CONQUERING AVOIDANCE BY AVOIDING DEATH: THE EFFECTS OF MORTALITY SALIENCE ON GOAL VALUE, GOAL COMMITMENT, AND GOAL PURSUIT IN DEPRESSIVE INDIVIDUALS

A Thesis
Submitted to the Graduate Faculty
of the
North Dakota State University
of Agriculture and Applied Science

By

Peter John Myxter

In Partial Fulfillment of the Requirements
for the Degree of
MASTER OF SCIENCE

Major Department:
Psychology

December 2010

Fargo, North Dakota

North Dakota State University
Graduate School

Title

Conquering Avoidance by Avoiding Death: The Effects of Mortality Salience on Goal Value, Goal Commitment, and Goal Pursuit in Depressive Individuals

By

Peter John Myxter

The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

MASTER OF SCIENCE

ABSTRACT

Myxter, Peter John, M.S., Department of Psychology, College of Science and Mathematics, North Dakota State University, December 2010. Conquering Avoidance by Avoiding Death: The Effects of Mortality Salience on Goal Value, Goal Commitment, and Goal Pursuit in Depressive Individuals. Major Professor: Dr. Brian Ostafin

Research into the antecedents and consequences of successful goal pursuit is reviewed within the framework of a proposed existential intervention for depression. Behavioral perspectives propose that insufficient goal pursuit and concomitant positive reinforcement leads to depressed mood. While substantial research has been conducted examining the relation between goal pursuit and psychological well-being, little research exists regarding strategies for fostering increased motivation for goal pursuit in depressed individuals. This review suggests that novel strategies for increasing goal pursuit motivation can be derived from the existential paradigm of Terror Management Theory (TMT). Past TMT research indicates that reminders of mortality lead to greater valuing of the standards and values of one's cultural worldview. The current study screened a sample of individuals exhibiting depressed mood to examine whether reminders of mortality lead to greater valuing and pursuit of individualized goals. Participants were randomly assigned to mortality salience or control condition and completed depression and well-being measures in a baseline session and a follow-up session two weeks later. Results indicated that reminders of mortality did not lead to greater valuing and pursuit of individualized goals.

ACKNOWLEDGMENTS

I would like to acknowledge a number of people for their contributions to this project. First, I would like to express my gratitude towards my advisor, Dr. Brian Ostafin, whose expertise and guidance made this thesis possible. I feel it is necessary to also thank the other members of my committee, Dr. Clay Routledge, Dr. Paul Rokke, and Dr. John Helgeland, who each brought unique and invaluable insights to the project. Also, thank you to lab assistants Wyatt Brossart, Kyle Kassman, and Luke Soeby for all their help. Last, but not least, I would like to extend my gratitude to my wife Jessica, along with all my family and friends for their support throughout the entire process.

TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

LIST OF APPENDIX TABLES

INTRODUCTION

Behavioral Perspective of Depression and Intervention

Mood disorders are some of the most prominent mental health problems in the United States today. For example, Major Depressive Disorder is one of the most commonly diagnosed mental disorders among adults. In the U.S., lifetime prevalence rates are about 17% overall, 20% to 25% for women, and 9% to 12% for men (Craighead, Ritschel, Arnarson, & Gillespie, 2008). Research also suggests prevalence of depression is increasing, with a lifetime prevalence rate of 30% predicted for a recent adolescent age cohort (Lewinsohn, Rohde, Seeley, & Fischer, 1993). The costs of depression are severe. Depressive individuals suffer from a variety of emotional, behavioral, and cognitive symptoms, which can result in financial loss from missed work, damaged personal relationships, and, in severe cases, death by suicide (Craighead et al., 2008).

The behavioral model of depression proposes that a lack of positive reinforcement for non-depressive behaviors is the causal factor of depressive affect (Ferster, 1973; Lewinsohn, 1974). In other words, when positive reinforcement derived from everyday goal-oriented activities such as going to school or work, being with friends, and exercising is decreased, depression symptoms will increase. This reinforcement is based on three elements: the number of reinforcing activities an individual engages in, the amount of positive reinforcement the environment is able to provide, and the ability of the individual to elicit reinforcement from the environment (i.e. social skills) (Craighead et al., 2008). For instance, imagine a man suffers an aversive event, such as getting fired from his job. This occurrence is not only punishing (e.g., shame), but also reduces the amount of positive reinforcement his environment can provide him, such as money, social connection with co-

workers and a sense of self value. Lacking customary opportunities for meaningful goal pursuit, the individual may experience a concomitant decrease in mood state. If this individual also lacks of social skills, he may be unable to create new, non-work related opportunities for positively reinforcing social interactions. Incipient negative mood may lead to the employment of passive coping behaviors, such as avoidance (Dimidjian, Martell, Addis, & Herman-Dunn, 2008). By not attempting to meet new people, he ensures that he will not find himself in an unknown, potentially embarrassing or uncomfortable situation. The ability to evade such negative affect means the avoidance behavior may become negatively reinforced with the consequence that avoidant behavior patterns become the norm, locking the individual into an environment devoid of potential positive reinforcers (Hopko, Lejuez, Ruggiero, & Eifert, 2003a).

Given this framework, behavioral therapists propose that creating interventions that increase access and exposure to pleasant events and positive reinforcers as well as decreasing the strength and frequency of aversive events and consequences, depressive affect could be abated (Craighead et al., 2008). These interventions consist of a number of components such as daily monitoring of pleasant and unpleasant events along with coinciding mood states and behaviors, activity scheduling, and social skills development. For example, one study compared the effects of interpersonal skill development and pleasant event scheduling on depressed affect (Zeiss, Lewinsohn, & Muñoz, 1979). Patients in the interpersonal skills condition were taught to increase assertiveness, improve their interpersonal style (i.e. reduce whining, increase involvement in conversations), and increase social activity through instruction and modeling of their therapist. Patients in the pleasant events scheduling condition monitored their pleasant events on a checklist while at

the same time monitoring their mood during the activities. These patients worked to increase the frequency of activities that corresponded with increased positive mood. Results indicated that both treatments were effective in alleviating depression, as well as generating improvement on measures covering social skills and pleasant activities. While initially well-received, these interventions fell out of favor with many in the psychological community during the latter part of the twentieth century, largely due to increased interest in cognitive therapy, which focuses on correcting dysfunctional thoughts (Beck, 1976). Cognitive therapy rose to prominence due in large part to Aaron Beck's development of specific, testable hypotheses and clinical protocols (Young, Rygh, Weinberger, & Beck, 2008). A key feature of these hypotheses and protocols was the explicit recognition of the importance of specificity, that is, the specific ways that negative thinking affects a particular individual (Salkovskis, 1996). The absence of these cognitive manipulations was widely regarded as a limitation of behavioral treatments (Hopko, et al., 2003a).

Recently, however, more attention has been paid to purely behavioral therapies for depression due to their time-efficient and cost-effective nature, as well as the relative ease of training compared to other treatment modalities (Hopko, et al., 2003a). Behavioral therapies also continue to receive empirical support. Hopko, Armento, Cantu, Chambers, Lejuez (2003b) conducted a study in which subjects kept daily diary recordings of mood states, overt behaviors, and reward values of activities. The researchers hypothesized that individuals with depressive symptoms would report lower immediate and future reward value of activities, lower levels of general activity, more depressed mood, and reduced pleasure and activity. Participants were instructed to record their overt behaviors every couple hours and rate how pleasurable the activity was for them (immediate reward value),

as well as how likely they felt that the behavior would lead to a future reward (future reward value). Then, at the end of each day they were to complete a mood measure. Results indicated that individuals who were mildly depressed spent significantly more time than non-depressed individuals engaged in activities that produced little immediate reward and that were perceived as very unlikely to provide long-term reward. The opposite held true for non-depressed subjects, who spent significantly more time engaged in activities with high immediate and future reward value (Hopko, et al., 2003b). Hopko and Mullane (2008) ran a similar diary study, this time having participants code their behavior for each half hour as one of 13 types of activities (e.g. "social", "physical", "passivity/sedentary"). Results supported the hypothesis that mildly depressed participants engaged in fewer social and physical behaviors, however they did not differ significantly from non-depressed individuals in the amount of pleasure derived from activities. These studies support the behavioral perspective that depressed affect is a consequence of lack of engagement with positive reinforcers.

There are other factors that suggest that behavioral treatments may be preferable compared to cognitive or cognitive-behavioral therapies. First, the benefits of cognitive-behavioral treatments for depression often occur during in the early sessions when behavioral components are more prominent (Hollon, Shelton, & Davis, 1993). This suggests that addressing dysfunctional thoughts (a key cognitive therapy strategy) may be less important than focusing on behavioral techniques. Second, there are data showing that cognitive change may be just as likely to occur using behaviorally-based interventions as it would with cognitive therapies. Jacobson et al. (1996) randomly assigned 150 outpatients with major depression to one of three treatment conditions: behavioral activation,

behavioral activation and the modification of dysfunctional automatic thoughts, and full cognitive-behavioral therapy. The behavioral activation condition consisted of 20 sessions of intervention elements focused on activating the individual in their environment (i.e. daily activity monitoring, assessment of perceived pleasure and mastery derived from activities, communication skills training). In the activation and modification of automatic thoughts condition, therapists were allowed to use all activation strategies, as well as use cognitive therapy strategies to challenge individuals' "cognitive distortions," which are negative construals of different events that bring about sad feelings and depressive behavior. The full cognitive-behavioral therapy condition allowed therapists to employ all intervention strategies included in the other conditions, as well as the identification and modification of negative *schemas*, which are the dysfunctional and stable underlying patterns of thought from which cognitive distortions arise. Results showed statistically equivalent outcomes for all conditions both at termination and at a 6-month follow-up. The behavioral activation condition was just as effective as the two interventions that included cognitive elements in altering negative thinking and negative attributional styles (Jacobson et al., 1996), suggesting that cognitive strategies may be an unnecessary addition to behavioral interventions. Third, the advent of managed mental health care has created a need for psychological interventions to be time limited and empirically validated (Peak & Barusch, 1999). Behavior therapies fit this mold, having solid empirical validation and a usual treatment duration of around 16 weeks (Dimidjian et al., 2008). Cognitive and cognitive-behavioral therapies also fit this mold, however the more parsimonious nature of behavior therapies give them an advantage. It makes the treatments more accessible to less experienced therapists, intervention choices are fewer and more straightforward, and also

are more amenable to less costly alternatives to psychotherapy such as self-administered or peer support treatments (Jacobson et al., 1996).

The Jacobson et al. (1996) findings led to a more refined development of behavioral activation (BA) intervention. Although recently developed (Martell, Addis, & Jacobson, 2001), BA is grounded firmly in the traditional behavioral ideas of depression. It emphasizes that an individual's environment as well as their activity, or lack thereof, are of central importance in understanding depression in that an individual who is less engaged within their environment or whose environment contains few positive reinforcers will more likely suffer from depressive symptoms. However, BA therapy expands on traditional behavioral interventions for depression in several ways (Hopko et al., 2003a). The primary advance from traditional behavioral interventions regards the BA focus on idiographic sources of positive reinforcement. In traditional behavior therapies, pleasant events alone are targeted in order to increase an individual's exposure to things that are pleasant and rewarding, with no focus placed on the context in which the individual resides or the function of their behaviors (Lewinsohn & Graf, 1973). In contemporary BA, more emphasis is placed on goals rather than positive affect. It deals more with the idiographic meaning behind individuals' behaviors rather than just amount of pleasure gained from an activity. What makes BA more idiographic is its focus on the functional and environmental aspects of behaviors and behavioral change. In BA, a functional analysis of the patient's behaviors is conducted, consisting of three main parts. The first part involves identifying what in their environment triggered the individual's depression and what is maintaining their depressive symptoms. The second part is an idiographic assessment of the individual's needs and goals where the therapist tries to discover what the individual is

trying to achieve through his or her behavior. The final part consists of figuring out what behaviors or environmental stimuli would be the best to target in order to bring about desired change (Hopko et al., 2003a). These steps ensure a more specific and in-depth analysis of the individual and their environment than those provided by traditional behavioral approaches. A second difference between BA and traditional behavioral therapies is that BA gives more credence to private events (cognition) than do the traditional approaches. That is, BA acknowledges the ongoing controversy between cognitive and behavioral schools of thought (Hopko et al., 2003a). The first behaviorists believed that only observable, controllable actions were considered "behaviors", and that interruptions to positively reinforced behaviors were associated with depression (Skinner, 1953). Contemporary behaviorists, however, recognize the large amount empirical support connecting faulty cognitions to depression and realize that dysfunctional thoughts do, in fact, have an effect on a person's mood. In BA, though, these cognitions are not viewed as the main causes of depression and, therefore, are not targeted directly in treatment. Rather, cognitive change is anticipated to occur as a result of changes to overt behavior (Hopko et al., 2003a).

Evidence for the efficacy of BA has been promising. In a large, randomized clinical trial, Dimidjian et al. (2006) compared the efficacies of three different treatments for major depression. Two hundred forty-one individuals were randomly assigned to one of four conditions: 1) twenty-four sessions of behavioral activation therapy (BA), 2) twenty-four sessions of cognitive therapy (CT), 3) antidepressant medication (ADM), and 4) a placebo pill. The behavioral activation therapy consisted of self-monitoring, daily activity scheduling, and pleasure ratings for behaviors, as well as an increased focus on the

assessment and treatment of avoidance behaviors. The reason for this is that avoidance reduces the opportunities to contact positive reinforcers and creates or exacerbates new problems in addition to the decreased activity. The expanded BA intervention was administered over 16 weeks and addressed avoidance behaviors by promoting engagement with activities and contexts that are reinforcing and consistent with long-term goals. The CT intervention was also administered over 16 weeks and consisted of interventions targeting observable, dysfunctional behaviors, situation-specific negative thinking and cognitive distortions, and underlying schemas. The ADM (paroxetine) and placebo pills were administered in a triple-blind manner for 8 weeks, after which the blind was broken and participants taking the placebo were offered their choice of treatment. Depression levels were measured in the middle of and after treatment (about 8 and 16 weeks) using the Beck Depression Inventory and Hamilton Rating Scale for Depression. Since pretreatment severity of depression has been seen in previous research as having a moderating effect on treatment outcomes (Elkin et al., 1989), initial Hamilton Rating Scale scores were used to divide subjects into low and high severity groups. There was significant overall improvement for all groups. Results indicated that BA is comparable in efficacy to antidepressant medication and more efficacious than cognitive therapy at both the 8 and 16 week assessments. These differences were only observed in the high depression severity group. The authors believed that the targeting of avoidance behaviors could be the reason for this. More severely depressed individuals may be more entrenched in avoidance-based emotion regulation than less severely depressed ones, meaning that focusing on eliminating avoidance should have a greater impact in individuals with higher severity. Overall, BA also brought a significantly higher percentage of participants to remission (≤ 7 on the

Hamilton and ≤ 10 on the BDI) and retained the greatest percentage of participants in treatment. CT in this study did not significantly differ from a placebo (Dimidjian et al., 2006). The researchers later tested participants at one and two year follow-ups and found that both the BA and CT interventions were more effective at preventing relapse or recurrence of symptoms compared to continued antidepressant medication use. Last, while initially more expensive ($2000 for BA or CT during acute treatment phase, compared to $1000 for antidepressants), in the long run BA and CT were found to be less costly than continued ADM use ($2000 for BA or CT at first year follow-up, compared to around $3500 for antidepressants; Dobson et al., 2008). These results suggest that BA may be a viable alternative to antidepressants as the standard treatment for severe depression.

Social Cognition, Goals & Enhancing Goal Pursuit

The BA research suggests that pursuing valued goals can help in decreasing depressive affect. However, much still needs to be learned regarding how to enhance the commitment to goal pursuit in individuals with depression. A large body of social cognition research has been conducted examining the factors affecting goal pursuit, suggesting ideas that could enhance BA interventions (Erez & Zidon, 1984; Alexander & Schuldt, 1984; Hollenbeck & Williams, 1987; Dodd & Anderson, 1996).

Although goals are often seen as single, monolithic entities, they can be viewed hierarchically. For example, Emmons (1986) introduced the concept of personal strivings. *Personal strivings* represent what a person is characteristically trying to accomplish through their behaviors, the purpose of that behavior. Personal strivings are overarching constructs which organize and integrate a person's goals. Strivings can be accomplished through several different concrete goals. For example, an individual who has a personal

striving of "being healthy" could pursue the striving through a number of specific goals such as cutting down on junk food and exercising more regularly.

Similar to BA research, social cognition researchers have found that activity related to attaining a goal, known as *goal striving*, has a relation to well-being (Emmons & Diener, 1985). Emmons (1986) had students create a list of 15 personal strivings and rated each on a series of measures, including value, ambivalence, and commitment. Subjects were also asked to rate their moods and thoughts at four random times of the day over a 3-week period. Results displayed that positive affect was strongly correlated to striving value, past striving fulfillment, and the amount of effort required by the striving. Conversely, negative affect was highly related to lower perceived probability of success and striving ambivalence (Emmons, 1986). Results also suggest that personal striving characteristics, such as value, past attainment, and effort, are responsible for greater amounts of variance in subjective well-being than personality traits such as interpersonal competency and locus of control, among others (Emmons & Diener, 1985).

In addition to predicting well-being overall, different types of strivings can have differential effects on well-being. For example, Emmons (1992) found that individuals who are *high-level strivers* (describe their goals in primarily broad, abstract, expansive ways) experience more psychological distress than those who are *low-level strivers* (describe their goals in primarily concrete, specific, and superficial ways). The suggested reason for this outcome is that high-level strivings are more difficult to achieve, therefore progress towards these goals seems slower, even nonexistent (Emmons, 1992). For instance, someone who strives to "strengthen his relationship with God" will have a more difficult time realizing the progress made toward this abstract end than another similar individual

who frames their strivings at lower, more concrete levels (i.e., "Read my Bible", "Go to church every week"). This is greatly related to depressive individuals due to the abstract, dysfunctional, and often unattainable nature of their thoughts and goals (i.e. "I have to be perfect", "Everyone has to like me"; Muran & Motta, 1993), suggesting that goal pursuit interventions with depressive individuals should focus on creating low-level strivings.

Persistent pursuit of difficult to attain goals leads to increased negative affect and frustration (Klinger, 1975). In most cases, these negative moods result in disengagement and abandonment of the striving. This is adaptive as it prevents continued feedback that the striving is not being achieved (and concomitant negative affect) and allows the individual to redirect effort and time towards other activities that have a higher likelihood of success (Wrosch & Miller, 2009; Nesse, 2000). This, however, often does not occur in depressive individuals due to their tendency towards rumination as a coping mechanism (Craighead et al., 2008). This suggests that interventions with depressed individuals should focus on strivings that are attainable.

In addition to the types of goals that are chosen, goal pursuit interventions with depressed individuals would benefit from strategies designed to enhance the strength of goal pursuit. One of the most important variables influencing goal pursuit is goal commitment. *Goal commitment* refers to one's determination to reach a goal (Klein et al., 1999). Without a commitment to attain something, a goal can have no motivating effect (Locke, Shaw, Saari, & Latham, 1981). This relationship has been demonstrated in research showing that increased goal commitment leads to higher performance in goal pursuits (Klein et al., 1999). Goal commitment also works as a moderator between goal

difficulty and performance, with high performance coming only when goal difficulty and goal commitment are high (Locke & Latham, 1990).

Goal commitment has been demonstrated to be influenced by goal types (Higgins & Silberman, 1997). Higgins and Silberman (1997) believed that individuals have two different types of goals: ideal goals and ought goals. Ideal goals involve hopes and aspirations and have a promotion focus, while ought goals involve duties and obligations and have prevention focus. Promotion-focused individuals are sensitive to the presence or absence of positive outcomes, and prevention-focused individuals are sensitive to the presence or absence of negative outcomes. Prevention focus, in particular, has been shown to be related to goal commitment. Liberman, Idson, Camacho, and Higgins (1999) investigated the relation between regulatory focus and resumption of an interrupted task as a measure of increased goal commitment. In the study, participants were interrupted in the middle of performing a task and asked if they would prefer to start a new task or resume the previous one. Results indicated that prevention-focused subjects (as defined by reaction times on a pre-task measure) were significantly more likely to resume the interrupted task. In another study, Shah, Friedman, and Kruglanski (2002) had participants list two attributes which it was their goal to possess and one attribute that would be a fireman's goal to possess (nongoal). They then rated the extent they felt attaining the goal was an obligation and ideally how much they would like to attain that goal. Participants then completed a modified lexical decision task where, after being primed by either one of their goal words (e.g., happy) or an unrelated word (e.g., house), they had to decide whether the target word was related to their second goal word or not. Goal inhibition was measured by reaction time of recognizing the second goal word after being primed with the

first goal word. Results indicated that the more the goal prime was seen as an obligation (prevention-focused), the more alternative goals were inhibited.

Another important goal pursuit variable is the degree of importance attributed to attaining a goal, also known as *goal value*. The amount of value prescribed to a goal can affect the intensity with which it is pursued in that goals that are perceived as more important are likely to be pursued more intensely than those viewed as less important (Hollenbeck & Williams, 1987). Past research indicates that goal value can be successfully manipulated in the laboratory. Biner (1987) had undergraduates memorize either 8 (low difficulty) or 45 (high difficulty) nonsense shapes for rewards of either $1 (low reward) or a record album (high reward). They were also asked how attractive their respective rewards were and how much effort they planned to put into the task. Results indicated that the students rated the high reward as more attractive, having more value, than the low reward at both difficulties, and reported that they would put more effort forth to receive the higher reward. This research indicates that goal value can be directly manipulated, facilitating goal commitment. Other areas of social cognition research suggest novel, indirect strategies for using self-identity to enhance goal value and commitment.

Unlike Biner's (1987) study, the outcome of goal attainment is often symbolic rather than monetary. For instance, many people strive to do good things like volunteer their time to a worthy cause or make a donation to a charity they care about. They do this not for financial or material gain, but in order to feel like they are living their lives the way they should as part of a larger community. More research into the importance of and commitment to these types of goals is needed, and existential perspectives on motivation may provide a novel approach to this line of study. According to existential thinkers like

Ernest Becker (1973), an important underlying motivation for these behaviors is related to the fear of death. Becker proposes that, like other living creatures, human beings have an innate propensity to sustain their existence. However, unlike other living creatures, human beings possess more complex mental abilities that allow us to think abstractly. Along with this ability comes the awareness of our own inevitable mortality. The vulnerability and helplessness brought about by this fact is capable of causing paralyzing fear. Why doesn't this happen? What protects us from these daunting thoughts?

Terror Management Theory (TMT; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989) proposes that there are two main structures which provide protection from this death anxiety. The first structure is a *cultural worldview* (Solomon, Greenberg, & Pyszczynski, 2004). A cultural worldview is a set of beliefs about reality shared by a group of individuals that serve to reduce the anxiety brought about by awareness of death. These shared realities are developed by humans over time and become embedded in society (Berger and Luckmann, 1966). A common example of a cultural worldview is religion. Most religions offer stories of the origins of the universe, guidelines for appropriate behavior, guarantees of safety and security, and promises of literal immortality (afterlife). This immortality can also be symbolic, such as having your name live on through works of art or through monetary wealth. Worldviews provide comfort by giving people the feeling that they are an important, valued member of a meaningful universe (Solomon et al., 2004).

The second structure crucial to Terror Management is *self-esteem*. In TMT, self-esteem is the belief that an individual is a person of value in a universe of meaning. By meeting or exceeding cultural values and norms, people attain self-esteem and the implicit or explicit promise of immortality. This allows them to maintain psychological equanimity

despite the knowledge of their inevitable death (Solomon et al., 2004). Therefore, according to TMT, self-esteem is a universal need. Although a universal need, self-esteem is pursued by culturally specific means. Each culture in the world has different standards by which value is measured (Akiba & Klug, 1999; Penner & Anh, 1977), such as individualism and self-reliance in the United States (Buda & Elsayed-Elkhouly, 1998) or collectivist behavior in some native African tribes (Van Wormer, Besthorn, & Keefe, 2007).

Much of the TMT research employs *mortality salience* (MS) inductions to test the importance of cultural worldviews and self-esteem as buffers against death anxiety. In a mortality salience induction, the subject is reminded of their mortality in a variety of ways (e.g. writing/reading about death, being presented with death related stimuli). If TMT is upheld, reminders of death should motivate increased need, salience, and defense of the subject's cultural worldview, and increased self-esteem striving as a way of assuring oneself that death transcendence will be achieved (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004).

Recent TMT research has found that the symbolic defenses that cultural worldviews and self-esteem provide are not the only type of defense reaction to death awareness. Pyszczynski, Solomon, and Greenberg (1999) argue for a dual-process model of defense against death-related thoughts. The first process is known as *proximal defense*. Proximal defenses deal with conscious thoughts of death. They remove death-related thoughts from consciousness and/or push death into the distant future. For example, an individual may respond to a conscious awareness of death thoughts by reminding themselves how good their health is or by suppressing the thoughts entirely. Proximal defenses are "rational,"

occur immediately after mortality salience, and do not occur in response to subliminal death stimuli. The second process is known as *distal defense*. Distal defenses occur when death thoughts are accessible, but not in focal consciousness (e.g., during a distraction task after consciously thinking about one's death). Distal defenses deal with death at a level different from which the death threat is presented. That is, distal defenses are ones that involve bolstering the symbolic cultural worldview or sense of self-esteem, both of which protect against death awareness. Distal defenses bolster worldview defense by embedding an individual as a valuable member of a death-transcending reality (Pyszczynski, Solomon, & Greenberg, 1999).

The idea that cultural worldviews provide a buffer against mortality awareness has been examined in dozens of studies. For example, in Greenberg et al. (1990), the MS induction condition consisted of participants receiving a questionnaire packet containing questions pertaining to what they think will happen to them physically after they die and the emotions that were aroused by the thought of their own death. The control group did not receive a questionnaire packet. The value of the cultural worldviews was operationalized by evaluations (positive or negative) of individuals who were representatives of subjects' worldviews and individuals who were representatives of worldviews different from those of the subjects. After MS, subjects were asked to evaluate others based on religious affiliation (Christian/Jewish), similar/dissimilar personalities (authoritarian/nonauthoritarian), and praise/criticism of their own worldview (pro-USA/anti-USA). Results supported TMT in all three studies in that after an MS induction, Christians rated Christian targets more favorably and Jewish targets more negatively (study 1), authoritarian subjects judged nonauthoritarian subjects more negatively (study 2), and

subjects (who were all American) positively evaluated targets who agreed with and praised their worldview (pro-U.S.A.), and negatively evaluated targets who criticized their worldview (anti-USA; study 3; Greenberg et al., 1990).

According to TMT, cultural worldviews stipulate the standards and goals for individuals to pursue in order to attain a meaningful life and to transcend mortality. As can be seen by the Greenberg et al. (1990) results, cultural worldviews have distinctive components (e.g., there may be 'Christian' and 'Jewish' worldviews nested in a larger 'American' worldview) which may be more or less important to each individual. This fact supports the idea that death awareness may increase the importance of idiographic goals (i.e., standards and values pursued in order to attain self-esteem). Additionally, to the extent that an MS induction could increase the value of idiographic goals, there should be more goal commitment and effort.

To test the effect of MS on self-esteem striving, Jonas, Schimel, Greenberg, and Pyszczynski (2002) examined the influence of MS on helping behaviors (which are valued in many cultures). In the first study, pedestrians walking on the street were interviewed about their attitudes toward two moderately important charities either in front of a funeral parlor (MS), or several blocks away from the funeral parlor. Results showed that subjects in the MS condition increased their favorability toward charities. In the second study, students were given $1.50 for participating and then asked to fill out a series of questionnaires, some of which included an MS induction. After completing the questionnaires, experimenters asked if the subjects would be interested in donating any of the money earned from the study to either an American or international charity. Results show that subjects in the MS condition, on average, donated significantly more than control

condition, but only to the American charity (Jonas et al., 2002). Routledge, Arndt, and Goldenberg (2004) conducted research examining MS effects on self-esteem striving through individuals' interest in improving their appearance through tanning. They hypothesized that participants for whom tanning was made attractive and who were made aware of their mortality would exhibit more motivation to tan by indicating greater interest in using a tanning salon. In study 2, participants were primed to associate tanned skin with attractiveness by being shown an advertisement featuring a tanned woman (as opposed to a beach ball advertisement in the control condition) and then administered an MS or control induction. Results supported the hypothesis that MS would lead to increased interest in tanning in participants who were primed to value tan skin. As a whole, this research shows that when confronted with death, self-esteem striving is employed as a means of pursuing the goal of living up to the standard of the cultural worldview. Thus, TMT research indicates that when confronted with their own death, individuals respond with increased valuing of the standards/values that give their life meaning and increased pursuit of those standards/values.

Do these same MS responses hold true for individuals who are depressed? Recent research suggests it does. In fact, a pair of studies conducted by Simon and colleagues (1996) found that subjects who were mildly depressed showed greater worldview defense than non-depressed subjects. The authors believe the reason for this is because mildly depressed individuals' connections to their worldviews are present, but tenuous; therefore, greater defense is needed to buffer their anxiety. Later research has replicated these findings, and also found that these higher levels of worldview defense lead to a corresponding increase in the perceived meaningfulness of life (Simon, Arndt, Greenberg,

Pyszczynski, & Solomon, 1998). These studies suggest the potential benefit in using MS inductions to increase the salience of idiographic goals in mildly depressed individuals.

In summary, there is a large body of literature which suggests that goal pursuit can provide many benefits to an individual's psychological well-being, including a decrease in depressive affect. However, much remains to be learned regarding how to improve the successful pursuit of goals. Social cognition research indicates that goal commitment and goal importance are two crucial variables related to the motivation of achieving individual goals. Terror Management Theory offers an intriguing possibility for increasing goal importance and commitment in depressive individuals.

Study Overview

Given that goal pursuit can alleviate depressed affect and its negative consequences, it would be of great value to develop interventions that would aid in increasing goal pursuit. The aims of this study are to examine whether a mortality salience induction can lead to (a) enhanced goal value, goal commitment and goal pursuit, and (b) decreased negative affect and increased psychological well-being. These aims will be examined by recruiting mildly depressed individuals and exposing some participants to a mortality salience induction before having all participants rate the value of and their commitment to two goals they are pursuing, and then returning 2 weeks later to report their goal pursuit success and mood state. The first hypothesis is that participants who are reminded of their mortality will demonstrate defense of their cultural worldview by evaluating their goals as more important and being more committed to the goals than will a control group. The second hypothesis is that participants in the mortality salience condition will report greater goal-pursuit success than the control group at a 2-week follow-up. The third hypothesis is

that at a 2-week follow-up, participants in the mortality salience condition will report less depression and greater positive affect than the control group.

METHOD

Participants

Fifty-four participants (29 female, 25 male, M=20.3 years old) were recruited from undergraduate psychology classes at North Dakota State University, and volunteered for participation by signing up online. Participants were recruited from the lower median of the WHO-5 Well-Being Index (Bech, 1998), which was included as part of a mass screening questionnaire. The inclusion criteria included those who scored in the lower median of the WHO-5 scale and were fluent in English. The screening also included an item pertaining to alcohol consumption. Individuals who reported binge drinking (5 or more drinks in 2 hours for males; 4 or more drinks in 2 hours for females) more than once a month were excluded from participating. Potential participants were e-mailed and invited to take part in the study. Participants received extra credit points in exchange for participating in the study.

Measures

All self-report measures can be found in Appendix A. IAT stimuli can be found in Appendix B.

WHO-5 Well-Being Index (Bech, 1998). The WHO-5 is a 5 question, self-report measure with a likert like scale (i.e. 5 = all the time to 0 = at no time). Participants were asked to choose how often they have felt a certain way over the past 2 weeks. An example of a statement from this measure is: "I have felt cheerful and in good spirits."

Beck Depression Inventory (BDI-I; Beck et al., 1961). The BDI-I is a 21-item self-report measure of depressive symptoms. The BDI-I uses a likert scale ranging from zero to three to assess the frequency of items such as sad feelings and suicidal thoughts. The BDI-I demonstrates good psychometric properties, including internal consistency

(*alpha* = .64 in the baseline session and *alpha* = .68 in the follow-up session) and strong relationships between scores and clinician ratings for depth of depression (Beck et al., 1961). The BDI-I also displayed a test-retest reliability of $r = .53, p = .0004$.

Life Attitude Scale (LAS; Lyon & Younger, 2005). The LAS is a 10-item self-report questionnaire which measures the presence of meaning in life (e.g., "My day-to-day life has meaning"). Items are scored on a likert scale (i.e. -3 = completely disagree to 3 = completely agree). The LAS showed good internal consistency (*alphas* = .79(initial) and .81(follow-up)). The LAS also displayed a test-retest reliability of $r = .66, p = 6 \times 10^{-8}$.

Subjective Vitality Scale (Ryan & Frederick, 1997). The Subjective Vitality Scale is a seven-item self-report measure which measures one's state of feeling alive and alert, to having energy available to the self. The measure uses a likert scale (i.e. 1 = not true at all to 7 = very true) to assess 7 items related to feeling alive, alert, and energetic (e.g., "I feel alive and vital"). The scale demonstrated good internal consistency (*alphas* = .82(initial) and .86(follow-up)). The Vitality scale also displayed a test-retest reliability of $r = .27, p = .27$.

Implicit measure of well-being. The Implicit Association Test (IAT; Greenwald, McGee, & Schwartz, 1998) was used as an implicit measure of well-being. The IAT was presented on Inquisit software (Millisecond Software, 2006). The self-esteem IAT had participants categorize stimuli from four categories: two target categories (i.e. self and others) and two attribute categories (i.e. positive and negative) by pressing the two possible response keys. Response keys were paired with a specific target and attribute category during the critical blocks. Over two critical blocks, the target category was matched with each of the attribute categories. An example for this case, the left key was pressed

whenever a "self" related word or positive stimuli was presented and the right key was pressed when an "other" related word or avoid stimuli was presented. The theory behind the IAT is that faster response times for both the target and attribute stimuli when paired on same key reflect stronger stimulus-affect associations. The IAT score was then calculated as the difference between congruent and incongruent response times. The larger the difference suggests a stronger stimulus-affect association, in this case, greater self-esteem.

Specifically, the stimuli for the self-esteem IAT consisted of five self-related stimuli (e.g., me, mine, self), five other-related stimuli (e.g., they, them, their), five positive (e.g., caress, lucky), and five negative (e.g., abuse, jail) stimuli (see Appendix C for all stimuli). The self-esteem IAT was presented in seven blocks: the first consisted of a 20-trial target discrimination block, the second was a 20-trial attribute discrimination block, the third a 20-trial practice congruent combination block (i.e. left key = self + positive, right key = others + negative), the fourth a 40-trial critical block of the congruent combinations, the fifth a 20-trial target discrimination block where target categories were reversed, sixth was a 20-trial practice incongruent combination block (i.e. left = other + positive, right = self + negative), and lastly a 40-critical block of incongruent combinations. The stimuli for target and attribute discrimination blocks was randomly presented while those for combination blocks were randomly presented with the restriction that trials will alternate between target and attribute stimuli. During the critical combination blocks, stimuli were presented twice. A 250 ms interval separated each trial after responses had been made in the blocks. The Self-Esteem IAT displayed a test-retest reliability of $r = .53$, $p = .0003$.

Goals Survey. The Goals Survey consisted of spaces for participants to write down two personal striving attributes: one that described how they would ideally like to be

("ideal self"), and one that described how they think they should be ("ought self"). For each attribute, another space was provided for the participant to write down one specific goal behavior they can achieve in order to achieve the attribute. Participants were also asked how difficult they felt it would be to achieve the behavioral goal (0 = very easy to 10 = very difficult).

Goal Ratings. Goal Ratings consisted of questions pertaining to the importance of each goal, their commitment to the goal, and the amount of effort they would put forth to achieve the goal. These items were scored on a likert scale (i.e. 0 = Not/None at all to 10 = Very/A lot). Subjects' ratings of goal importance, commitment, and effort for both goals on the survey were aggregated into a single variable. The measure displayed an internal consistency measure of alpha = .85.

Goal Success Survey. The Goal Success Survey consisted of the two goals written down by the participant during the baseline session. For each goal, there was a question pertaining to how much effort they put forth towards achieving the goal and how successful the participant was in achieving the goal over the past two weeks. These items were scored on a likert scale (i.e. 0 = None to 10 = A lot). Subjects' ratings of goal pursuit success and effort for both goals on the survey were aggregated into a single variable. The measure displayed an internal consistency measure of alpha = .68

Procedure

The study consisted of two sessions: a baseline session and a follow-up session two weeks after the baseline session.

Baseline Session

After completing an informed consent, participants listed two personally important goals that they were trying to achieve over the succeeding month on the Goals Survey. These goal lists were handed to the experimenter upon completion so that the experimenter could copy them to the Goal Rating form. Participants then completed baseline measures of psychological distress and well-being. Participants were randomly assigned to one of two conditions: mortality salience (MS; writing to thoughts/feelings related to one's mortality; $n = 28$) or control (writing about thoughts/feelings related to experiencing dental pain; $n = 26$) (see Appendix C for details). Participants' essays were read and coded for death and defensiveness (mention of afterlife) by the experimenter as a manipulation check. After the MS manipulation, participants rated the importance, commitment to, and predicted effort intentions regarding each of their two goals on the Goal Rating form. The experimenter then handed each participant a sheet with their respective goals as they exited the laboratory.

Follow-up Session

The follow-up session took place approximately two weeks after the baseline session. Participants first completed the Goal Success survey to assess the amount of success they had in achieving their two goals during the previous two weeks. Participants then completed the same measures of psychological distress and well-being that were completed at the baseline session. Last, the participants were debriefed.

RESULTS

Independent samples t-tests were conducted to analyze all three main hypotheses.

Goal Importance and Commitment

The study's first hypothesis stated that participants in the MS condition would show higher scores on an aggregated measure of goal importance, goal commitment, and goal pursuit effort. The results indicate that this hypothesis was not supported, with the MS condition (M=8.2, SD=1.4) not differing significantly from the control condition (M=8.1, SD=1.5; $t(1, 53) = -.41, p = .69$).

Goal Pursuit Effort

The study's second hypothesis stated that participants in the MS condition would show higher scores on an aggregated measure of goal success and goal pursuit effort at the 2-week follow-up session. The results indicate that this hypothesis was not supported, with the MS condition (M=6.5, SD=1.8) not showing a statistically significant difference from the control group (M=6.7, SD=1.7; $t(1, 53) = .50, p = .62$).

Depression and Subjective Well-Being

Means and standard deviations for all baseline and follow-up measures can be found in Table 1 and Table 2 (Note: mean values for the WHO-5 pre-screening are not available). The study's third hypothesis stated that participants in the MS condition would report lower levels of depression and higher levels of subjective well-being at the 2-week follow-up session. This hypothesis also was not supported. Initial analyses conducted for baseline measures indicated no statistically significant differences between conditions for any of the depression or well-being measures. There was no significant difference found for levels of depression at follow-up between conditions, $t(1, 53) = -1.1, p = .28$. Also, no

significant differences were found between conditions for any of the measures of subjective well-being, including the Life Attitude Scale, $t(1, 53) = .29$, $p = .78$, Subjective Vitality Scale, $t(1, 53) = .76$, $p = .45$, and Self-Esteem IAT, $t(1, 52) = .14$, $p = .88$, (IAT from 1 participant was not collected due to computer error).

For all variables, t-tests were also run with the data of participants whose essays were coded as "defensive" removed. All results remained nonsignificant.

DISCUSSION

The current study aimed to examine whether reminders of mortality lead to greater valuing and pursuit of individualized goals for individuals with mild levels of depression, and whether these increases in goal value and pursuit would lead to changes in depressive affect and subjective well-being. I hypothesized that participants in the MS condition would report increased ratings of goal value and importance, and as a result would also report decreased depression and increased psychological well-being. The results indicate that being made aware of one's mortality has no immediate or lasting effects on participants' motivation to pursue personally important goals, and subsequent levels of depression and subjective well-being. These results do not support our hypotheses of how existential perspective may translate into effective therapeutic strategy.

The present study contained some significant limitations that are likely to have affected the results. The first major limitation consists of the level of depression reported by the participants. Despite my efforts to screen for individuals with elevated levels of depression, the overall mean BDI score for all subjects at the initial session was 4.47. Considering that the BDI cutoff score for mild depression is 10, this means that, on average, the participants in this study were not experiencing even mild levels of depression, with a score of 10 or greater reported by only seven participants at baseline and two at follow-up. Given that my aim was to examine the effect of mortality awareness on goal value, goal pursuit, and affect in mildly depressed participants, our sample prevents us from making any strong inferences from the results. Another potential problem regarding the low levels of depression is that this may influence the outcomes of MS inductions. Previous research has show that MS effects are stronger in mildly depressed individuals

(Simon, et al., 1996) and are attenuated in individuals with higher levels of self-esteem (Harmon-Jones, Simon, Greenberg, Pyszczynski, Solomon, & McGregor, 1997). That is, individuals with higher dispositional self-esteem show less worldview defense after MS induction. Given the low depression levels (with an inference of greater self-esteem) in the current study, it is possible that this sample demonstrated even lower-than-average MS effects, which could explain the non-significant findings. Future research would benefit from ensuring that participants demonstrate moderate levels of depressed affect.

The other major limitation of this study pertained to the ratings of goal value, importance, and effort. Overall, the results for all of the goal ratings were high (e.g., almost half of the participants rated the importance of their goals at the maximum level) and equal between groups. In hindsight, it is possible that a ceiling effect prevented enough variability to adequately examine MS effects on goal salience. Future investigation should attempt to conceive ways of measuring these variables that could eliminate these effects, such as creating more sensitive measures that assess multiple concrete, objective facets of goal value, importance, and effort, rather than simply asking how valuable/important the goal is, or how much they worked towards the goal (e.g., ranking several goals in order of value/importance, "how many times a day/week do you work to achieve this goal?", etc.).

In addition to the study's operational limitations, there may also be some conceptual flaws that help explain the results. According to Bandura (1997), self-regulatory processes are strongly related to both well-being and depression. Research has also shown that mortality salience manipulations can lead to deficits in the ability to self-regulate (Gailliot, Schmeichel, & Baumeister, 2006). These findings stand in contrast to my hypotheses

which predicted mortality salience inductions would lead to an increase in an individual's ability/motivation to attain a goal. Looking at my study's results, it appears possible the MS induction lead to an impairment of the participants' self-regulatory processes, leaving them with fewer resources to orient themselves towards achieving their goals and improving their mood.

Another conceptual limitation that needs to be addressed deals with the construct of death. TMT assumes that death is something to be feared, however many people have different attitudes towards death that may affect how they react to an MS manipulation. Lavoie and deVries (2003) investigated the death orientations of many people, including *escape acceptance*, which is the acceptance of death as a release from pain. The researchers' findings indicated that escape acceptance for young adults appeared to reflect a desire to escape one's secular commitments. It could be concluded then that some of the participants in this study, when asked to think about their death, viewed it less as something to be feared, and more as a release from the numerous demands of the highly-stressful college life. TMT also assumes that thinking about death will always elicit a defensive response, however some recent research suggests that this is not always the case (Martin, Campbell, & Henry, 2004). For example, Cozzolino, Staples, Meyers, and Samboceti (2004) had participants read a paragraph asking them to imagine they were about to meet their imminent death in a burning building. Results indicated that this "death reflection" manipulation led participants high in extrinsic values to become less greedy, the opposite of what would be expected from a typical MS manipulation. Taken together, it is possible to suggest that individual differences in participants' reactions to my MS induction may have also played a role in this study's null findings.

Existential (Yalom, 1980) and behavioral (Martell, Addis, & Jacobson, 2001) perspectives have long been used in the treatment of psychopathology. Although there may be a number of interesting and potentially fruitful combinations of these perspectives for clinical interventions, the current research yielded something of a dead end. Although the results were null, the results of the study could be useful in suggestions modifications for future efforts of examining the potential benefit of existential perspective for behavioral interventions on depression.

REFERENCES

Akiba, J. & Klug, W. (1999). The different and the same: Reexamining east and west in a cross-cultural analysis of values. *Social Behavior and Personality, 27(5)*, 467-473.

Alexander, C.J. & Schuldt, W.J. (1984). Effects of choice, goal difficulty, and need achievement on performance. *Journal of Clinical Psychology, 40(6)*, 1354-1361.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: W.H. Freeman and Co.

Bech, P. (1998). *Quality of life in the psychiatric patient.* London: Mosby-Wolfe.

Beck, A.T. (1976). *Cognitive therapy and the emotional disorders.* Oxford, England: International Universities Press.

Beck, A.T., Ward, C.H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.

Becker, E. (1973). *The denial of death.* New York, NY: Free Press.

Berger, P.L. & Luckmann, T. *The social construction of reality.* New York, NY: Random House.

Biner, P.M. (1987). Effects of difficulty and goal value on goal valence. *Journal of Research in Personality, 21(3)*, 395-404.

Buda, R. & Elsayed-Elkhouly (1998). Cultural differences between Arabs and Americans: Individualism-collectivism revisited. *Journal of Cross-Cultural Psychology, 29(3)*, 487-492.

Craighead, W.E., Ritschel, L.A., Amarson, E.O., & Gillespie, C.F. (2008). Major depressive disorder. In W.E. Craighead, D.J. Miklowitz, & L.W. Craighead (Eds.),

Psychopathology: History, diagnosis, and empirical foundations (pp. 279-328). Hoboken, NJ: John Wiley & Sons, Inc.

Cozzolino, P.J., Staples, A.D., Meyers, L.S., & Samboceti, J. (2004). Greed, death, and values: From terror management to transcendence management theory. *Personality and Social Psychology Bulletin, 30*, 278-292.

Dimidjian, S., Martell, C.R., Addis, M.E., & Hermann-Dunn, R. (2008). Behavioral activation for depression. In D.H. Barlow (Ed.), *Clinical handbook of psychological disorders: A step-by-step treatment manual, 4th ed. (pp. 250-305).* New York, NY: The Guilford Press.

Dimidjian, S., Dobson, K.S., Kohlenberg, R.J., Gallop, R., Markley, D.K., Atkins, D.C., Hollon, S.D., Schmaling, K.B., Addis, M.E., McGlinchey, J.B., Gollan, J.K., Dunner, D.L., & Jacobson, N.S. (2006). Randomized trial for behavioral activation, cognitive therapy, and antidepressant medication in acute treatment of adults with major depression. *Journal of Counseling and Clinical Psychology, 74(4)*, 658-670.

Dobson, K.S., Hollon, S.D., Dimidjain, S., Schmaling, K.B., Kohlenberg, R.J., Gallop, R.J., Rizvi, S.L., Gollan, J.K., Dunner, D.L., & Jacobson, N.S. (2008). Randomized trial of behavioral activation, cognitive therapy, and antidepressant medication in the prevention of relapse and recurrence in major depression. *Journal of Consulting and Clinical Psychology, 76(3)*, 468-477.

Dodd, N.G. & Anderson, K.S. (1996). A test of goal commitment as a moderator of the relationship between goal level and performance. *Journal of Social Behavior & Personality, 11(2)*, 329-336.

Elkin, I., Shea, M.T., Watkins, J.T., & Imber, S.D. (1989). National institute of mental health treatment of depression collaborative research program: General effectiveness of treatment. *Archives of General Psychiatry, 46(11)*, 971-982

Emmons, R.A. (1986). Personal strivings: An approach to personality and subjective well-being. *Journal of Personality and Social Psychology, 51(5)*, 1059-1068.

Emmons, R.A. (1992). Abstract versus concrete goals: Personal striving level, physical illness, and psychological well-being. *Journal of Personality and Social Psychology, 62(2)*, 292-300.

Emmons, R.A. & Diener, E. (1985). Personality correlates of subjective well-being. *Personality and Social Psychology Bulletin, 11*, 89-97.

Erez, M. & Zidon, I. (1984). Effect of goal acceptance on the relationship of goal difficulty to performance. *Journal of Applied Psychology, 69(1)*, 69-78.

Ferster, C.B. (1973). A functional analysis of depression. *American Psychologist, 28(10)*, 857-870.

Gailliot, M.T., Schmeichel, B.J., & Baumeister, R.F. (2006). Self-regulatory processes defend against the threat of death: Effects of self-control depletion and trait self-control on thoughts and fears of death. *Journal of Personality and Social Psychology, 91*, 49-62.

Greenberg, J., Solomon, S., Veeder, M., Pyszczynski, T., Rosenblatt, A., Kirkland, S., & Lyon, D. (1990). Evidence for terror management theory II: The effects of mortality salience on reactions to those to threaten or bolster the cultural worldview. *Journal of Personality and Social Psychology, 58(2)*, 308-318.

Greenwald, A.G., McGhee, D.E., & Schwartz, J.L.K. (1998). Measuring individuals differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74(6)*, 1464-1480.

Harmon-Jones, E., Simon, L., Greenberg, J., Pyszczynski, T., Solomon, S., & McGregor, H. (1997). Terror management theory and self-esteem: Evidence that increased self-esteem reduced mortality salience effects. *Journey of Personality and Social Psychology, 72(1)*, 24-36.

Higgins, E.T. & Silberman, I. (1997). Development of regulatory focus: Promotion and prevention as ways of living. In J. Heckhausen & C.S. Dweck (Eds.), *Motivation and Self-Regulation Across the Life Span (pp. 78-113)*. New York, NY: Cambridge University Press.

Hollon, S.D., Shelton, R.C., & Davis, D.D. (1993). Cognitive therapy for depression: Conceptual issues and clinical efficacy. *Journal of Consulting and Clinical Psychology, 61*, 270-275.

Hollenbeck, J.R. & Williams, C.R. (1987). Goal importance, self-focus, and the goal-setting process. *Journal of Applied Psychology, 72(2)*, 204-211.

Hopko, D.R., Armento, M.E.A., Cantu, M.S., Chambers, L.L., & Lejuez, C.W. (2003b). The use of daily diaries to assess the relations among mood state, overt behavior, and reward value of activities. *Behaviour Research and Therapy, 41*, 1137-1148.

Hopko, D.R., Lejuez, C.W., Ruggiero, K.J., & Eifert, G.H. (2003a). Contemporary behavioral activation treatments for depression: Procedures, principles, and progress. *Clinical Psychology Review, 23*, 699-717.

Hopko, D.R. & Mullane, C.M. (2008). Exploring the relation of depression and overt behavior with daily diaries. *Behaviour Research and Therapy, 46*, 1085-1089.

Jacobson, N.S., Dobson, K.S., Truax, P.A., Addis, M.E., Koerner, K., Gollan, J.K., Gortner, E., & Prince, S.E. (1996). A component analysis of cognitive-behavioral treatment for depression. *Journal of Consulting and Clinical Psychology, 64(2)*, 295-304.

Jonas, E., Schimel, J., Greenberg, J., & Pyszczynski, T. (2002). The scrooge effect: Evidence that mortality salience increases prosocial attitudes and behavior. *Personality and Social Psychology Bulletin, 28*, 1342-1353.

Klein, H.J., Wesson, J.W., Hollenbeck, J.R., & Alge, B.J. (1999). Goal commitment and the goal-setting process: Conceptual clarification and empirical synthesis. *Journal of Applied Psychology, 84(6)*, 885-896.

Klinger, E. (1975). Consequences of commitment to and disengagement from incentives. *Psychological Review, 82(1)*, 1-25.

Lavoie, J. & deVries, B. (2003). Identity and death: An empirical investigation. *Omega, 48*, 223-243.

Lewinsohn, P.M. (1974). A behavioral approach to depression. In R.M. Friedman & M.M. Katz (Eds.), *The psychology of depression: Contemporary theory and research (pp. 157-185)*. New York, NY: Wiley.

Lewinsohn, P.M. & Graf, M. (1973). Pleasant activities and depression. *Journal of Consulting and Clinical Psychology, 41*, 261-268.

Lewinsohn, P.M., Rohde, P., Seeley, J.R., & Fischer, S.A. (1993). Age-cohort changes in the lifetime occurrence of depression and other mental disorders. *Journal of Abnormal Psychology, 102(1)*, 607-615.

Liberman, N., Idson, L.C., Camacho, C.J., & Higgins, E.T. (1999). Promotion and prevention choices between stability and change. *Journal of Personality and Social Psychology, 77(6)*, 1135-1145.

Locke, E.A. & Latham, G.P. (1990). *A theory of goal setting and task performance.* Englewood, NJ: Prentice Hall.

Locke, E.A., Shaw, K.N., Saari, L.M., & Latham G.P. (1981). Goal setting and task performance: 1969-1980. *Psychological Bulletin, 90*, 67-91.

Lyon, D.E. & Younger J. (2005). Development and preliminary evaluation of the existential meaning scale. *Journal of Holistic Nursing, 23*, 54-65.

Martell, C.R., Addis, M.E., & Jacobson, N.S. (2001). *Depression in context: Strategies for guided action.* New York, NY: W.W. Norton & Co.

Martin, L.L., Campbell, W.K., & Henry, C.D. (2004). The roar of awakening: Mortality acknowledgement as a call to authentic living. In J. Greenberg, S.L. Koole, & T. Pyszczynski (Eds.), *Handbook of experimental existential psychology* (pp. 431-448). New York: Guilford.

Muran, E.M. & Motta, R.W. (1993). Cognitive distortions and irrational beliefs in post-traumatic stress, anxiety, and depressive disorders. *Journal of Clinical Psychology, 49(2)*, 166-176.

Nesse, R.M. (2000). Is depression an adaptation? *Archive of General Psychiatry, 57(1)*, 14-20.

Nix, G. A., Ryan, R. M., Manly, J. B., & Deci, E. L. (1999). Revitalization through self-regulation: The effects of autonomous and controlled motivation on happiness and vitality. *Journal of Experimental Social Psychology, 35,* 266-284.

Peak, T. & Barusch, A. (1999). Managed care. *Journal of Health and Social Policy, 11(1),* 21-36.

Penner, L.A. & Anh, T. (1977). A comparison of American and Vietnamese value systems. *Journal of Social Psychology, 101(2),* 187-204.

Pyszczynski, T., Greenberg, J., & Solomon, S. (1999). A dual-process model of defense against conscious and unconscious death-related thoughts: An extension of terror management theory. *Psychological Review, 106(4),* 835-845.

Pyszczynski, T., Greenberg, J., Solomon, S., Arndt, J., & Schimel, J. (2004). Why do people need self esteem? A theoretical and empirical review. *Psychological Bulletin, 130(3),* 483-488.

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

Routledge, C., Arndt, J., & Goldenberg, J.L. (2004). A time to tan: Proximal and distal effects of mortality salience on sun exposure intentions. *Personality and Social Psychology Bulletin, 30(10),* 1347-1358.

Ryan, R. M., & Frederick, C. M. (1997). On energy, personality and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality, 65,* 529-565.

Ryff, C.D., & Keyes, C.L.M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69(4)*, 719-727.

Salkovskis, P.M. (1996). *Frontier of cognitive therapy*. New York, NY: Guilford Press.

Shah, J.Y., Friedman, R., & Kruglanski, A.W. (2002). Forgetting all else: On the antecedents and consequences of goal shielding. *Journal of Personality of Social Psychology, 83(6)*, 1261-1280.

Sheldon, K., & Deci, E. (1993). *The Self-Determination Scale*. Unpublished manuscript, University of Rochester, Rochester, NY.

Simon, L., Greenberg, J., Harmon-Jones, E., Solomon, S., & Pyszczynski, T. (1996). Mild depression, mortality salience, and defense of the worldview: Evidence of intensified terror management in the mildly depression. *Personality and Social Psychology Bulletin, 22(1)*, 81-90.

Simon, L., Arndt, J., Greenberg, J., Pyszczynski, T., & Solomon, S. (1998). Terror management and meaning: Evidence that the opportunity to defend the worldview in response to mortality salience increases the meaningfulness of life in the mildly depressed. *Journal of Personality, 66(3)*, 359-382.

Skinner, B.F. (1953). *Science and human behavior*. Oxford, England: Macmillan.

Solomon, S., Greenberg, J., & Pyszczynski, T. (2004). The cultural animal: Twenty years of terror management theory and research. In J. Greenberg, S.L. Koole, & T. Pyszczynski (Eds.), *Handbook of Experimental Existential Psychology (pp. 13-34)*. New York, NY: Guilford Press.

Van Wormer, K.S., Besthorn, F.H., & Keefe, T. (2007). Culture and society. In K.S. Van Wormer, F.H. Besthorn, & T. Keefe (Eds.), *Human Behavior and the Social Environment (pp. 138-165)*. New York, NY: Oxford University Press.

Wrosch, C. & Miller, G.E. (2009). Depressive symptoms can be useful: Self-regulatory and emotional benefits of dysphoric mood in adolescence. *Journal of Personality and Social Psychology, 96(6)*, 1181-1190.

Yalom, I.D. (1980). *Existential Psychotherapy*. New York, NY: Basic Books.

Young, J.E., Rygh, J.L., Weinberger, A.D., & Beck, A.T. (2008). Cognitive therapy for depression. In D.H. Barlow (Ed.), *Clinical Handbook for Psychological Disorders: A Step-by-Step Treatment Manual (4th ed., pp. 250-305)*. New York, NY: Guilford Press.

Zeiss, A.M., Lewinsohn, P.M., & Muñoz, R.F. (1979). Nonspecific improvement effects in depression using interpersonal skills training, pleasant activities schedules, or cognitive training. *Journal of Consulting and Clinical Psychology, 47(3)*, 427-439.

APPENDIX A

Table 1. Means and standard deviations for baseline depression and well-being measures

Condition	BDI	LAS	Vitality	IAT
Control	5.5(3.7)	54.3(11.1)	35.5(6.1)	.70(.29)
MS	4.6(3.5)	56.5(9.1)	38.0(5.7)	.82(.30)

Table 2. Means and standard deviations for follow-up depression and well-being measures

Condition	BDI	LAS	Vitality	IAT
Control	2.8(2.1)	58.4(8.7)	37.1(7.1)	.66(.29)
MS	3.7(3.5)	57.7(8.1)	37.4(7.2)	.80(.38)

Note: BDI = Beck Depression Inventory, LAS = Life Attitude Scale, IAT = Self-Esteem IAT

APPENDIX B

Measures

- WHO-5 Well-Being Index
- Beck Depression Inventory-I
- Life Attitude Scale
- Subjective Vitality Scales
- Goals Survey
- Goal Rating
- Goals Success Survey

WHO-Five Well-being Index (WHO-Five)

Please indicate for each of the five statements which is closest to how you have been feeling over the last two weeks. Notice that higher numbers mean better well-being.

Example: If you have felt cheerful and in good spirits more than half of the time during the last two weeks, put a tick in the box with the number 3 in the upper right corner.

	Over the last 2 weeks	All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
1	I have felt cheerful and in good spirits.	5	4	3	2	1	0
2	I have felt calm and relaxed.	5	4	3	2	1	0
3	I have felt active and vigorous.	5	4	3	2	1	0
4	I woke up feeling fresh and rested.	5	4	3	2	1	0
5	My daily life has been filled with things that interest me.	5	4	3	2	1	0

Beck Depression scale

Instructions: On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the statement in each group which best describes the way you have been feeling this PAST WEEK, INCLUDING TODAY! Circle the number beside the statement that you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1. 0 I do not feel sad.
   1 I feel sad.
   2 I am sad all the time and I can't snap out of it.
   3 I am so sad or unhappy that I can't stand it.

2. 0 I am not particularly discouraged about the future.
   1 I feel discouraged about the future.
   2 I feel I have nothing to look forward to.
   3 I feel that the future is hopeless and that things cannot improve.

3. 0 I do not feel like a failure.
   1 I feel I have failed more than the average person.
   2 As I look back on my life, all I can see is a lot of failures.
   3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
   1 I don't enjoy things the way I used to.
   2 I don't get real satisfaction out of anything anymore.
   3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty.
   1 I feel guilty a good part of the time.
   2 I feel quite guilty most of the time.
   3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
   1 I feel I may be punished.
   2 I expect to be punished.
   3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
   1 I am disappointed in myself.
   2 I am disgusted with myself.
   3 I hate myself.

8. 0 I don't feel I am any worse than anybody else.
   1 I am critical of myself for my weaknesses or mistakes.
   2 I blame myself all the time for my faults.
   3 I blame myself for everything bad that happens.

9. 0 I don't have any thoughts about killing myself.
   1 I have thoughts of killing myself, but I would not carry them out.
   2 I would like to kill myself.
   3 I would kill myself if I had the chance.

10. 0 I don't cry anymore than usual.
    1 I cry more now than I used to.
    2 I cry all the time now.
    3 I used to be able to cry, but now I can't even though I want to.

11. 0 I am no more irritated now than I ever am.
    1 I get annoyed or irritated more easily than I used to.
    2 I feel irritated all the time now.
    3 I don't get irritated at all by the things that used to irritate me.

12. 0 I have not last interest in other people.
    1 I am less interested in other people than I used to be.
    2 I have lost my interest in other people.
    3 I have lost all of my interest in other other people.

13. 0 I make decisions about as well as I ever could.
    1 I put off making decisions more than I used to.
    2 I have greater difficulty in making decisions than before.
    3 I can't make decisions any more.

14. 0 I don't feel I look any worse than I used to.
    1 I am worried that I am looking old or unattractive.
    2 I feel that there are permanent changes in my appearance that make me unattractive.
    3 I believe that I look ugly.

15. 0 I can work about as well as before.
    1 It takes an extra effort to get started at doing something.
    2 I have to push myself very hard to do anything.
    3 I can't do any work at all.

16. 0 I can sleep as well as usual.
    1 I don't sleep as well as I used to.
    2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
    3 I wake up several hours earlier than I used to and cannot get back to sleep.

17. 0 I don't get more tired than usual.
    1 I get tired more easily than I used to.
    2 I get tired from doing almost anything.
    3 I am too tired to do anything.

18. 0 My appetite is no worse than usual.
    1 My appetite is not as good as it used to be.
    2 My appetite is much worse now.
    3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any, lately.
    1 I have lost more than 5 pounds.
    2 I have lost more than 10 pounds.
    3 I have lost more than 15 pounds.

20. 0 I am no more worried about my health than usual.
    1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
    2 I am very worried about my physical problems and it's hard to think of much else.
    3 I am so worried about my physical problems that I cannot think about anything else.

21. 0 I have not noticed any recent changes in my interest in sex.
    1 I am less interested in sex than I used to be.
    2 I am much less interested in sex now.
    3 I have lost interest in sex completely.

LAS

1. I have struggled to find meaning in my life.

-3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

2. I accept my life as it is.

-3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

3. My life had meaning in the past.

-3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

4. My life has not been what I hoped it would be

--3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

5. I am satisfied with my life.

-3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

6. My life is empty.

-3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

7. I feel a sense of disconnection in my life.

-3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

8. My day-to-day life has meaning.

-3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

9. I know why I am here on earth.

-3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

10. Life has no intrinsic (inherent) meaning.

-3	-2	-1	0	1	2	3
Completely Disagree						Completely Agree

Subjective Vitality Scale

Please respond to each of the following statements by indicating the degree to which the statement is true for you in general in your life. Use the following scale:

1	2	3	4	5	6	7
not at all true			somewhat true			very true

1. I feel alive and vital.
2. I don't feel very energetic.
3. Sometimes I feel so alive I just want to burst.
4. I have energy and spirit.
5. I look forward to each new day.
6. I nearly always feel alert and awake.
7. I feel energized.

GOALS

Instructions: We are interested in learning more about the types of values/goals that college students have. In this section, we would like to assess the type of person you want to be. We will ask you to indicate how you would ideally like to be (we will call this your 'Ideal self') - the type of person you wish, desire, or hope to be and how you think you should be (we will call this your 'Ought self') – the type of person you believe it is your duty, obligation, or responsibility to be.

For example, for your *ideal self*, you might list attributes such as 'Being academically successful', 'Being physically attractive', 'Being financially successful', or 'Being in a romantic relationship', etc. For your *ought self*, you might list attributes such as 'Giving my time/resources to those in need', 'Being thin', 'Being muscular', 'Being popular', etc.

It is important to note that one person's ideal self attribute (e.g., 'Being physically attractive') could be listed by another person as an ought self attribute and vice versa.

You might find it useful to think about your *ideal* and *ought* selves in different domains of your life such as *work and school*, *home and family*, *social relationships*, and *leisure/recreation*.

(1) IDEAL Self: Please list an attribute or characteristic you would *ideally* like to possess: the type of person you wish, desire, or hope to be.

IDEAL SELF:

(1a). Now list a behavior you can do over the next 4 weeks to achieve or reach this IDEAL self attribute:

BEHAVIOR TO REACH IDEAL SELF:											
How difficult will it be to achieve this ideal self behavioral goal?	**0** Very easy	**1**	**2**	**3** Fairly easy	**4**	**5**	**6**	**7** Fairly difficult	**8**	**9**	**10** Very difficult

(2) OUGHT Self. Please list an attribute or characteristic you believe you *should* or *ought* to possess: the type of person you believe it is your duty, obligation, or responsibility to be.

OUGHT SELF:

(2a). Now list a behavior you can do over the next 4 weeks to achieve or reach this OUGHT self attribute:

BEHAVIOR TO REACH OUGHT SELF:											
How difficult will it be to achieve this ought self behavioral goal?	**0** Very easy	**1**	**2**	**3** Fairly easy	**4**	**5**	**6**	**7** Fairly difficult	**8**	**9**	**10** Very difficult

Goal Rating

Instructions: In this section, please rate the ideal and ought goals on the following dimensions.

IDEAL SELF:

How important is this goal to you?

0	1	2	3	4	5	6	7	8	9	10
Not at all important			Somewhat important				Important			Very important

How committed are you to this goal?

0	1	2	3	4	5	6	7	8	9	10
Not at all committed			Somewhat committed				Committed			Very committed

How much effort will you exert to achieve this goal?

0	1	2	3	4	5	6	7	8	9	10
No effort			A little effort				some effort			A lot of effort

OUGHT SELF:

How important is this goal to you?

0	1	2	3	4	5	6	7	8	9	10
Not at all important			Somewhat important				Important			Very important

How committed are you to this goal?

0	1	2	3	4	5	6	7	8	9	10
Not at all committed			Somewhat committed				Committed			Very committed

How much effort will you exert to achieve this goal?

0	1	2	3	4	5	6	7	8	9	10
No effort			A little effort				some effort			A lot of effort

Goal Success

INSTRUCTIONS: In the last session, you wrote two goals that you had for the upcoming month. For this part, please rate how things have been going for each goal on a number of dimensions.

I.S.

GOAL #1:

How much progress did you make toward this goal since the first session?

0	1	2	3	4	5	6	7	8	9	10
No progress			A little progress				Some progress			A lot of progress

How difficult has it been to work on this goal?

0	1	2	3	4	5	6	7	8	9	10
Not at all difficult			Somewhat difficult				Difficult			Very difficult

How much effort did you make on working toward this goal since the first session?

0	1	2	3	4	5	6	7	8	9	10
No effort			A little effort				Some effort			A lot of effort

O.S.

GOAL #2:

How much progress did you make toward this goal since the first session?

0	1	2	3	4	5	6	7	8	9	10
No progress			A little progress				Some progress			A lot of progress

How difficult has it been to work on this goal?

0	1	2	3	4	5	6	7	8	9	10
Not at all difficult			Somewhat difficult				Difficult			Very difficult

How much effort did you make on working toward this goal since the first session?

0	1	2	3	4	5	6	7	8	9	10
No effort			A little effort				Some effort			A lot of effort

APPENDIX C

Self-esteem IAT words

- Self
  - Me, My, Mine, Myself, Self
- Other
  - They, Them, Their, Theirs, Other
- Positive
  - caress, loyal, lucky, honor, sunrise
- Negative
  - abuse, crash, hatred, jail, poverty

APPENDIX D

Mortality Salience Manipulations

- Mortality Salience Induction
- Non-mortality Salience Induction (control group)
- Distraction Task

Mortality Salience Induction

(a) Please briefly describe the emotions that the thought of your *death* arouses in you.

_____

_____

_____

_____

_____

(b) Please write down, as specifically as you can, what you think *physically* will happen to you when you *die*.

_____

_____

_____

_____

_____

Mortality Salience Induction

(c) Please briefly describe the emotions that the thought of your *death* arouses in you.

_____

_____

_____

_____

_____

(d) Please write down, as specifically as you can, what you think *physically* will happen to you when you *die*.

_____

_____

_____

_____

_____

Non-mortality salience induction (control group)

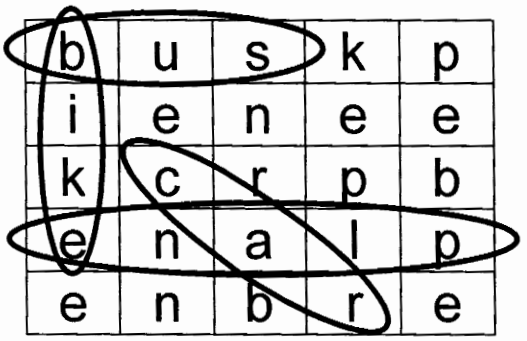
(a) Please briefly describe the emotions that the thought of your *experiencing dental pain* arouses in you.

(b) Please write down, as specifically as you can, what you think *physically* will happen to you as you *experience dental pain*.

Distraction Task

Word-search puzzle. Your task is to find and circle the words that are in the grid. The words might be forward, backward or diagonal.

For example, if the instructions for the following grid were to find: **car, bike, bus, plane**, you would circle the correct words. Notice that 'plane' is backwards.



b	u	s	k	p
i	e	n	e	e
k	c	r	p	b
e	n	a	l	p
e	n	b	r	e

Now you try it. In the following grid, find and circle these words: **table, chair, plate, glass, fork, spoon.**

r	e	t	a	l	p
c	h	a	i	r	i
s	g	b	e	t	o
n	k	l	f	s	o
k	r	e	a	k	t
n	o	o	p	s	r
k	f	s	l	e	s

Give yourself a couple of minutes to work on the word-search puzzle. Once you are done, turn the page to continue. Don't take more than a couple of minutes, though. If you find that you've worked for a couple of minutes and can't find the last items, that's ok. Just turn the page to go on to the next part.

How difficult was the word-search puzzle? (circle one number)

1 2 3 4 5 6 7 8 9 10

Very easy Very difficult