
Greed, Death, and Values: From Terror Management to Transcendence Management Theory

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Research supporting terror management theory has shown that participants facing their death (via mortality salience) exhibit more greed than do control participants. The present research attempts to distinguish mortality salience from other forms of mortality awareness. Specifically, the authors look to reports of near-death experiences and posttraumatic growth which reveal that many people who nearly die come to view seeking wealth and possessions as empty and meaningless. Guided by these reports, a manipulation called death reflection was generated. In Study 1, highly extrinsic participants who experienced death reflection exhibited intrinsic behavior. In Study 2, the manipulation was validated, and in Study 3, death reflection and mortality salience manipulations were compared. Results showed that mortality salience led highly extrinsic participants to manifest greed, whereas death reflection again generated intrinsic, unselfish behavior. The construct of value orientation is discussed along with the contrast between death reflection manipulation and mortality salience.

Keywords: *greed; death reflection; mortality salience*

Despite generations of poets, philosophers, and religious leaders decrying the “deadly sin” of greed, much of humanity is presently engaged in a consumer-based economic system that is most successful when citizens want and seek to have. Public revelations of greed on the part of a few corporate executives have recently left individuals asking, “What is it that makes some people strive for excessive gains while knowingly leaving less for others?” In attempts to distinguish the psychological factors that drive greed, recent research has focused on two

concepts: value orientation and reactions to death awareness.

VALUE ORIENTATION

Early humanistic theorists such as Maslow (1954) and Rogers (1963) first addressed the motives that fuel and guide attempts to fulfill goals and needs. Maslow (1954) suggested that human existence could only make sense when individuals sought to achieve goals tied to their inherent developmental promise. These goals include personal growth, good health, a sense of autonomy, and a desire to know oneself. Maslow went further, comparing “healthy individuals” who seek inner freedom in favor of external approval to “sick, neurotic people who make the wrong choices” (p. 278). This humanistic perspective posits that when focusing on goals stemming from external instead of internal forces (e.g., pursuits of wealth instead of desires for insight) people are likely to falter along the path to self-actualization. Expanding this

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thought, self-determination theory (Deci & Ryan, 1985, 1991) proposes that meeting the fundamental needs of competence, autonomy, and relatedness can lead us to achieve what is known as psychological integration. When individuals satisfy native needs and approach integration, they experience greater levels of well-being and motivation. When, however, these needs are not met, people yield to external drives for wealth and possessions (Deci & Ryan, 2000).

Kasser and Ryan (1993) found support for self-determination theory when participants seeking self-acceptance and relatedness exhibited greater adjustment and social productivity and fewer behavioral disorders than those aspiring for financial success. From these results, Kasser and Ryan differentiated between intrinsic and extrinsic values. Individuals with an intrinsic value orientation (IVO) characteristically desire self-knowledge, intimacy, and connections in the community, whereas people with an extrinsic value orientation (EVO) typically desire money, fame, and beauty (Kasser & Ryan, 1993, 1996). This values model asserts that the balance between EVO and IVO is critical when predicting the harmful social and physical effects previously mentioned. Striving for extrinsic goals becomes problematic for people, the theory states, when their extrinsic values outweigh their intrinsic values. Sheldon and McGregor (2000) validated the assumptions underlying intrinsic versus extrinsic values by showing that EVO participants revealed greater levels of consumption (i.e., greed) than did IVO participants in a forest-management game.

TERROR MANAGEMENT THEORY

Of all things that move man, one of the principal ones is his terror of death. (Becker, 1973, p. 11)

Based on the work of Becker (1973), terror management theory (Greenberg, Pyszczynski, & Solomon, 1986; Solomon, Greenberg, & Pyszczynski, 1991) argues that our innate and all-encompassing fear of death is buffered through a dual-component process that consists of self-esteem striving and the creation of cultural worldviews. It is through faith and investment in these worldviews that people find meaning in life and become productive members of society. Becker and terror management theory further posit that the nearly insoluble human reality of mortality awareness combined with an instinctive desire for survival compels attempts at immortality through culturally standardized systems (e.g., capitalism) and symbols (e.g., money). In the face of mortality, humans seek everlasting life by creating and embracing that which cannot die. Such immortality is gained through cultural ideologies and their extrinsic rewards because these ideologies “seek the perpetuation and the redemption of the individual life” (Becker, 1975,

p. 64). For humans living in capital-based cultures, one potential form of immortality seeking is excessive striving for wealth. Terror management research has shown that when participants are reminded of their mortality they become much more likely to defend their worldviews.

Terror management research activates death awareness in participants through a manipulation called mortality salience. In operationally defining mortality salience, researchers have exposed participants to gory video scenes, funeral homes, and fear of death inventories (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994; Nelson, Moore, Olivetti, & Scott, 1997). A common method of operationalizing mortality salience, however, takes the form of open-ended questions asking individuals to express the feelings and thoughts they experience when thinking about their own death (e.g., Goldenberg, McCoy, Pyszczynski, Greenberg, & Solomon, 2000; Kasser & Sheldon, 2000; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). When exposed to mortality salience manipulations, individuals have punished those who do not agree with their worldviews (Greenberg et al., 1990) and have increased their likelihood of stereotyping (Schimel et al., 1999).

Some recent evidence points to the potential prosocial effects of mortality salience in what researchers called the “Scrooge effect” (Jonas, Schimel, Greenberg, & Pyszczynski, 2002). In that study, participants who experienced mortality salience gave more money to charity than did other participants; however, this generosity only occurred when participants considered the charities as part of their worldview. It can be inferred that mortality salience leads to prosocial behavior only if the needy person or organization is a member (or supporter) of the helper’s worldview. From this perspective, the “Scrooge effect” does not differ from terror management results that demonstrate that mortality salience generates worldview defense.

The potential link between death awareness and extrinsic values has recently received attention from researchers trying to expand the list of factors, beyond value orientation, that play a role in greedy behavior. Using mortality salience, Kasser and Sheldon (2000) showed that compared to control participants, those asked to face their death expected to be worth more money in the future and to spend more money for pleasure. Participants facing their death also showed a greater propensity for avarice, although there was no evidence that mortality salience interacted with value orientation. A recent study by Dechesne et al. (2003) replicated Kasser and Sheldon’s (2000) findings (Study 2), but only in men facing their death in a condition with alleged scientific findings debunking the likelihood of an afterlife.¹

REAL-LIFE TRAUMA

Terror management theory is not alone in placing the profound implications of death awareness at the center of striving for intrinsic or extrinsic values. Work done by researchers studying personal growth in individuals who report near-death experiences (e.g., Greyson, 1992; Ring & Elsaesser Valarino, 1998) and other forms of traumatic events, known as posttraumatic growth (PTG; Tedeschi, Park, & Calhoun, 1998), provides a history of examining mortality awareness unequaled by any lab experiment.

Researchers actively involved in the study of PTG have focused on a wide variety of life crises, including divorce (Wallerstein, 1986), HIV infection (Schwartzberg, 1994), sexual assault (Frazier, Conlon, & Glaser, 2001), cancer (O'Connor, Wicker, & Germino, 1990; Welch-McCaffrey, Hoffman, Leigh, Loescher, & Meyskens, 1989), and bone marrow transplant (Curbow, Legro, Baker, Wingard, & Somerfield, 1993). Tedeschi et al. (1998) categorize into life outcomes the types of growth seen in people dealing with these (in many cases) life-threatening crises: perception of the self (e.g., increased self-reliance or autonomy and self-efficacy), interpersonal relationships (e.g., closer connections and increased compassion and giving to others), and philosophy of life (e.g., reorganized priorities, appreciation of life, sense of meaning, and spiritual development). Researchers conceive of life-altering trauma as affecting people in the same way that an earthquake affects a city. When the trauma, confusion, and mourning have passed, there is an opportunity to rebuild and create new structures that are better than the originals. In the face of personal loss, it is thought, individuals go through this same rebuilding of their shattered worlds, often creating new, superior life structures and assumptions (Janoff-Bulman, 1992; Tedeschi et al., 1998). Support for this "rebuilding model" can be found among cancer patients, for example, whose growth outcomes include positive coping, increased hopefulness, and a sense of transcendence (Ersek, 1992; Steeves & Kahn, 1987; Taylor, 1993).

Many of the same dramatic positive life changes witnessed in PTG studies are ubiquitous in the study of the near-death experience. Many near-death experiencers (NDErs) come very close to dying, whereas others are actually declared clinically dead. Likening the experience to a "spiritual catalyst," Ring (1984) outlined the value shifts most often seen in people as a result of near-death experiences: appreciation of life, concern for others, lack of concern for impressing others, lack of materialism, and higher quest for meaning. As seen in the PTG literature, Ring (1984) reports that NDErs reveal a heightened sense of spirituality. This, however, often comes with a de-emphasis on the person's previous alle-

giance to a formal religion. According to Ring (1984), many NDErs come to see organized religion as a human creation and find a new interest in a "worldview-free" spirituality.

A common thread also found among NDErs is a newfound acceptance of death and a feeling of transcendence in that they no longer fear death and instead fully accept their mortality (Greyson, 1992; Moody, 1975; Noyes, 1980; Ring, 1980). In a juxtaposition to the "death is too terrorizing to face" theorizing of Becker (1973), Noyes (1980) found that many of his respondents reported their near-death experience not only brought death closer to them but integrated mortality as a concept more fully into their lives. This inclusion of death into everyday awareness led these NDErs to claim that life had more meaning and an added sense of zest (Noyes, 1980). Also common in reports of near-death experience research is the notion addressed by Ring (1984) that NDErs reveal a lack of materialism. Supported by studies of anecdotal reports in the United States (Atwater, 1988; Greyson, 1983; Morse, 1992; Ring, 1980, 1984, 1991; Ring & Elsaesser Valarino, 1998), England (Grey, 1985), Australia (Sutherland, 1993, 1995), and Italy (Tiberi, 1993), many NDErs do seem to undergo a shift in values when it comes to their previous, extrinsically oriented worldviews. Reports frequently show that NDErs come to view extrinsic values such as seeking wealth and possessions as empty and meaningless.

MORTALITY AWARENESS

Terror management theory, near-death experience reports, and PTG research address the relationship between mortality and value orientation in very different ways. Results supporting terror management theory suggest that for people who endorse extrinsic values, reminders of their own mortality will lead to a further embracing of their worldview (i.e., greed). Conversely, near-death experience studies and PTG investigations suggest that coming face to face with mortality leaves individuals striving for intrinsic rewards. Examining the key features of the near-death experience alongside terror management's mortality salience manipulation can help explain these divergent responses.

The most noticeable difference between a near-death experience and a typical mortality salience manipulation is the level of abstractness associated with mortality. Often, the first aspect shared by NDErs is the manner in which they believe they died. Whereas mortality salience often introduces the concept of death as an abstract concern that is unspecified in its connection to the participant, the near-death experience places a person's death in a concrete setting. In simpler terms, mortality salience seems to be asking, "What do you think of

death?" whereas the near-death experience seems to be asking "This is how you died, what do you think?"

Another element that consistently appears in near-death experiences yet remains largely absent from mortality salience is the "life review" (Ring & Elsaesser Valarino, 1998). The life review process is often described as one of the most powerful moments of the near-death experience and goes far beyond the common notion that life "passes before your eyes." Respondents say the life review involves a complete reliving of every life moment, including thoughts and feelings, as well as the powerful "perspective-taking" process of experiencing thoughts and feelings of other individuals with whom they interacted (Ring & Elsaesser Valarino, 1998).

This anecdotal evidence suggests that after a near-death experience, people respond in a manner quite different from individuals exposed to mortality salience. Whereas mortality salience leads to worldview defense and immortality striving, near-death experiences seem to compel worldview capitulation and psychological integration. It is this evidence of a value shift from extrinsic to intrinsic among NDErs that opens the door for a new form of experimentally induced mortality awareness.

STUDY 1

A review of Ring and Elsaesser Valarino's (1998) work reveals three core elements of the near-death experience: (a) an actual death, (b) a life review, and (c) the opportunity for NDErs to take the perspective of others. We kept these three issues in mind when developing scenarios for our mortality manipulation, called *death reflection*. To address facing death, half of our participants read a scenario in which they died, whereas the other half read a control scenario. To capture the life review and perspective-taking elements, we included open-ended questions after the scenario. Along with death reflection, we assessed each participant's value orientation.

Given that extrinsically oriented individuals desire wealth, we examined the effects of death reflection on greed. In assessing greed, we counted raffle tickets taken by participants in a limited-resource behavioral task. We predicted that when not facing death, participants with a high extrinsic orientation would evidence greater levels of greed than participants with a low extrinsic orientation, whereas experiencing our death reflection manipulation would lead to lower levels of greed among highly extrinsic participants.

Method

Participants. Forty-eight introductory psychology students from California State University, Sacramento (38 women, 10 men), ranging in age from 17 to 47 ($M =$

21.75, $SD = 5.97$), participated in the study to fulfill a course requirement.² Most of the sample was Caucasian (56%), followed by Asian (19%), African American (10%), and Latino (6%), with the remaining participants' ethnicity unknown.

Materials. The 30-item Aspirations Index (based on Kasser & Ryan, 1996) assessed the participants' value orientation. Fifteen of the index's items represent three domains of an extrinsic orientation, specifically, money ("I will be financially successful"), fame ("I will be recognized by lots of different people"), and beauty ("My image will be one others find appealing"). The remaining 15 items address three domains of an intrinsic orientation, specifically, self-acceptance ("I will know and accept who I really am"), affiliation ("I will have good friends that I can count on"), and community feeling ("I will work for the betterment of society"). Participants respond to each statement using a scale ranging from 1 (*not at all important*) to 9 (*very important*). The Aspirations Index has achieved a previously reported reliability coefficient of .82 (Sheldon & McGregor, 2000). Our sample generated a coefficient alpha of .81 for the intrinsic subscale and .92 for the extrinsic subscale.

For our death reflection manipulation, participants were asked to read and imagine themselves experiencing the events described in a scenario and then to answer open-ended questions as if the events actually occurred. In the death scenario, participants imagined waking up in the middle of the night in a friend's apartment on the "20th floor of an old, downtown building" to the "sounds of screams and the choking smell of smoke." The scenario (see Appendix A) details the participant's futile attempts to escape the room and burning building before finally giving in to the fire and eventually death. After reading the death scenario, participants answered the following questions:

1. Please describe in detail the thoughts and emotions you felt while imagining the scenario.
2. If you did experience this event, how do you think you would handle the final moments?
3. Again imagining it did happen to you, describe the life you led up to that point.
4. How do you feel your family would react if it did happen to you?

We generated these questions to activate some of the common elements found in near-death experiences. The first two questions reinforce the notion of facing an actual death, as opposed to the abstract concept of mortality. The third and fourth questions mirror the near-death experience of life review in that Question 3 allowed the participants to reflect on their own life and Question 4 allowed them to take the perspective of others.

Participants in the “no death” control condition read a similar scenario in that they imagined waking up in the same apartment to “the sound of a clock radio and the pleasant smell of coffee.” In this scenario, participants imagined spending the day sightseeing and shopping with a family member, before heading back to the apartment for dinner and bed. After reading the no death scenario, participants answered the following questions:

1. Please describe in detail the thoughts and emotions you felt while imagining the scenario.
2. Have you ever experienced an event like the one described in the scenario?
3. Imagining an event like the one described did happen to you, describe the life you led up to that point.
4. Again imagining this event did happen to you, describe the thoughts and emotions of the family member with whom you spent the day.

These questions were designed to mirror the death reflection questions, providing control participants an opportunity to reflect on their life and to take the perspective of others.

After completing the questions, participants responded to a demographic sheet that included a question assessing the participants’ level of spirituality. Finally, we assessed greed by counting the number of raffle tickets taken by participants in a limited-resource task.³

Procedure. Participants were placed in individual rooms and randomly provided with study packets. After completing the Aspirations Index, students encountered a request to read their scenario slowly, imagining they were actually experiencing the event. After answering the questions and completing the demographics sheet, the students received another page designed to look different from the study materials (different typeface and colored paper). This flyer contained the cover story regarding the raffle tickets (good for a \$100 gift certificate) that were contained in an envelope attached to the flyer (see Appendix B). Our intent was to establish that participants were coming into the study in waves and that as more students participated, the more the number of tickets in the envelope would diminish. We also wanted to make it clear that eventually the envelope would be empty, thus the instruction, “you need to tell a research assistant that the envelope is empty. You will receive one ticket to maintain a chance of winning the prize.” The flyer’s text made it explicit that each ticket in the envelope was a potential winner, so participants knew the more tickets they took, the better their chances (creating poorer chances for future participants). The flyer informed all participants that they were in the fourth wave to go through the study. We set this constant of “fourth wave” to prevent students from trying to figure

out how many tickets had been in the envelope at the beginning of the study. We wanted participants to believe that three other participants had gone through the envelope before them, making it impossible to know how many tickets had been there and how many tickets the others had taken. The instructions directed participants to count how many tickets were left in the envelope by the presumed previous three students. Each envelope actually contained 20 tickets despite the flyer story that it could contain more (assuming the people before them took tickets) or fewer (the envelope could have been empty). Participants were debriefed after they took their tickets. This process took approximately 30 min. After completing the study, we randomly selected a raffle ticket from those taken and awarded the gift certificate.

Results

Content analysis. We created our death reflection manipulation in an attempt to provide a laboratory analog to the near-death experience. Based on the open-ended responses provided by participants in the death condition, it seems the manipulation did have an emotional impact. Virtually all of the participants facing their death expressed reactions in strong emotional terms. Examples are as follows: “I felt panic, fear, and sadness which led to an understanding of death, contentment;” “I thought about how I focused on the unimportant things like money and appearances instead of what matters most, the ones I love;” and “I thought deeply about my family and girlfriend. Also about life and how I should not take it for granted.” Many participants imagining their death also reported physical responses to the scenario, such as, “I got goose bumps;” “My heart rate increased;” and “I had to fight back tears.” Thus, it appears our manipulation did allow participants to become intensely involved with their death scenario.

To further examine the effectiveness and conceptual validity of our death reflection manipulation we conducted a content analysis of the open-ended answers. Although the inherent differences between the death and no death scenarios hinder us from making too many inferences about a direct comparison, we did code responses from both scenarios to shed light on the participants’ thoughts and emotions. Across both scenarios, our coders found 15 categories that seemed to capture the essence of the responses. Those categories are positive affect, negative affect, references to death pain, physical sensations, thoughts of past life, thoughts of others, selfish thoughts of others, religious references, goals in life, regrets, negative life comments, and positive life comments. After counting the number of occurrences of each content category for all participants, these category counts were transformed into proportions of total occurrences to standardize response rates across respondents.

We did this to account for the variation we witnessed in the length of responses, which ranged from a few sentences in some cases to requiring the backs of the study packet pages in other cases. A MANOVA using the Wilks criterion revealed significant differences on the content categories as a function of the scenarios, $F(12, 35) = 26.06, p < .01$. Univariate tests showed that participants in the death condition responded with a significantly higher proportion of negative affect (fear, sadness, etc.), physical sensations, life reflection, religious references, and goals in life. Conversely, participants in the control condition responded with significantly more accounts of positive affect, selfish thoughts of others (“They want to make me happy,” “They wanted to show how much I impacted them. They wanted to spend as much time as they could with me.”), and negative life comments (“Extremely stressed with the hustles and bustles of life,” “I wish I had more friends. I sometimes feel isolated.”). Although we found significant differences on some content categories that seemed suggestive, the scenarios were so different in design that it seems best to hold back any deeper analysis of the differences at this time. A more informative content analysis is presented in conjunction with Study 3, which allows for a comparison of two mortality manipulations.

Regression analyses. To analyze the effects of death reflection (death or no death) and value orientation on our dependent measure of greed, we first generated a relative score of extrinsic as compared to intrinsic values for each participant. Following the recommendation of Kasser and Ryan (1993, 1996) and Sheldon and McGregor (2000), we computed a single EVO score by subtracting the intrinsic items from the extrinsic items, creating a new variable ranging from low extrinsic values on one end to high extrinsic values on the other end. We used a multiple regression procedure to analyze the main and interactive effects of value orientation and death reflection, centering the values variable (Aiken & West, 1991).

The analysis revealed a significant, positive relationship between value orientation and greed in that participants with a high EVO took more tickets than did low EVO participants, $\beta = .33$ ($b = .04$), $p < .05$. This main effect of value orientation, however, was qualified by the significant interaction between value orientation and death reflection, $\beta = -.48$ ($b = .09$), $p < .05$. The simple slopes of this interaction (plotted at ± 1 SD of value orientation) can be seen in Figure 1. Looking at the effect of death or no death, there was a significant relationship between value orientation and greed, as predicted, in that high EVO participants took more tickets than did low EVOs when reading the control scenario, $\beta = .67$ ($b = .09$), $p < .01$. This relationship disappeared, however, when participants read the death scenario ($\beta = -.01$, $b =$

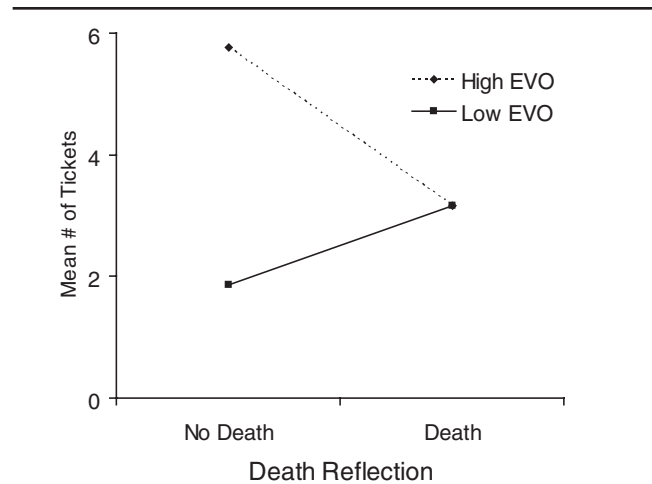


Figure 1 Mean number of tickets taken as a function of death reflection and value orientation (high EVO = +1 SD, low EVO = -1 SD).

$-.002$, $p > .90$), indicating that in the death condition, value orientation was no longer predictive of greedy behavior. Analyzing the slopes from the perspective of value orientation, the drop in tickets taken among high EVOs was significant ($\beta = -.46$, $b = -2.59$, $p < .05$), whereas the increase in low EVOs was not significant ($\beta = .23$, $b = 1.30$, $p > .20$).

With this decrease in greed among high EVOs as a function of death reflection, we examined the spirituality question from the demographics sheet, which read, “on a scale of 1 to 10 (with 10 being very spiritual), rate your level of spirituality.” Based on the evidence of increased spirituality in near-death experience and PTG research, we thought this item could help shed light on the processes driving the change in greedy behavior. Results of this analysis revealed that there was a significant, negative relationship between value orientation and spirituality in that participants with a low EVO reported higher levels of spirituality than did high EVO participants, $\beta = -.35$ ($b = -.04$), $p < .05$. There was also a significant relationship between death reflection and spirituality in that participants who faced their death reported higher levels of spirituality than did participants who did not face their death, $\beta = .45$ ($b = 2.24$), $p < .01$. The interaction between value orientation and death reflection approached significance, $\beta = .30$ ($b = .05$), $p = .10$. Examining the simple slopes of this developing interaction (Figure 2) revealed that when not dying, low EVOs were more likely to report higher levels of spirituality than were high EVOs, $\beta = -.57$ ($b = -.07$), $p < .01$, although this disappeared when participants read the death scenario ($\beta = -.13$, $b = -.02$, $p > .40$), indicating that high EVOs were now reporting similar spirituality lev-

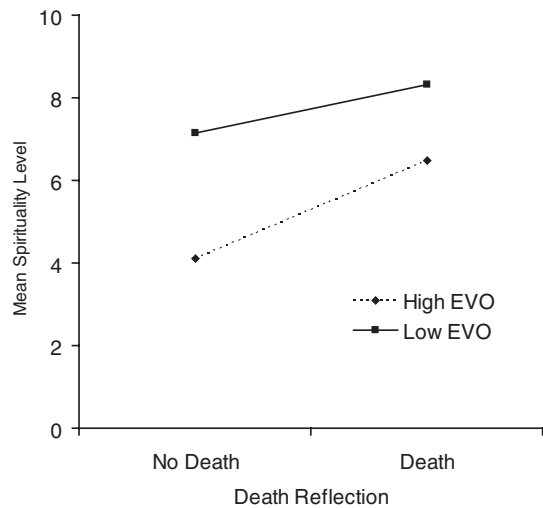


Figure 2 Mean level of spirituality as a function of death reflection and value orientation (high EVO = +1 SD, low EVO = -1 SD).

els as low EVOs. Analyzing the slopes reveals that the increase in spirituality seen among high EVOs was significant, $\beta = .67$ ($b = 3.34$), $p < .05$, whereas the increase among low EVOs was not, $\beta = .23$ ($b = 1.14$), $p = .23$.

Discussion

We predicted that participants with a high extrinsic value orientation would demonstrate greater levels of greed when not experiencing our death reflection manipulation. We also predicted that extrinsically oriented participants who faced our death reflection manipulation would become less greedy. The results seem to support both of these predictions. Based on the greed findings, the significantly higher reported levels of spirituality among those participants facing their death, and the suggestive content analysis differences, we inferred that our manipulation did have the near-death experience, positive-growth impact that we predicted.

Despite our inference about the effect of death reflection, there was some question as to whether the differences we observed had more to do with simply the effects of positive (control condition) and negative (death condition) affect on greed. In this vein, we also felt it was important to test if the open-ended questions, which we modeled after the positive growth inducing aspects of the near-death experience, were necessary to achieve the results we observed.

STUDY 2

Method

Participants. Fifty-six introductory psychology students from California State University, Sacramento (49

women, 7 men), ranging in age from 17 to 40 ($M = 21.09$, $SD = 4.88$), participated to fulfill a course requirement.⁴ Most of the sample was Caucasian (41%), followed by Asian (18%), multiracial (13%), Latino (9%), and African American (7%), with the remaining participants' ethnicity unknown.

Materials. We used the same 30-item Aspirations Index (based on Kasser & Ryan, 1996) from Study 1 to assess the participants' value orientation. This sample generated a coefficient alpha of .87 for the intrinsic subscale and .92 for the extrinsic subscale.

To avoid comparing positive versus negative affect scenarios, all participants received the death reflection scenario used in Study 1; however, some of the participants received our standard open-ended questions (from Study 1), whereas the other students received questions not inspired by near-death experiences or PTG (e.g., "How could we improve the typographical appearance of the scenario?"). After reading the scenario, completing the questions, and filling out the demographic sheet used in Study 1, participants came across the same flyer from the first study telling participants about the raffle tickets, which we used to assess greed.

Procedure. We employed the same procedures used in the first study; however, each envelope actually contained 22 tickets (instead of 20 as in the first study). We made this change to avoid any possibility that participants would make their ticket decisions based on the fact that 4 (wave number) was a multiple of 20 (eliminating the notion that 5 would be an appropriate number of tickets to take). After participants took their tickets, they were debriefed. Following data collection, we randomly selected a single raffle ticket so we could award a student the gift certificate.

Results

Repeating the steps used in Study 1, we first generated a relative score of extrinsic as compared to intrinsic values for each participant. Regressing the number of tickets taken on value orientation (centered) and question type (real vs. unrelated) revealed a significant interaction between our variables, $\beta = -.38$ ($b = -.11$), $p < .05$. The simple slope analyses of this interaction (Figure 3) revealed no relationship between value orientation and greed after the unrelated questions, $\beta = .11$ ($b = .02$), $p > .50$. This relationship was significant, however, among participants answering real questions, in that high EVOs took significantly fewer tickets than did low EVOs, $\beta = -.56$ ($b = -.09$), $p < .05$. Examining the slopes showed that the drop in tickets taken by high EVOs was nearly significant, $\beta = -.41$ ($b = -2.99$), $p < .06$, whereas the in-

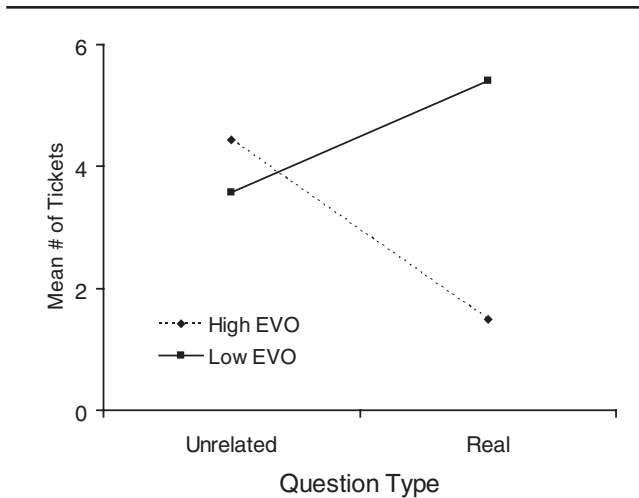


Figure 3 Mean number of tickets taken as a result of question type and value orientation (high EVO = +1 SD, low EVO = -1 SD).

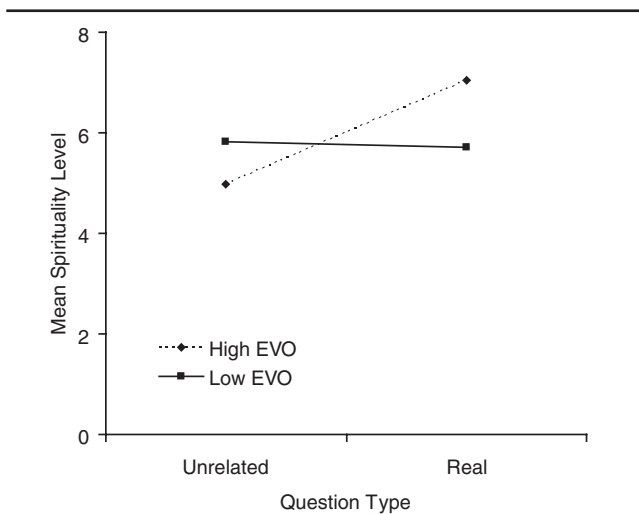


Figure 4 Mean level of spirituality as a function of question type and value orientation (high EVO = +1 SD, low EVO = -1 SD).

crease in tickets taken by low EVOs was not, $\beta = .26$ ($b = 1.86$), $p > .20$.

With this replication of behavior in high EVOs after facing death reflection, we examined the demographics spirituality question. This analysis revealed a developing interaction, $\beta = .28$ ($b = .05$), $p = .10$. The simple slopes (Figure 4) showed that reported spirituality increased for high EVOs after answering the real questions, $\beta = .44$ ($b = 2.15$), $p < .05$. There was no effect for low EVOs, $\beta = -.04$ ($b = -.19$), $p > .80$.

Discussion

Based on these results, we made two inferences regarding our death reflection manipulation: (a) The

drop in greedy behavior seen in both studies among high EVOs was not a reaction to reading a disturbing scenario as opposed to a pleasant one and (b) the four questions we patterned after components of the near-death experience do seem to be vital to the manipulation as a whole. An issue we will wait to address is the slight increase in greed among low EVOs after experiencing our death reflection manipulation. Although not significant, the replication of the increase was certainly not predicted.

Still missing from our exploration into the validity and effectiveness of death reflection was a mortality salience manipulation to examine whether our manipulation was triggering behavior different from what we might observe using terror management techniques. We made this direct mortality awareness comparison in our next study.

STUDY 3

Method

Participants. Ninety introductory psychology students from California State University, Sacramento (77 women, 13 men), ranging in age from 17 to 52 ($M = 21.45$, $SD = 5.95$), participated to fulfill a course requirement.⁵ Most of the sample was Caucasian (69%), followed by Asian (11%), Latino (6%), multiracial (4%), and African American (3%), with the remaining participants' ethnicity unknown.

Materials. We used the same 30-item Aspirations Index (based on Kasser & Ryan, 1996) from Studies 1 and 2 to assess the participants' value orientation, with this sample generating a coefficient alpha of .85 for the intrinsic subscale and .92 for the extrinsic subscale.

To assess the effects of death reflection in contrast to mortality salience, we gave some participants the death reflection manipulation from the first two studies. To manipulate mortality salience, other participants received the following question inspired by previous research (e.g., Goldenberg et al., 2000; Kasser & Sheldon, 2000; Rosenblatt et al., 1989): "In as many words and in as much detail as possible, please describe the thoughts, feelings, and emotions you experience when thinking about your own death." To compare these two mortality manipulations to a control group, we assigned the remaining participants to answer the following question: "In as many words and in as much detail as possible, please describe the thoughts, feelings, and emotions you experience when thinking about your favorite music." After answering the questions, participants received the same flyer used in Study 2 and we again relied on the number of raffle tickets taken as our measure of greed.

TABLE 1: Mean Proportions and Standard Deviations for Content Categories Comparing Death Reflection and Mortality Salience

Category	Mortality Manipulation				Example Item
	Death Reflection		Mortality Salience		
	M	SD	M	SD	
Positive affect	.08	.07	.11	.10	"Peace, calm"
Negative affect	.19	.14	.17	.15	"Scared, worried"
Fear of pain****	.02	.04	.09	.13	"I hope death's not painful"
Physical sensations	.02	.04	.03	.10	"Heart raced, stomach dropped"
Life reflection****	.12	.09	.03	.07	"Did best with time I had"
Life goals	.05	.07	.06	.09	"Graduate, marriage, career"
Life regrets***	.07	.08	.03	.06	"I wish I would have . . ."
Thoughts of others****	.26	.11	.13	.15	"Want them to know I loved them"
Selfish other thoughts**	.03	.07	.08	.12	"I am the light in their lives"
Religious beliefs***	.06	.09	.13	.15	"Prayer, God, heaven"
Self-centered mortality	.06	.09	.05	.06	"When I die, my funeral"
Universal mortality***	.04	.05	.09	.15	"Everything dies, inevitable"

NOTE: Death reflection, $n = 31$; mortality salience, $n = 28$.

** $p < .07$. *** $p < .05$. **** $p < .01$.

Procedure. Participants were placed in individual rooms and randomly provided with study packets. Students first completed the Aspirations Index. Participants facing death reflection then read a request asking them to read their scenario slowly, imagining it actually happened. Students in the mortality salience or control conditions simply faced their respective question. Following the questions, all participants responded to the same demographics sheet from Studies 1 and 2. All students then received the raffle flyer, which informed them that they were in the fourth wave to go through the study. The envelope again contained 22 tickets, replicating the procedure in Study 2. After taking their tickets, participants were debriefed. A gift certificate was again awarded to one participant when data collection ended.

Results

Content analysis. The pairing of death reflection with mortality salience allowed for direct comparison of the narrative responses provided by participants in the hopes of better understanding the processes generated in both conditions. We coded 12 categories of responses: positive and negative affect; physical reality of dying (e.g., pain); physical reactions to thinking about death (e.g., increased heart beat, shortness of breath); general life reflections; life goals; life regrets; religious references; self-oriented mortality awareness (e.g., "when I die"); universal, conceptual mortality awareness (e.g., "all living things die"); thoughts of others; and selfish thoughts of others. Despite the differences in the manipulations across studies, the content categories that emerged in this study are quite similar to those in Study 1. Replicating the procedure from Study 1, all occurrences of a content match were transformed into

proportions for each participant to account for individual differences in the length of responses.

A MANOVA comparing death reflection and mortality salience revealed significant differences in responses among the 12 content categories, $F(12, 46) = 6.84$, $p < .01$. Table 1 presents the mean proportions and standard deviations across all 12 categories as a function of mortality manipulation, as well as the univariate results and example responses from each category. The answers from participants facing death reflection contained a higher proportion of general life reflection, life regrets, and thoughts of others, whereas responses from mortality salience participants had a greater proportion of references to death pain, selfish thoughts of others, religion, and death as a universal concept.

We created the death reflection manipulation to mirror three aspects of the near-death experience: (a) seeing death as real not just conceptually, (b) a life review, and (c) perspective taking of others. It appears from the content of the participants' responses that we were successful. Participants exposed to the death reflection condition focused 45% of their narrative responses on general life reflection, life regrets, and thoughts of others; those exposed to the mortality salience condition addressed these issues in only 19% of their responses. Conversely, participants exposed to mortality salience focused 44% of their narrative responses on death pain, selfish thoughts, religion, and death as a concept; those exposed to death reflection addressed these issues in 15% of their responses. In line with terror management theory, it seems as if mortality salience did generate a process of concern (pain), which led to worldview comfort seeking (religion, selfishness), all while keeping death in a conceptual setting. Consistent with near-

TABLE 2: Main and Interactive Effects of Value Orientation and Death Manipulation on Greed

	Death Manipulation		
	Control ^a	Mortality Salience ^b	Death Reflection ^c
Values <i>b</i>	0.03	0.09***	-0.02
β	0.24	0.62***	-0.13
Interaction 1	<i>t</i> = -1.62*	<i>t</i> = -2.40***	<i>t</i> = 2.40***
Interaction 2	<i>t</i> = 1.21	<i>t</i> = -1.21	<i>t</i> = 1.62*
Change in <i>R</i> ²	0.07***	0.07***	0.07***

a. Coding: Control = 0, 0; death reflection = 1, 0; mortality salience = 0, 1.
 b. Coding: Mortality salience = 0, 0; death reflection = 1, 0; control = 0, 1.
 c. Coding: Death reflection = 0, 0; mortality salience = 1, 0; control = 0, 1.
 p* = .10. **p* < .05.

death experience and PTG theorizing, it appears our death reflection manipulation generated a process of life reflection and perspective taking.

Regression analyses. To analyze the effects of death manipulation (death reflection, mortality salience, or control) and value orientation on our measure of greed, we again created a relative score of extrinsic compared to intrinsic values for each participant by subtracting the Aspirations Index intrinsic items from the extrinsic items. As outlined by Aiken and West (1991), we created two dummy variables for our three-level death manipulation variable and centered all appropriate variables before the regression analyses.

To analyze the relationship between value orientation and greed on each level of our death manipulation variable, we created three sets of dummy variables, allowing us to exclude one death condition in each analysis (Aiken & West, 1991). For each dummy variable set, we regressed the number of tickets taken on the centered values variable along with the two dummy variables in Step 1, followed by the interaction terms in Step 2. Table 2 presents the simple slopes for each death manipulation condition (in β and *b*) as well as the *t* tests for the two interaction terms and the change in *R*² after the interaction terms entered the equation. As the table shows, there was a positive relationship between values and greed in the control condition in that higher levels of extrinsic values were associated with more tickets taken, although this relationship was not significant, *p* = .14. This positive relationship between values and greed, however, became significant in the mortality salience condition, where higher levels of extrinsic values were associated with higher levels of greed. Finally, Table 2 reveals how this relationship between values and greed disappeared in the death reflection condition. The results presented in Table 2 also allow us to determine if the slopes for values differ as a function of mortality salience and death reflection. The first interaction term

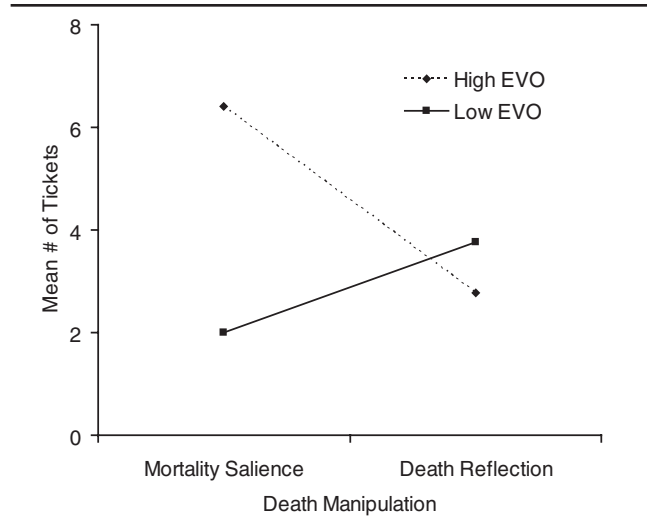


Figure 5 Mean number of tickets taken as a function of value orientation and the variable comparing death reflection to mortality salience (high EVO = +1 SD, low EVO = -1 SD).

in the mortality salience column of Table 2 represents the interaction between death reflection and values. The *t* test on this interaction is a test of the difference between the simple slopes for the death reflection and mortality salience conditions, which is, in this case, significant. Figure 5 depicts the simple slopes of the analysis comparing mortality salience and death reflection, using ± 1 SD on the values measure to denote high and low EVOs. Among high EVO participants, the drop in tickets taken as a function of experiencing death reflection instead of mortality salience was significant ($\beta = -.49$, *b* = -3.54, *p* < .05), whereas the increase observed in low EVO participants was not significant, $\beta = .23$ (*b* = 1.69), *p* = .19. The interaction between values and the variable comparing mortality salience to the control group (Table 2, second interaction term under the mortality salience column) was not significant, *p* > .20. Although the interaction between values and the variable comparing death reflection to the control group also was not significant (Table 2, second interaction term under the death reflection column), there was a developing trend (*p* = .10) in that high EVOs took fewer tickets in death reflection than they did in the control group, $\beta = .28$ (*b* = 1.82).

The interaction between values and death manipulation on the spirituality question from the demographics sheet was not significant. Based on the results of the first two studies and the content analyses, however, a planned comparison of the interaction's simple slopes seemed justified. Figure 6 shows again an inclination among high EVOs to report higher levels of spirituality after death reflection, this time in comparison to mortality

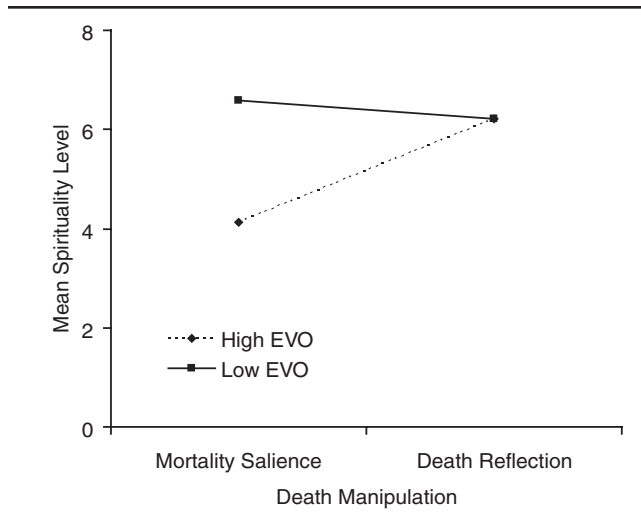


Figure 6 Mean level of spirituality as a function of value orientation and the variable comparing death reflection to mortality salience (high EVO = +1 SD, low EVO = -1 SD).

salience, $\beta = .37$ ($b = 2.09$), $p = .09$. Although this effect was not significant at the omnibus level ($p = .16$), the replication of an increase as a function of death reflection seems suggestive.

Discussion

Following Studies 1 and 2, we set out to compare death reflection with techniques employed by terror management researchers. We predicted that mortality salience would drive highly extrinsic participants to take more tickets than control participants, a hypothesis confirmed in Study 3. We also expected extrinsically oriented participants who faced death reflection, inspired by near-death experiences and posttraumatic growth, to behave more like intrinsically oriented students, which is what occurred. We also observed some evidence of what could be driving this behavior in the form of content analyses (Studies 1 and 3) and responses to the spirituality question. Based on these results, it appears that our death reflection manipulation can reliably induce intrinsic behavior and values in participants who would otherwise reveal greedy behavior and endorse extrinsic values. For the third time, however, we observed a slight increase in tickets taken by low EVOs after death reflection. Although none of these increases was significant, the replication of the trend implies the possibility of an effect hidden by lack of power. Speculation about this nonsignificant trend is provided below.

GENERAL DISCUSSION

Previous research has solidified the links between consumption behavior, value orientation, and concerns

of death. Among our goals in the current studies was to illustrate how these established constructs continue to predict an individual's willingness to take more than his or her fair share. In Study 1, high EVOs did take significantly more raffle tickets than did low EVOs. Study 3 adds to the terror management literature by refining the effects of mortality salience on greed (e.g., Kasser & Sheldon, 2000). In our sample, only high EVOs were affected by mortality salience, a result that, although novel, flows directly from terror management theory's evidence of worldview defense.

Aside from testing established constructs, however, we set out largely to examine whether individuals could face their mortality in the laboratory and be moved in a positive rather than negative or defensive direction. Guided by reports from near-death experience and post-traumatic growth researchers, we created a manipulation that encompassed key features of these experiences: an actual death, a chance to reflect on life, and an opportunity to take the perspective of others. In Study 1, we found that high EVOs were affected by death reflection and, in response, behaved in a more intrinsic manner. We also saw an increase in reported spirituality as a function of our manipulation as well as some suggestive content in the answers to our open-ended questions. In Study 2, we again saw that highly extrinsic participants' behavior was significantly contingent on context, at least as it relates to mortality awareness. After death reflection, high EVOs took significantly fewer tickets than they did after reading the scenario and answering unrelated questions, not inspired by mortality awareness. Study 2 also replicated the increase in reported spirituality among high EVOs after facing death reflection. Finally, Study 3 provided evidence that high EVOs responded quite differently when experiencing death reflection compared to mortality salience, mirroring the behavior of low EVOs.

The revealing content analysis of the thoughts and emotions of participants in our manipulation compared to mortality salience seen in Study 3 also seems to suggest a link between death reflection, near-death experiences, and PTG. Our final study also provided further evidence of the potential role of spirituality in mitigating greed. Although not significant in Study 3, the increase in reported spirituality witnessed in high EVOs after death reflection corresponds with the significant increases observed in our previous studies. In sum, it appears that whereas mortality salience leads to worldview defense (high EVOs taking more), death reflection leads to worldview capitulation (high EVOs behaving like low EVOs). As with NDEs and posttrauma individuals, it seems that facing and reflecting on life and death via

death reflection generates (at least momentarily) intrinsic thoughts, feelings, and behavior.

From a pure significance-testing standpoint, low EVOs exhibited consistent behavior on our measure of greed, despite our manipulations. Although the statistical evidence points to no changes in low EVOs, the slight increase in greed witnessed across all three studies after death reflection does deserve mention. One potential explanation for the slight increase stems from our earlier inference that death reflection leads to worldview capitulation among high EVOs. Perhaps the processes activated in death reflection work both ways: High EVOs will renounce their worldview becoming more intrinsic, whereas low EVOs will no longer defend their worldview and, in turn, will behave more extrinsically. This suggestion that intrinsic worldviews are as potentially open to change as extrinsic worldviews certainly seems worthy of further study; however, little work that we could find exists in the value orientation literature to support this hypothesis. Typically, theorists (e.g., Maslow, 1954; Rogers, 1963) conceive of intrinsic values as more ingrained in human nature and less likely to fluctuate.

It is important to recognize that our measure of greed in the form of raffle tickets prevents us from generalizing to all forms of avarice. However, in advancing from previous studies that have relied on imaginary or paper-and-pencil type measures to assess consumption (e.g., Kasser & Sheldon, 2000), we believe our raffle ticket task represented a concrete, behavioral appraisal of greed. Another limitation of this study involved our scenario manipulation. By employing only one situation (a building fire), we lose the ability to generalize the effects of death reflection across other death scenarios.

CONCLUSIONS

I realize now that our time here is relatively short and it makes me want to live my life to the fullest. It seems like such a waste of precious time to become caught up in materialistic modes of thinking.

I guess the most important things it has taught me are to appreciate what life can hold for you and to be grateful for the loving relationships in your life. It's taken me a long time to realize this.

I wondered if I had done all that I could to make my life meaningful. I thought of expressing to my family that I loved them. I wondered if there were people whose feelings I've hurt and I was sorry for that.

The quotations presented above are responses from individuals who at one time in life came face to face with their own mortality. Beyond that connection, there are some themes in what these people say that also seem to

connect each of them: most notably, a sense of realization or learning of some important truth, as well as a meta-awareness of the life they had been living.

There is explanatory precedence in the literature to help us further understand these consistent, positive growth themes seen in people after mortality awareness, more specifically, the existential perspective advanced by Yalom (1980) that attempts to distill thoughts originally put forth by Heidegger (1962). From this perspective, individuals take one of two routes to existing in the world: one in which they are forgetful of being and one in which they are mindful of being. Consistent with Becker (1973), people who take the first route "live in a world of things" and surrender "to the everyday world" (Yalom, 1980, pp. 30-31). Conversely, people who are mindful of being are more apt to become intimately aware of their own existence and feel responsible for—and capable of—changing their lives. It is these persons who embrace their potential and become aware of their ability to transcend their limits (Yalom, 1980). Awareness and acceptance of death, Yalom states, is the key to existing in this transcendent state. Looking back at the quotations above, we see that people can approach this positive state in a variety of ways, from the extraordinary to the mundane. In fact, the first quotation comes from a man who had a near-death experience as a result of a rafting accident (Ring & Elsaesser Valarino, 1998), the second statement comes from a woman living with a painful chronic disease (Tennen & Affleck, 1998), and the third quote comes from a research participant in Study 3 in response to our death reflection manipulation. What the near-death experience, PTG, and death reflection perhaps provide is a sampling of the tools required for people to manage their transcendence over existential terror, allowing them to embrace their existence (and inevitable nonexistence) and enabling intrinsic needs and values to surface.

Ernest Becker (1973) once posited that "there is simply no way to transcend the limits of the human condition" (p. 277). There is little doubt that fears, concerns, and denials of death are largely responsible for the deleterious behaviors witnessed in laboratories employing terror management techniques. Becker and terror management theorists (e.g., Greenberg et al., 1986) have soundly addressed how concerns of death and their associated defensive responses are part of the human condition. Clearly, it would be too strong an inference to suggest that the recurring themes evident in the above quotations alone represent an actual transcendence of "the human condition," as stated by Becker. It is our assertion, however, that under certain conditions, mortality awareness has the potential to generate reactions (both affective and behavioral) that begin to challenge our limits.

APPENDIX A

Imagine that you are visiting a friend who lives on the 20th floor of an old, downtown apartment building. It's the middle of the night when you are suddenly awakened from a deep sleep by the sound of screams and the choking smell of smoke. You reach over to the nightstand and turn on the light. You are shocked to find the room filling fast with thick clouds of smoke. You run to the door and reach for the handle. You pull back in pain as the intense heat of the knob scalds you violently. Grabbing a blanket off the bed and using it as protection, you manage to turn the handle and open the door. Almost immediately, a huge wave of flame and smoke roars into the room, knocking you back and literally off your feet. There is no way to leave the room. It is getting very hard to breathe and the heat from the flames is almost unbearable. Panicked, you scramble to the only window in the room and try to open it. As you struggle, you realize the old window is virtually painted shut around all the edges. It doesn't budge. Your eyes are barely open now, filled with tears from the smoke. You try calling out for help but the air to form the words is not there. You drop to the floor hoping to escape the rising smoke, but it is too late. The room is filled top to bottom with thick fumes and nearly entirely in flames. With your heart pounding, it suddenly hits you, as time seems to stand still, that you are literally moments away from dying. The inevitable unknown that was always waiting for you has finally arrived. Out of breath and weak, you shut your eyes and wait for the end.

APPENDIX B

Attention research participants! To thank you for participating in this somewhat personal research project, we have decided to enter each of you in a raffle! The winning participant will receive the \$100 gift certificate to the school bookstore pictured below. It can be used toward any purchase at the store (books, computer software and hardware, clothing, etc.). To avoid ethical concerns of potentially bribing participants, however, we the researchers (or our assistants) cannot play ANY role in the distribution of the raffle tickets, especially since we will be picking the winner. Based on past raffles like this, however, we have decided to let you—the participants—distribute the tickets amongst yourselves over time. In the top right-hand corner of this page is a "group number." Below are the instructions that pertain to each group.

If you are in GROUP 1, you are obviously in the first group! Attached to the back of this page is an envelope filled with raffle tickets. Take what you consider to be a fair amount of tickets for yourself and leave the remainder in the envelope for future groups. Each ticket is a potential winner! Make sure you reattach the envelope to the packet!

If you are in GROUPS 2 or higher, open the envelope attached to this page and count the number of raffle tickets that remain.* Like the groups before you, you are free to take

as many tickets as you'd like, leaving those that you don't take for future groups. Remember, each ticket is a potential winner! Please reattach the envelope to the packet when you are finished.

Best of luck! Be sure to keep your ticket(s) since we will be picking the winner from those tickets that were distributed over the course of the semester. Any one of them could be the winner!

*If there are no tickets in the envelope: Since we are not tracking the distribution of tickets, you need to tell a research assistant that the envelope is empty. You will receive one ticket to maintain a chance of winning the prize.

NOTES

1. Dechesne et al. (2003) suggested that greed may be more "chronically accessible" to men than to women, accounting for the gender differences in their study. We used gender as a main effect and interaction variable in all analyses reported in this article. Across all studies and dependent measures, gender was not significant as a main effect or as an interaction variable. However, in some cases, the analyses were considering as few as one or two in a particular cell (thinking in an ANOVA framework). To further test the potential effects of gender, we removed the data for men and analyzed only the data provided by women. In every case, we achieved the same results as when the men were included. It appears there were no gender effects in our data sets; however, due to our lack of power and the Dechesne et al. finding, it does seem gender differences in greed as a function of mortality awareness should be studied further.

2. Data were collected from 62 participants; however, 14 of those students did not take any raffle tickets. The cover story was designed to set one raffle ticket as a limit for each student. There was some concern among our research assistants that participants who did not understand the cover story were among the students who did not take tickets. With this uncertainty, we decided it would be best to drop the subjects from the analyses. As a statistical precaution, we conducted a binary logistic regression to confirm that the zero ticket result was not systematically related to our independent variables. We found no evidence that value orientation, death reflection, or their interaction could account for taking either zero tickets or at least one ticket, all $ps > .50$. With this information and the uncertainty of the cover story's effectiveness, we focused our analyses on the 48 people who took at least one ticket. We achieved the same results when we included the 14 "zero ticket" participants in the analyses; however, we felt most confident addressing the data with participants who took at least one ticket.

3. In a study of egoism and altruism, Batson et al. (1999) successfully incorporated raffle tickets as their dependent measure in a study of scarce resource allocation. Raffle tickets were also in a study attempting to assess levels of moral hypocrisy (Batson, Thompson, Seufferling, Whitney, & Strongman, 1999).

4. Data were collected from 71 participants; however, 15 of those students did not take any raffle tickets. As in Study 1, we conducted a binary logistic regression to confirm that the zero ticket result was not systematically related to our independent variables. We found no evidence that value orientation, question type, or their interaction could account for taking either zero tickets or at least one ticket, all $ps > .25$, so we focused our analyses on the 56 people who did take at least one ticket. We achieved the same results as when we included the 15 "zero ticket" participants in the analyses; however, as in Study 1, we felt most confident addressing the data from participants who took at least one ticket.

5. Data were collected from 108 participants; however, 18 of those students did not take any raffle tickets. As in the first two studies, a

binary logistic regression confirmed the zero ticket result was not systematically related to our independent variables, all $ps > .40$. With this information and the same concerns about the cover story's effectiveness, we focused our analyses on the 90 people who took at least one ticket. As in the first two studies, we achieved the same results when we included the 18 "zero ticket" participants in the analyses.

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