriefing forms, the questionnaire that was to be filled out, and a brief script to use when approaching possible participants regarding their involvement in the study. The contact was instructed not to use his authority over potential participants to coerce their involvement. Informed consent forms were kept separate from their corresponding questionnaires to insure

anonymity of responses. Once collected, all data were mailed to the primary investigator via standard United States Postal Service. Participants were then sent a large care-package in gratitude of the time and effort they devoted through their involvement.

The control and experimental groups of undergraduates were composed of volunteer participants in the undergraduate psychology participant pool. The only difference between the two groups was that the experimental group participants were given a mortality salience manipulation and the control group participants were given a neutral prompt in place of a death-awareness prompt. A brief description of the study was posted on Experimentix, and the questionnaires were administered to participants once they signed up for the study by the principal investigator.

Random assignment was used to place participants in the undergraduate students into the mortality salience (received death-awareness prompt) and control (received neutral prompt) conditions. To ensure as much randomization as possible, control and experimental condition questionnaires were given out evenly as participants enrolled in the study, the first receiving the control condition, the next receiving the experimental condition, and so on, until the study was closed. The quasi-experimental group was made up of forty participants, and the quasi-control group was comprised of thirty-seven participants. Prior military service was measured and controlled for in the analysis, as this factor could mask possible group differences between the undergraduate participants and the high-risk employee group.

Materials and Apparatus

The questionnaire that was administered for data collection had the same general

content across all groups, with the exception of a handful of differing socio-demographical questions for the high-risk employee group that relate specifically to their employment, and the mortality salience manipulation questions. The high-risk employee group did not receive any filler measure in place of this manipulation, while the quasi-experimental group members were asked the following questions: Please take a few minutes to describe the emotions that the thought of your own death arouses in you, and, Please take a few minutes to jot down, as specifically as you can, what you think happens to you physically as you die and once you are physically dead. For the quasi-control group, the word death in the manipulation questions was replaced with the phrase watching television, in order to elicit a neutral affect in participants.

After the manipulation questions, a word-search puzzle containing neutral words was administered to the quasi-experimental and control groups, with the following directions: “Please take the next three minutes to find as many of the following words in the grid as you can. Make sure to be thorough in your search, but work quickly because you only have three minutes. No one is expected to find all of the words in this time period, we are simply looking at word patterns. Good luck!” This distraction task was included due to evidence that mortality salience manipulations function most effectively when the prime involved is not in the forefront of the participant’s thoughts but rather more subconscious.

Following these questions (and for the high-risk employee group, following the socio-demographic questions directly) a death-thought accessibility measure was presented. This scale is comprised of twenty word fragments, fifteen of which are neutral

and five of which can be made into death-related words. Death-thought accessibility was scored directly according to the number of death-related words that participants produce. All participants were subsequently asked to rate on a scale of one to ten how often they think about their own death. The dependent variables concerning intimacy were measured through a series of questions regarding marriage, divorce and child-bearing history, and the desire of participants to achieve such milestones if they had not already done so.

For the purposes of the present study, death-thought accessibility was defined as an individual's propensity to think about death. This variable was measured with the subconscious death-thought accessibility scale, and the self-report question concerning the amount that participants think about their own death. Both of these measures were continuous.

The variable of life milestones associated with intimacy was defined according to the following constructs: the age at which participants got engaged, married, and/or divorced (and how long they dated their partner prior to making this commitment), the age at which participants had one or more children (and how long they knew their partner prior to making this commitment) and, if they had not achieved any of these milestones, the age at which they would like to be married, have their first child, and what the shortest amount of time they would need to date someone before committing to marriage or starting a family with them. All of these dependent variables were measured with simple, straight-forward questions such as: "Are you currently married or engaged to be married? If yes: At what age did you get married or engaged? How long did you date your partner prior to making this commitment; Have you ever been married or engaged to

be married in the past? If yes: At what age were you married or engaged? How long did you date your partner prior to making this commitment?

The questionnaire that was used for the high-risk employee group necessitated much less time to complete (and was slightly more simplistic) than the questionnaires that were given to the two comparison groups, in order to control for random responses due to waning attention or lack of free time. The amount of time that participants have been serving in the armed forces, as well as the number of deployments they have served, was measured and controlled for in the analyses in order to examine a possible cut-off for desensitization to existential terror caused by over-exposure.

CHAPTER THREE

DATA ANALYSIS

In order to examine the effects of group membership on both subconscious death-thought accessibility and the time frame of intimacy goals, a Multivariate Analysis of Covariance (MANCOVA) was conducted (see Table One), as the dependent variables in question were significantly correlated. The covariate of age was included in the analysis because participants in the soldier group had a greater mean age than did student participants. The overall omnibus test revealed a significant effect of group membership on death-thought accessibility and intimacy variables, $F(8,158) = 4.60, p < .01$. This indicates that the mean subconscious death thought accessibility scores and reported desired ages for intimacy goal completion as a group were significantly different across the soldier, experimental and control group members.

Furthermore, the analysis displayed a significant main effect of group membership on subconscious death thought accessibility, $F(2, 85) = 9.187, p < .01$. This denotes that participant scores on the subconscious death thought accessibility scale were significantly different depending on group membership, with participants in the soldier group displaying the highest level of subconscious death-thought accessibility ($M = 29.6$), followed by the experimental ($M = 1.91$) and control group members ($M = 1.33$).

Table One: Predicting subconscious death-thought accessibility and intimacy goals from mortality salience levels.

	M	SD	F	p	Eta-Sq
Subconscious death-thought accessibility			9.187	.000	.183
Soldier	2.97	1.20			
Experimental	1.91	.97			
Control	1.33	.71			
Desired age to be married			9.907	.000	.195
Soldier	22.35	4.38			
Experimental	26.57	2.30			
Control	28.03	3.24			
Desired age to have children			11.036	.000	.212
Soldier	23.90	5.15			
Experimental	28.79	2.74			
Control	30.60	3.27			
Desired length of pre-marital courtship			1.282	.283	.030
Soldier	14.96	11.53			
Experimental	19.81	11.53			
Control	22.92	12.68			

Moreover, a significant main effect of group membership on desired age of marriage was found, $F(2, 85) = 9.91, p < .01$. This displays that participant's average reported age for the timeframe in which they would like to be married significantly

differed across groups, with the soldier group reporting the earliest time-frame ($M=22.35$), followed by the experimental ($M=26.57$) and control ($M=28.03$) group members.

Finally, a significant main effect of group membership on desired age to have children was also found, $F(2, 85) = 11.04$, $p < .01$, indicating that participant's average reported minimum age for when they would like to have their first child significantly differed by group membership as well; members of the soldier group reported the earliest time-frame ($M=23.90$), followed by experimental ($M=28.79$) and control ($M=30.60$) group members.

Though there was no significant main effect of group membership on the final dependent variable of minimum desired length of pre-marital courtship, $F(2,85) = 1.28$, $p = .28$, the reported mean values for each group trended in the hypothesized direction, with participants in the soldier group reporting the shortest desired courtship period, in units of months, ($M=14.96$), followed by the experimental group ($M=19.81$), and the control ($M=22.92$).

In order to identify the location of significant mean differences across groups, Bonferroni post-hoc analyses were conducted as a follow up to the overall MANCOVA. The analysis revealed significant mean differences between the soldier and experimental groups on subconscious death-thought accessibility ($p < .05$), desired age to be married ($p < .01$), and desired age to have children ($p < .01$). Furthermore, there were significant mean differences between the soldier and control group members on subconscious death-

thought accessibility ($p < .01$), desired age to be married ($p < .01$) and desired age to have children ($p < .01$). Finally, significant mean differences between experimental and control group members were found on subconscious death-thought accessibility ($p < .05$) and desired age to have children ($p < .05$), and a marginally significant difference was found on desired age to be married ($p = .078$).

CHAPTER FOUR

CONCLUSIONS AND FUTURE DIRECTIONS

The main hypotheses in this study were that naturally occurring mortality salience would lead to significantly differing levels of subconscious death-thought accessibility as compared to laboratory induced mortality salience, and that mortality salience would cause participants to shorten the time frame of their desired intimacy goals. Both hypotheses were confirmed by the analyses.

For subconscious death-thought accessibility, findings showed that soldiers, naturally inundated with death thoughts on a regular basis, showed the highest levels, followed by the experimental group and then the control. Furthermore, the average reported desired ages to be married and have children were the youngest (and therefore closest in proximity) for the soldier group, followed by the experimental and finally control group members. Finally, though statistical significance was not reached, as far as the average reported length of desired pre-marital courtship, the soldier participants reported the shortest amount of time needed in months, followed by the experimental group members, and then the control.

Despite the results obtained, it cannot be explicitly stated that mortality salience does in fact lead individuals who are employed in high-risk settings to want to be married and start families at ages more proximal to their current age. Other factors that should be considered are educational and career goals, as well as peer influences. Furthermore, as

the U.S. military is a selective service, it is possible that selection biases exist among a soldier and college student sample.

There were also several other limitations to the research at hand. Primarily, the number of participants in the soldier sample was much smaller than that of the college student comparison groups. Furthermore, as the soldiers were currently deployed at the time of data collection, the circumstances under which they completed the questionnaires were much different than those of the college student sample. Moreover, the educational and career aspirations of the soldier group in comparison to the college student group are fundamentally different, which could further play a role in effecting the ages at which members of these groups find it appropriate to get married and begin having children. Finally, seeing as the current study utilized a sample of convenience, it is possible that data provided by the high-risk employee group were not representative of the general military population.

The results of the current study, however, do display a significant effect of both naturally occurring and laboratory induced mortality salience on the ages at which individuals desire to complete intimacy milestones. Furthermore, the current results suggest that the assertions made by TMT are not only generalizable to populations and/or individuals who actually come face to face with their personal mortality, but also that the effects are stronger in such naturalistic situations.

The findings of this study suggest that, due to working in unstable and dangerous settings, individuals employed in high-risk professions may tend to rush marriage and

childbearing decision-making. This fallacy in decision-making has the potential to cause instability in marriage and, in turn, lend itself to the extremely high divorce rates seen among these populations.

Future research on the subject should examine the time at which already married high-risk employees made the decision to wed and/or have their first child in relation to the beginning of their employment. It would be useful, furthermore, to track the marital and child-bearing decisions of a group of unmarried military recruits from enlistment to discharge, to disseminate the proximity of their intimacy decision-making to starting basic training, and leaving for deployments.

APPENDIX A:
SOLDIER QUESTIONNAIRE

Please answer the following demographical questions:

Age? _____

Gender? M F (please circle one)

Were you born in the United States?

If not, where were you born?

Where in the United States did you grow up?

What is your rank?

What is your MOS?

What is the highest level of education that you have completed?

How long have you been serving in the military? _____ (months)

How long have you been serving in your country of deployment? _____
(months)

How many deployments have you had to war-zones?? 1 2 3 or more (please circle one)

Please take a few minutes to complete the following word fragments:

B R A __

S A __

C O F F __

R A __

Q U I __

G R A __

M O __

T A __

D E __

L A __

S H O __

S K U __

S T R E __

D R I __

C O R P __

P R I __

M E __

S T I __

L I __

F A __

Please rate on a scale of zero to ten (0 = never, 10 = multiple times a day), how often you think about your own death. _____

Are you currently married or engaged to be married?

If yes:

At what age did you get married or engaged?

How long did you date your partner prior to making this commitment?

Have you ever been married or engaged to be married in the past?

If yes:

At what age did you get married or engaged?

How long did you date your partner prior to making this commitment?

Are you divorced?

If yes:

At what age did you get married?

At what age did you get divorced?

How long did you date your partner prior to marrying them?

Do you have any children?

If yes:

At what age did you have your first child?

How many children do you have?

If you answered no to the previous questions:

By what age would you like to be married?

By what age would you like to have children?

What is the shortest amount of time you would need to date someone before committing to marriage or starting a family with them?

APPENDIX B:
EXPERIMENTAL GROUP QUESTIONNAIRE

Please answer the following demographical questions:

Age? _____

Gender? M F (please circle one)

Year in school? Fr So Jr Sr (please circle one)

Were you born in the United States?

If not, where were you born?

Where in the United States did you grow up?

What is the highest level of education that you have completed?

Have you ever served in the military?

If yes:

For how long did you serve in the military? _____ (months)

Have you ever been deployed to a war zone?

How many deployments have you had to war-zones?? 0 1 2 3 or more (please circle one)

For how long were you deployed? _____ (months)

Please **take a few minutes** to describe the emotions that the thought of your own death arouses in you.

Please **take a few minutes** to jot down, as specifically as you can, what you think happens to you physically as you die and once you are physically dead.

Please take **the next three minutes** to find as many of the following words in the grid as you can. Make sure to be thorough in your search, but work quickly because you only have three minutes. No one is expected to find all of the words in this time period, we are simply looking at word patterns. Good luck!

S E V I T C E T E D N O T R E K N I P F E N D H E
 T V P S S Q F F Z W Q U F F H D G H L V A S E W I
 Y T R E V O P K F G D J N A O G R C F M A E P P G
 W K C S O C S B Q I C K I E A C Q E L D G K R B E
 S C X U W F G B K Q R A P C M R I L U B Y I E X N
 B S P O P U L I S T P A R T Y P U N S Q E R S U R
 P R Z R L H E J T G O N T M N P L S A R M T S O A
 T X L B I H G I Q B B S J Y E K M O A P D S I J C
 G Z C L H H D S O J E Y B G E M I I Y I N K O Y W
 L P E V J I U V F S I M R T P L L G F M N W N A E
 J V U Y X K Q E E W P O D T Y R N B Z X E N R P R
 Z Z I L F G W C U K E G R Y O B Y I W U T N Q T D
 R S Z H P T X V E G L W C A H R O Z K W H U T E N
 I S S U E O R I E N T E D P O L I T I C S W B R A
 M M U W W U Z J I J H S K M L S L W C O M R Z T D

Terms:

ANDREW CARNEGIE
 DEPRESSION
 GEORGE PULLMAN
 ISSUE-ORIENTED POLITICS
 MCKINLEY TARIFF
 PANIC OF 1893
 PINKERTON DETECTIVES

POPULIST PARTY
POVERTY
RAILROADS
STRIKES
UNEMPLOYMENT

Please take a few minutes to complete the following word fragments:

B R A _ _

S A _ _

C O F F _ _

R A _ _

Q U I _ _

G R A _ _

M O _ _

T A _ _

D E _ _

L A _ _

S H O _ _

S K U _ _

S T R E _ _

D R I _ _

C O R P _ _

P R I _ _

ME __

STI __

LI __

FA __

Please **rate on a scale of zero to ten** (0 = never, 10 = multiple times a day), how often you think about your own death. _____

Are you currently married or engaged to be married?

If yes:

At what age did you get married or engaged?

How long did you date your partner prior to making this commitment?

Have you ever been married or engaged to be married in the past?

If yes:

At what age did you get married or engaged?

How long did you date your partner prior to making this commitment?

Are you divorced?

If yes:

At what age did you get married?

At what age did you get divorced?

How long did you date your partner prior to marrying them?

Do you have any children?

If yes:

At what age did you have your first child?

How many children do you have?

If you answered no to the previous questions:

By what age would you like to be married?

By what age would you like to have children?

Please answer:

What is the shortest amount of time you would need to date someone before committing to marriage or starting a family with them?

APPENDIX C:
CONTROL GROUP QUESTIONNAIRE

Please answer the following demographical questions:

Age? _____

Gender? M F (please circle one)

Year in school? Fr So Jr Sr (please circle one)

Were you born in the United States?

If not, where were you born?

Where in the United States did you grow up?

What is the highest level of education that you have completed?

Have you ever served in the military?

If yes:

For how long did you serve in the military? _____ (months)

Have you ever been deployed to a war zone?

How many deployments have you had to war-zones?? 0 1 2 3 or more (please circle one)

For how long were you deployed? _____ (months)

Please **take a few minutes** to describe the emotions that the thought of watching television arouses in you.

Please **take a few minutes** to jot down, as specifically as you can, what you think happens to you physically as you watch television and once you have physically watched television.

Please **take the next three minutes** to find as many of the following words in the grid as you can. Make sure to be thorough in your search, but work quickly because you only have three minutes. No one is expected to find all of the words in this time period, we are simply looking at word patterns. Good luck!

S E V I T C E T E D N O T R E K N I P F E N D H E
 T V P S S Q F F Z W Q U F F H D G H L V A S E W I
 Y T R E V O P K F G D J N A O G R C F M A E P P G
 W K C S O C S B Q I C K I E A C Q E L D G K R B E
 S C X U W F G B K Q R A P C M R I L U B Y I E X N
 B S P O P U L I S T P A R T Y P U N S Q E R S U R
 P R Z R L H E J T G O N T M N P L S A R M T S O A
 T X L B I H G I Q B B S J Y E K M O A P D S I J C
 G Z C L H H D S O J E Y B G E M I I Y I N K O Y W
 L P E V J I U V F S I M R T P L L G F M N W N A E
 J V U Y X K Q E E W P O D T Y R N B Z X E N R P R
 Z Z I L F G W C U K E G R Y O B Y I W U T N Q T D
 R S Z H P T X V E G L W C A H R O Z K W H U T E N
 I S S U E O R I E N T E D P O L I T I C S W B R A
 M M U W W U Z J I J H S K M L S L W C O M R Z T D

Terms:

ANDREW CARNEGIE
 DEPRESSION
 GEORGE PULLMAN
 ISSUE-ORIENTED POLITICS
 MCKINLEY TARIFF
 PANIC OF 1893
 PINKERTON DETECTIVES

POPULIST PARTY
POVERTY
RAILROADS
STRIKES
UNEMPLOYMENT

Please take a few minutes to complete the following word fragments:

B R A _ _

S A _ _

C O F F _ _

R A _ _

Q U I _ _

G R A _ _

M O _ _

T A _ _

D E _ _

L A _ _

S H O _ _

S K U _ _

S T R E _ _

D R I _ _

C O R P _ _

P R I _ _

ME __

STI __

LI __

FA __

Please **rate on a scale of zero to ten** (0 = never, 10 = multiple times a day), how often you think about your own death. _____

Are you currently married or engaged to be married?

If yes:

At what age did you get married or engaged?

How long did you date your partner prior to making this commitment?

Have you ever been married or engaged to be married in the past?

If yes:

At what age did you get married or engaged?

How long did you date your partner prior to making this commitment?

Are you divorced?

If yes:

At what age did you get married?

At what age did you get divorced?

How long did you date your partner prior to marrying them?

Do you have any children?

If yes:

At what age did you have your first child?

How many children do you have?

If you answered no to the previous questions:

By what age would you like to be married?

By what age would you like to have children?

Please answer:

What is the shortest amount of time you would need to date someone before committing to marriage or starting a family with them?

APPENDIX D:
SOLDIER CONSENT SHEET

CONSENT TO PARTICIPATE IN RESEARCH (General)

Project Title: Exploring the Mortality Salience Paradox: The Effects of High-Risk Employment on Interpersonal Decision Making.

Researcher: Bella Etingen

Faculty Sponsor: Dr. R. Scott Tindale

Introduction:

You are being asked to take part in a research study being conducted by Bella Etingen for a thesis under the supervision of Dr. R. Scott Tindale in the Department of Psychology at Loyola University of Chicago.

You are being asked to participate because you are part of a specific demographic of individuals between the ages of 18 and 45 that are employed in a high-risk setting. This study will have approximately sixty to one hundred participants. There are no exclusion criteria for participation.

Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

Purpose:

The purpose of this study is to examine the effects that being employed in a high-risk setting may have on the life decisions that people make, especially in terms of their intimate relationships.

Procedures:

If you agree to be in the study, you will be asked to:

- Complete a brief questionnaire, which will take approximately five to ten minutes to fill out.

Risks/Benefits:

There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There are no direct benefits to you from participation, but this study will benefit society in that it will help show the effects that high-risk jobs have on people's decision making.

Confidentiality:

All data collected will be completely confidential. Participants will not be asked for any identifying information concerning themselves, the branch of the military or unit to

which they belong, or their location. The results of this study will make absolutely no mention of any of this information, and none of the data provided will be able to be linked to individual participants, their military unit, or the branch of the military to which they belong in any way.

Voluntary Participation:

Participation in this study is voluntary. If you do not want to be in this study, you do not have to participate. Even if you decide to participate, you are free not to answer any question or to withdraw from participation at any time without penalty.

Contacts and Questions:

If you have questions about this research study, please feel free to contact Bella Etingen at:

betinge@luc.edu or 224.595.2587, or the faculty sponsor R. Scott Tindale at: rtindal@luc.edu or 773.508.3014.

If you have questions about your rights as a research participant, you may contact the Loyola University Office of Research Services at (773) 508-2689.

Statement of Consent:

Your signature below indicates that you have read the information provided above, have had an opportunity to ask questions, and agree to participate in this research study. You will be given a copy of this form to keep for your records.

Participant's Signature

Date

Researcher's Signature

Date

APPENDIX E:
STUDENT CONSENT SHEET

CONSENT TO PARTICIPATE IN RESEARCH (General)

Project Title: Exploring the Mortality Salience Paradox: The Effects of High-Risk Employment on Interpersonal Decision Making.

Researcher: Bella Etingen

Faculty Sponsor: Dr. R. Scott Tindale

Introduction:

You are being asked to take part in a research study being conducted by Bella Etingen for a thesis under the supervision of Dr. R. Scott Tindale in the Department of Psychology at Loyola University of Chicago.

You are being asked to participate because you are part of a specific demographic of individuals between the ages of 18 and 45 that are Loyola University Chicago undergraduate psychology students. This study will have approximately sixty to one hundred participants. This study has no exclusion criteria.

Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

Purpose:

The purpose of this study is to examine the effects that being employed in a high-risk setting may have on the life decisions that people make, especially in terms of their intimate relationships.

Procedures:

If you agree to be in the study, you will be asked to:

- Complete a brief questionnaire, which will take approximately fifteen to thirty minutes to fill out.

Risks/Benefits:

There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There are no direct benefits to you from participation, but this study will benefit society in that it will help show the effects that high-risk jobs have on people's decision making.

Confidentiality:

Confidentiality will be maintained to the degree permitted by the technology used. No absolute guarantees can be made regarding the confidentiality of electronic data.

Voluntary Participation:

Participation in this study is voluntary. If you do not want to be in this study, you do not have to participate. Even if you decide to participate, you are free not to answer any question or to withdraw from participation at any time without penalty.

Contacts and Questions:

If you have questions about this research study, please feel free to contact Bella Etingen at: betinge@luc.edu or 224.595.2587, or the faculty sponsor R. Scott Tindale at: rtindal@luc.edu or 773.508.3014.

If you have questions about your rights as a research participant, you may contact the Loyola University Office of Research Services at (773) 508-2689.

Statement of Consent:

Your continuation with the questionnaire indicates that you have read the information provided above, have had an opportunity to ask questions, and agree to participate in this research study.

APPENDIX F:

SOLDIER DEBRIEFING

DEBRIEFING FORM

Exploring the Mortality Salience Paradox: The Effects of High-Risk Employment on Interpersonal Decision Making.

PURPOSE

The purpose of the study you have completed is to examine the effects that being employed in a field that causes individuals to be faced with the notion of their own death has on their death-thought accessibility. It will also examine the effect that mortality salience has on participant's willingness to re-arrange the time-frame of their life milestones, especially in terms of interpersonal decision making. We hypothesize that employees of high-risk fields will have a significantly higher death-thought accessibility than members of the general population. Furthermore, we hypothesize that participants employed in such settings will be more likely to place the accomplishment of life milestones associated with intimacy at the top of their priorities list, time-wise. The data will be collected across three groups: high-risk employees, and two quasi-control groups, one of which will be primed to think about their own death and one group that will not. We hypothesize that the quasi-control group that receives the death-thought prime will have a significantly higher death-thought accessibility, and will be more likely to place accomplishments of life milestones associated with intimacy at the top of their priorities list than the quasi-control group that does not. Furthermore, we hypothesize that the high-risk employee group will have a significantly higher death-thought accessibility, and will be more likely to place accomplishments of life milestones associated with intimacy at the top of their priorities list, than both of these quasi-control groups.

CONFIDENTIALITY

All data collected will be completely confidential. Participants will not be asked for any identifying information concerning themselves, the branch of the military or unit to which they belong, or their location. The results of this study will make absolutely no mention of any of this information, and none of the data provided will be able to be linked to individual participants, their military unit, or the branch of the military to which they belong in any way.

FINAL REPORT

If you are interested in obtaining a copy of the final report of this study, please contact the primary investigator, Bella Etingen, at: betinge@luc.edu or 224.595.2587.

CONTACT

If you have any questions regarding this study, its purpose or procedures, please feel free to contact the primary investigator Bella Etingen at: betinge@luc.edu or 224.595.2587, or

the faculty sponsor Dr. R. Scott Tindale at: rtindal@luc.edu or 773.508.3014. Thank you very much for your time, help and participation!

FOR FURTHER READING

- Florian, V., Mikulincer, M., & Hirschberger, G. (2002). The Anxiety-Buffering Function of Close Relationships: Evidence That Relationship Commitment Acts as a Terror Management Mechanism. *Journal of Personality and Social Psychology*, 82, 527-542.
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- Mikulincer, M. & Florian, V. (2000). Exploring Individual Differences in Reactions to Mortality Salience: Does Attachment Style Regulate Terror Management Mechanisms? *Journal of Personality and Social Psychology*, 79, 260-273.

APPENDIX G:
STUDENT DEBRIEFING

DEBRIEFING FORM

Exploring the Mortality Salience Paradox: The Effects of High-Risk Employment on Interpersonal Decision Making.



PURPOSE

The purpose of the study you have completed is to examine the effects that being employed in a field that causes individuals to be faced with the notion of their own death has on their death-thought accessibility. It will also examine the effect that mortality salience has on participant's willingness to re-arrange the time-frame of their life milestones, especially in terms of interpersonal decision making. We hypothesize that employees of high-risk fields will have a significantly higher death-thought accessibility than members of the general population. Furthermore, we hypothesize that participants employed in such settings will be more likely to place the accomplishment of life milestones associated with intimacy at the top of their priorities list, time-wise.

CONFIDENTIALITY

All data collected will be completely anonymous and confidential. Participants will not be asked for any identifying information, or be able to be linked to the data in any way.

FINAL REPORT

If you are interested in obtaining a copy of the final report of this study, please contact the primary investigator, Bella Etingen, at: betinge@luc.edu or 224.595.2587.

CONTACT

If you have any questions regarding this study, its purpose or procedures, please feel free to contact the primary investigator Bella Etingen at: betinge@luc.edu or 224.595.2587, or the faculty sponsor Dr. R. Scott Tindale at: rtindal@luc.edu or 773.508.3014. Thank you very much for your time, help and participation!

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- Mikulincer, M. & Florian, V. (2000). Exploring Individual Differences in Reactions to Mortality Salience: Does Attachment Style Regulate Terror Management Mechanisms? *Journal of Personality and Social Psychology*, 79, 260-273.

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VITA

Bella Etingen was born in Kishinev, Russia, and grew up in Chicago, Illinois. She graduated Summa cum Laude with a BS in Psychology from Loyola University Chicago in 2010. Bella is employed at the Edward J. Hines Jr. Veterans Affairs Hospital in Hines, Illinois, where she is a Research Assistant in the Spinal Cord Injury Quality Enhancement Research Initiative (SCI-QUERI) and Center for Management of Complex Chronic Care (CMC3).