MORTALITY SALIENCE AND AGE INTERACT TO AFFECT CHARITABLE DONATIONS

by

JENNIFER R. ROBERTS

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Department of Psychology

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This thesis for the Master of Arts degree by

Jennifer R. Roberts

has been approved for the

Department of Psychology

by

Molly Maxfield, Chair

Thomas Pyszczynski

Kathleen Tomlin

Date 4/27/2018
Evidence suggests that older adults engage in generous behavior more frequently than young adults (Freund & Blanchard-Fields, 2014). It is possible that older adults’ awareness of mortality prompts generative concern (Maxfield et al., 2014) as a means of caring for future generations and ensuring symbolic immortality (Pyszczynski, Solomon, & Greenberg, 2015). This study expanded on prior research by examining the effects that age and death reminders had on charitable giving as well as in-group compared to out-group specific giving. It was expected that older adults and those primed to think about death would donate more money to charity than other age groups or those in the control condition. No main effects were observed for priming condition or age on overall donations, nor on group-specific donations. However, significant priming condition by age interactions were observed for overall donations and group-specific donations. Young adults donated less overall and to the in-group after a mortality salience prime than after a dental pain prime. No differences in giving were observed for middle-aged adults after a mortality salience prime or dental pain prime. Older adults gave more overall and to the out-group after a MS prime than after a DP prime. Though the results were inconsistent with prior research and hypotheses were largely unsupported, the results of this study may highlight changing worldviews in an increasingly global environment and also suggest a lack of responsiveness to reminders of mortality among middle-aged adults. Future research would benefit from further evaluating these patterns.
Keywords: terror management theory, mortality salience, generativity, charitable giving, age differences
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CHAPTER I
INTRODUCTION

Giving generously to meet the needs of others is a valued social and cultural norm in many societies. For example, Hindu literature suggests that giving to others is a crucial duty, Judeo-Christian and Islamic traditions encourage adherents to provide care for the needy, and Native Americans believe that giving to others brings harmony and balance to one’s life (National Philanthropic Trust, 2016). Pro-social giving to others has also increased over time. In 1975, Americans gave approximately $75 billion to charitable organizations; in 2015 the amount given was over $373 billion, with 71% of donations made by individuals (Lilly Family School of Philanthropy, 2016). In 2013, 1.41 million American nonprofit organizations reported combined contributions of over $905 billion (McKeever, 2015). Charitable giving benefits society as well as individuals. Non-profit organizations provide jobs, as well as philanthropic care of the environment, humans, and animals. Further, individuals who engage in charitable giving reap financial benefits (e.g., tax deductions), psychological benefits (e.g., higher levels of positive affect; Andreoni, 1990; Dunn, Aknin, & Norton, 2008), and social benefits (e.g., greater social approval; Becker, 1974).

Evidence suggests that age is associated with charitable giving behaviors, wherein older adults exhibit greater generosity than young or middle-aged adults (Freund & Blanchard-Fields, 2014, Study 3), though why this occurs is not completely understood. It is possible that older adults’ awareness of the inevitability of impending death prompts
generative concern (Maxfield et al., 2014) as a possible means of ensuring symbolic immortality (Pyszczynski, Solomon, & Greenberg, 2015) and care of future generations (Erikson & Erikson, 1997). This study expanded on prior research by examining the effects of age and death reminders on charitable giving.

**Terror Management Theory**

Humans are different from other species; they have the cognitive capacity to think abstractly about the world around them, including the ability to process complex ideas such as death. According to Terror Management Theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986; see Pyszczynski et al., 2015 for a recent review), the awareness that death is unpredictable, beyond human control, and results in the end of one’s physical existence, leads to the potential for extreme anxiety (referred to as terror in TMT literature). TMT authors assert that humans attempt to manage the terror that death awareness brings by accepting and living up to cultural worldviews (thereby strengthening self-esteem) and by pursuing forms of immortality (either symbolic or literal); further, these pursuits are particularly important following increased awareness of mortality (Solomon, Greenberg, & Pyszczynski, 1991).

**Cultural Worldviews and Self-esteem**

A cultural worldview is a set of values, ideas, and beliefs concerning the nature of reality commonly shared by groups of people (Greenberg et al., 1986; Harmon-Jones et al., 1997). An individual’s cultural worldview acts as a psychological buffer against death-related terror by providing meaning, stability, and significance both on intrapersonal (e.g., self-esteem) and interpersonal (e.g., validation from others) levels (Solomon et al., 1991). According to TMT, self-esteem (one’s sense of value) is derived
from accepting and living up to the standards of the subjectively important culture or
subcultures to which one subscribes. Additionally, self-esteem is achieved by receiving
continued social validation from others that one has met cultural standards and
expectations, thus instilling feelings of being a worthy contributor to society
(Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004; Pyszczynski et al., 2015;
Solomon et al., 1991). For the purposes of this study, it is sufficient to know that, along
with faith in the cultural worldview, strong self-esteem provides a psychological buffer
against the terror that arises with increased death awareness (Pyszczynski et al., 2004;
Solomon et al., 1991). Cultural worldview, self-esteem, and close interpersonal
relationships compose the anxiety-buffering system, an essential part of managing
existential terror.

In TMT research, the most commonly investigated hypothesis is the mortality
salience hypothesis, which asserts that when thoughts of death are made salient (e.g.,
asking participants to write about their thoughts and feelings about their own death;
Greenberg, Pyszczynski, Solomon & Rosenblatt, 1990), individuals will attempt to
defend their chosen cultural worldview and the protective psychological structures that
support it, such as self-esteem and close interpersonal relationships (Burke, Martens, &
Faucher, 2010; Solomon et al., 1991). Therefore, when reminded of mortality, people
should be especially motivated to maintain or defend their worldviews, referred to as
worldview defense (see Castano, Yzerbyt, Paladino, & Sacchi, 2002; Solomon et al.,
**Literal and Symbolic Immortality**

Protection against the awareness of death’s inevitability (Greenberg, Solomon, & Pyszczynski, 1997) is partly accomplished by the provision of either literal or symbolic immortality. Cultures define what a person must do to be a “good” and “valuable” member of society, and provide some form of immortality to those who meet cultural expectations. *Literal immortality* is the idea that part of oneself (e.g., a non-corporeal spirit) will exist beyond death (Pyszczynski et al., 2015). Promises of literal immortality are provided by religions throughout the world (e.g., the Judeo-Christian and Islamic concept of heaven, the Buddhist idea of reincarnation, etc.). In accordance with religious or spiritual beliefs, to achieve literal immortality, individuals must live up to the chosen religion’s precepts and expectations of goodness and morality (Pyszczynski et al., 2015).

*Symbolic immortality* is achieved by knowing that one is a valuable member of an enduring and meaningful culture, as well as through leaving something of oneself behind that continues to exist beyond death (Pyszczynski et al., 2015). Symbolic immortality could be achieved by doing something memorable (e.g., receiving a notable award), or by leaving a financial legacy (e.g., through charitable endowments to lasting organizations). Such achievements create opportunities to be remembered and renowned beyond the scope of one’s lifetime.

**In-group Versus Out-group Support**

According to TMT, cultural worldviews are created and supported through socialization into the groups to which one belongs (Arndt, Greenberg, Schimel, & Pyszczynski, 2002; Solomon et al., 1991). Previous research shows that being part of a chosen culture (e.g., religious groups, political affiliations, communities, etc.) influences
the desire to contribute to the group as well as share in the benefits of the group (Bennett, 2003). Further, it has been suggested that pro-social behavior, especially when provided to those judged as “worthy” within one’s culture, meets cultural standards and has the potential to strengthen one’s personal value, thus providing protection against thoughts of death (Solomon et al., 1991). Several TMT studies show that when reminded of one’s mortality, participants are more likely to support groups that share or validate one’s cultural worldview (the in-group; e.g., Jonas, Schimel, Greenberg, & Pyszczynski, 2002) and to derogate or respond more aggressively toward groups that do not (the out-group; e.g., Greenberg et al., 1995; McGregor et al., 1998). For a recent review of the literature concerning reactions to in-groups and out-groups following mortality salience (MS), see Pyszczynski et al. (2015).

Worldview defense in favor of the in-group and/or derogation of the out-group has been shown to be a consistent response to MS in a variety of situations: between religious groups (e.g., Christians and Jews; Greenberg et al., 1990), in the reactions of American college students toward undocumented immigrants (Bassett & Connelly, 2011), in American students’ evaluations of essays purportedly written by exchange students expressing pro- or anti-U.S. views consistent or different from their personal views (Greenberg et al., 1990), and in American students’ reactions to essays describing people who uphold the law versus those who violate it (Greenberg et al., 1995). Though the noted studies examining the effect of in-group bias highlight American preferences, similar effects have been found in other countries including Australia, Germany, Iran, Israel, Italy, Japan, and Korea (for a review see Greenberg et al., 1997; Pyszczynski, Solomon, & Greenberg, 2003). Essentially, the more similar others are to an individual,
the more likely one is to provide help and support, particularly when reminded of mortality. One notable exception to this pattern occurs when the in-group is framed negatively (e.g., through the use of stereotypes); individuals reminded of mortality are more likely to derogate their in-group to protect their self-esteem in such cases (Arndt et al., 2002).

Jonas and colleagues (2002; Study 2) conducted a study examining the effect of MS on donations given to an American charity compared to donations given to an international charity. After completing a series of personality questionnaires, participants (young adult students at the University of Arizona) completed “The Projective Life Attitudes Assessment” by either writing two short paragraphs relating to thoughts and emotions connected to their own death (the MS condition) or by writing two short paragraphs relating to thoughts and emotions connected to experiencing dental pain (DP; the control condition). Participants who were primed with MS gave more to the American charity than those primed with DP. Neither MS nor DP affected amounts donated to the out-group (an international charity). Further, those primed with MS gave more to the in-group charity than the out-group charity. Jonas and colleagues’ results suggest that thoughts of death are related to pro-social behavior toward charities affiliated with one’s in-group. Similar to Jonas and colleagues’ research, the majority of TMT studies have included college students from the United States as participants. Results from studies consisting of young adults may not hold across the lifespan, particularly in regards to studies examining pro-social giving, wherein behavior has been shown to vary with age (Freund & Blanchard-Fields, 2014; Maxfield et al., 2014; Wiepking & James, 2013).
**TMT and Aging**

It is possible that cultural worldviews and self-esteem vary across the lifespan and as death becomes more salient for older adults. For example, prior research supports the idea that self-esteem becomes more stable and secure with age (Meier, Orth, Denissen, & Kühnel, 2011). Older adults also display less defensiveness and deal with conflict less aggressively than other age groups (10 to 87 years of age; Diehl, Coyle, & Labouvie-Vief, 1996). Further, older adults have been shown to focus more on positive information than negative information, have the ability to find meaning in negative life experiences, and subjectively view stressors as less severe than young adults (Scott, Ram, Smyth, Almeida, & Sliwinski, 2017). If focus, values, and self-esteem differ across the lifespan, it is possible that responses to MS will also differ.

Age-related differences in response to MS seem particularly likely given prior reported age differences in death anxiety research, wherein young adults report lower levels of death anxiety than middle-aged adults, who endorse higher levels of death anxiety than older adults (Neimeyer, Wittkowski, & Moser, 2004). Variability exists in levels of death anxiety within each age group. Although young adults report lower levels of death anxiety than middle-aged adults, bimodal peaks of death anxiety have been reported around 25 years and 50 years of age (Russac, Gatliiff, Reece, & Spottswood, 2007). Further, a meta-analysis found that death anxiety peaks at middle-age and then typically declines until the last decades of life, when it becomes stable (Fortner & Neimeyer, 1999; also see Neimeyer et al., 2004). It is possible the combination of psychosocial maturity and age contribute to lower levels of death anxiety in older adults (Rasmussen & Brems, 1996). However, self-reported death anxiety is not predictive of
responses to MS (Greenberg et al., 1995); therefore, it is important to include older adults in terror management studies to assess for age-related differences in terror management processes.

Indeed, age-related differences have been found relating to worldview defense responses to MS primes. Early TMT researchers reported young (19-29 years old; Florian & Mikulincer, 1997) and middle-aged (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989) adults typically respond with harsher judgments to moral transgressors after MS primes than after negative control primes. Maxfield and colleagues (2007; Study 2) reported the opposite pattern with older adults (57-92 years old), wherein older adults who received a subtle MS prime responded with less punitive evaluations of moral transgressors than those primed with DP. As seen in previous studies, the young adults (17-34 years old) in Maxfield and colleagues’ study endorsed harsher judgments of moral transgressors in the MS condition compared to the control condition. Looked at differently, older adults rated moral transgressions more harshly than young adults in the control condition, but this age difference was eliminated in the MS condition.

In considering why age differences in response to mortality emerge, Maxfield, Pyszczynski, Greenberg, Pepin, and Davis (2012) examined the roles of executive functioning, memory, religiosity, self-perceived physical health, and general psychological well-being on judgment of moral transgressors. After a MS prime, higher executive functioning predicted greater lenience in older adults’ (62-92 years old) judgments of moral transgressors than in the control condition. The opposite effect was found for lower executive functioning, which was associated with harsher judgments
among older adults exposed to a MS prime compared to those in the control condition. Young adults (17-22 years old) in this study were more punitive toward transgressors, regardless of executive functioning levels. The findings of Maxfield and colleagues suggest that compared to older adults in the control condition, older adults reminded of their mortality are more likely to respond with greater leniency toward transgressors, provided executive functioning remains intact. If cognitively intact adults engage in greater leniency of moral transgressors following a death reminder, it is possible that reminders of their mortality would similarly affect their desire to engage in other pro-social acts (e.g., giving which benefits future generations).

Age-related differences have also been observed in studies examining generativity and concern for future generations after a MS prime. Maxfield and colleagues (2014, Study 1) examined the effects of death awareness on generative concern among young (17-22 years old) and older adults (62-92 years old). There were no MS effects on generative concern for the young adult group. However, older adults reported higher generative concern after receiving a MS prime than after a control prime. In a conceptual replication of this finding, Maxfield and colleagues (2014, Study 2) examined the effects of MS on a more specific form of generative concern, operationalized as interest in leaving a legacy for the benefit of others (pro-social preference) compared to interest in leaving a legacy of fame and recognition for selfish purposes (pro-self preference). They found a main effect of MS, with participants reporting greater levels of pro-social preference than participants in the control condition. Additionally, older adults (60-90 years old) had higher levels of pro-social preference than young adults (18-33 years old). These main effects were qualified by a significant age x MS interaction, such that older
adults had higher levels of pro-social preference after a MS prime than after a control prime. Young adults exhibited no difference in pro-social preference in the MS or control conditions.

Taken together, the reported studies examining the effects of MS priming on self-reported attitudes of young and older adults exhibit a consistent pattern. For young adults, death reminders result in fewer or no change in pro-social attitudes (e.g., harsher judgments of moral transgressors, no differences in generative concern) compared to a control prime. The opposite tends to occur for older adults after MS primes (e.g., more lenient judgments of moral transgressors and higher levels of generative concern) compared to a control prime. Because MS differentially impacts older and young adults’ attitudes and intentions, older adults may be more likely engage in pro-social or generative behaviors, such as charitable giving as well.

**Charitable Giving**

**Cultural Norms and Generosity**

The social norms of acceptable generous behavior are defined by the cultural worldviews that one subscribes to. Worldwide, belief systems (e.g., Christianity, Buddhism), historical figures (e.g., Gandhi, Mother Teresa), and stories (e.g., Dicken’s *The Christmas Carol*) support the message that “goodness” and personal value are found by living up to ideals of generosity and unselfishness (Jonas et al., 2002). Data from the World Values Study (WVS; World Values Survey Association, 2016) provide an example of how the ideals of generosity and unselfishness are valued in North American culture. In Wave 6 of the WVS, participants in the United States were asked to report how similar they felt they were to several values-based statements (response options
included “very much like me,” “like me,” “somewhat like me,” “a little like me,” “not like me,” and “not at all like me”). When asked to compare themselves with someone for whom “it is important . . . to be rich; to have a lot of money and expensive things,” 38.1% of participants reported that they viewed themselves as similar, suggesting that for many Americans, personal value may not be gained from wealth alone. The value of living up to ideals of generosity and unselfishness may be further explained by WVS participants’ high level of self-reported similarity (91.4%) to the statement that “it is important . . . to do something for the good of society.” The WVS supports the idea that generous behavior is socially desirable. Because participants may be motivated to over report socially appropriate behaviors (Lee & Sargeant, 2011), the previously cited data may not be an accurate reflection of the discrepancy between reported behaviors and actual behaviors. However, it does highlight the idea that in American culture, personal value may be derived, in part, from generous behavior.

TMT researchers assert that individuals are motivated to adhere to cultural norms and standards of value following reminders of death (see Solomon et al., 1991). Individual response to MS depends on the extent to which people internalize cultural values. To the extent that pro-social behavior (e.g., generosity or charitable giving) is valued in one’s chosen culture, MS should make it even more important (e.g., giving more to a charitable organization; Jonas et al., 2002). In contrast, if consumerism and wealth are valued in one’s culture, reminders of mortality should be expected to increase greed (e.g., higher consumption behaviors in a forest management game; Kasser & Sheldon, 2000, Study 2; the amount of money requested as compensation after a delayed time period; Zaleskiewicz, Gasiorowska, Kesebir, Luszczynska, & Pyszczynski, 2013,
Study 3). Because individual values, needs, and ability to engage in pro-social behaviors may vary across the lifespan, age may play a role in how and when people strive to meet the needs of others via giving.

**Charitable Giving and Age**

Erik Erikson (1902-1994) described a series of developmental stages that are present over the typical life course (see Erikson & Erikson, 1997). Erikson asserted that by middle-age (40-65 years old), successful adults have generally achieved the developmental stages of identity and intimacy, and are better equipped to focus on the development and growth of the next generation, a stage he referred to as *generativity versus stagnation* (Erikson & Erikson, 1997). Erikson described generativity as encompassing the core value of care, with increasing commitment to engage in activities that benefit future generations. Middle-aged adults who do not successfully achieve generativity become stagnant, returning to earlier stages of development and focusing more on self-development than on the development of future generations (Ackerman, Zuroff, & Moskowitz; 2000; Erikson & Erikson, 1997). Generativity and care of future generations encompasses a broad range of attitudes and behaviors (e.g., teaching children, volunteering), one of which may be charitable giving toward others. It is important to note that generativity may involve charitable giving, but not all charitable giving behaviors are directed toward care of future generations. Charitable behavior, which may be one form of generativity, is the focus of this study.

Charitable donations vary with age, with the majority of charitable donations being made by people over 65 years of age, though a decline in giving does occur with the oldest-old (i.e., 85+ years of age; Wiepking & James, 2013). Charitable giving varies
across the adult lifespan for a variety of reasons. From a developmental perspective, young adults are more likely to focus on autonomy-based goals, such as accumulating wealth for their own well-being and benefit (see Kotre, 1984). Because many middle-aged and older adults may have already accumulated social, psychological, and financial resources, they may be more likely to focus on generativity-based goals, such as spending for the well-being of future generations (Erikson & Erikson, 1997; Freund & Blanchard-Fields, 2014; Maxfield et al., 2014). Returning to the WVS (World Values Survey Association, 2016), participants were asked to rate how similar they thought they were to a person described as feeling “it is important to this person to be rich; to have a lot of money and expensive things.” The overall percentage of respondents identifying themselves as similar to this individual was 38.1%, but examining the percentages within different age groups tells a different story. Respondents under the age of 29 years reported a 53.7% similarity to the statement, respondents aged 30-49 years reported 41.7% similarity, and adults over age 50 reported 27.9% similarity, suggesting that the value of having money and possessions varies with age. When asked to rate how similar participants thought they were to someone described as feeling “it is important . . . to do something for the good of society,” the overall percentage of respondents identifying themselves as similar to this individual was 91.4%. Again, though less dramatic, an age difference exists: respondents under age 29 reported 85.6% similarity, respondents aged 30-49 reported 92.1% similarity, and those over age 50 reported 93.9% similarity. It appears that engaging in activities that are good for society is important at all ages; however, the importance of generativity, or behaving in ways that benefit future
generations (Erikson & Erikson, 1997), seems to be even greater for adults over 50 years old.

In support of the evidence that accumulating wealth is negatively correlated with age whereas charitable giving is positively correlated with age, Freund and Blanchard-Fields (2014) conducted studies examining age related differences in charitable giving values and behavior with participants ranging in age from 18 to 91 years of age. Using data from the WVS, they found that age was positively correlated to charitable giving and negatively correlated with the importance placed on being wealthy, even after controlling for income (Study 1). In Study 3, participants (18-85 years old) were given the choice to either receive a participant payment in the form of an Amazon voucher or donate the equivalent amount to Doctors Without Borders. They found that increasing age significantly predicted charitable behavior. Again, the pattern of giving was consistent after controlling for income. Not all research, however, supports the idea that giving is associated with older age. Landry, Lange, List, Price, and Rupp (2006) reported demographic data suggesting that adults over age 65 give less to charity when approached at their home than those under age 30; perhaps because the authors’ focus was not age-related differences, they did not elaborate on or interpret this outcome. Further, Wiepking and James (2013) assert that the oldest-old (those over 85 years of age) give the least to charity, which the authors interpreted as the potential result of declining health and/or declining cognitive function (e.g., decreased involvement in social activities).

Considering the conflicting data relating to age and charitable giving, further research examining potential factors was considered worthwhile. It is possible that
middle-aged and older adults have access to resources that allow them to be more
generative or charitable than young adults. For example, after retirement, older adults
may have more time to volunteer as well as the motivation to do so (Barlow &
Hainsworth, 2001) compared to those at younger ages. It is also possible that the salience
of death for older adults affects their willingness to give. Further understanding of the
potential factors relating to age, death awareness, and giving will improve understanding
of some factors that influence the generous giving in adulthood.

**Present Research**

This study examined the effects of age and MS priming on charitable giving
overall and charitable giving to an in-group or an out-group by extending the research
findings of Jonas et al. (2002) and Maxfield et al. (2014). Jonas and colleagues found
that after a MS prime, participants gave more money to an in-group charity than after a
DP prime. Further, participants primed with thoughts of death gave more to the in-group
than the out-group, whereas there was no difference in amounts given to in-group and
out-group charities within the control condition. Notably, Jonas and colleagues did not
examine whether these effects were consistent in different age groups, using only young
adult participants. Maxfield and colleagues examined the relationship between MS and
generative concern between young (Study 1: 17 -22 years old; Study 2: 18-33 years old)
and older adults (Study 1: 62-92 years old; Study 2: 60-90 years old) and found that older
adults reported higher generative concern after a MS prime compared to the control
prime. However, generative concern did not differ between MS and control conditions
for young adults. Although these studies highlighted age differences on two measures of
generative intentions (generative concern and pro-social versus pro-self preference)
following MS, Maxfield and colleagues (2014) did not include a middle-aged sample, and only measured attitudes related to generativity, not generative behavior.

This study expanded on the findings of both Jonas and colleagues (2002) and Maxfield and colleagues (2014) by measuring pro-social behavior, operationalized as the amount of the participant payment actually donated to charity (rather than self-report intention or attitudes), and by including an adult lifespan sample (i.e., young, middle-aged, and older adults). The purpose of this study was to determine whether age and reminders of mortality would impact charitable donations, and whether age and reminders of mortality would differentially impact donations to in-group and out-group organizations.

**Hypotheses**

**Primary Hypotheses: Total Donations to Charity**

**Hypothesis 1: Age effect.** Because prior research indicates that adults over age 65 years give the most to charity, at least until very late life (Wiepking & James, 2013), it was expected that donations to charity would be positively associated with age. Wiepking and James (2013) found higher levels of giving in younger cohorts of older adults. Because in-person research studies in Colorado Springs do not typically have many participants over 85 years of age, it was reasonable to expect that patterns of giving in the oldest-ages would not influence the outcome of this study.

**Hypothesis 2: Age effect with distinct age categories.** Similar to hypothesis one, a main effect for age was expected. To break down the possible effect that different stages of life may have on charitable giving, it was expected that adults over age 65 would give the most to charity, followed by middle-aged adults who are in Erikson’s
(1997) stage of generativity and who may be more motivated to give for the benefit of others. Because young adults are often focused on self-development and the accrual of personal wealth, young adults were expected to give the least to charity.

**Hypothesis 3: Priming condition effect.** Because prior research suggests that death reminders prompt individuals to protect self-esteem by engaging in culturally acceptable pro-social behaviors (Hirschberger, Ein-Dor, & Almakais, 2008), it was expected that participants who received a MS prime would give more money overall than those who received a DP prime.

**Hypothesis 4: Priming condition x Age interaction.** Previous research shows when reminded of mortality, older adults express greater generative concern than after a DP prime. Young adults exhibit no difference in generative concern after either a MS prime or a control prime (Maxfield et al., 2014). This pattern of differences between young and older adults’ responses to MS may reflect on their pro-social behavior (e.g., charitable giving). It was expected that age would be positively associated with the amount of money donated in both conditions. After a MS prime, older adults were expected to give more than middle-aged adults who were expected to give more than young adults. Older and middle-aged adults were expected to give more after a MS prime than after a DP prime. No difference in giving was expected for young adults after a MS prime or a DP prime.

**Secondary Hypotheses: Group Support**

**Hypothesis 5: Group support.** Because being part of a group or culture influences the desire to give as well as receive from the group (Bennett, 2003), it was expected that participants would give more money to the in-group (Care and Share Food
Bank for Southern Colorado) than the out-group (The United Nations World Food Programme).

**Hypothesis 6: Priming condition effect.** Previous research has shown that participants primed with thoughts of death (compared to a control prime) are more likely to donate more money to an in-group charitable organization compared to an out-group charitable organization (e.g., Jonas et al., 2002). Based on this research, it was expected that MS would affect group-specific support (the dependent variable), wherein participants would donate more to the in-group (Care and Share Food Bank for Southern Colorado) than the out-group (The United Nations World Food Programme) compared to the DP prime.

**Hypothesis 7: Priming condition x Age interaction.** Based on previous TMT research suggesting that older adults express greater leniency toward members of an out-group (i.e., moral transgressors) after reminders of death (Maxfield et al., 2007), it was expected that older adults would respond similarly to a MS prime by giving more to an out-group charity than an in-group charity. No differences in older adults’ group donations were expected in the DP condition.

No published research exists that examines middle-aged adults’ responses towards in-groups or out-groups after MS primes. However, early TMT research with municipal court judges revealed that this group (age unknown but presumably in middle-age) responded to reminders of mortality with more severe recommendations for punishment in hypothetical court cases compared to those in a control group (Rosenblatt et al., 1989). Further, because group identification is likely still part of a middle-aged adults’ source of value and identity (e.g., through jobs or social support networks), it was
expected that they would give more to an in-group charity than an out-group charity after a MS prime. No differences in middle-aged adults’ group donations were expected in the DP condition.

Young adults typically respond with greater harshness toward members of an out-group (i.e., moral transgressors) after thoughts of death than after a neutral prime (Florian & Mikulincer, 1997; Maxfield et al., 2007; Rosenblatt et al., 1989). Similar responses to MS were expected, wherein after a MS prime, young adults would give less to an out-group charity than to an in-group charity. No differences in young adults’ group donations were expected in the DP condition.
Participants

Participants over the age of 18 years old were recruited from the University of Colorado Colorado Springs (UCCS) research registry, the Colorado Springs community, and from undergraduate psychology courses. Because many UCCS psychology students are familiar with TMT research, those who had recently participated in a TMT study were excluded from participation. A total of 139 participants (young adults = 49; middle-aged adults = 43; older adults = 47) completed this study. Based on exclusion criteria (pilot participants, possible cognitive impairment, and non-standard testing conditions), 15 participants were excluded from analysis. Three participants donated more than the initial $15 payment (two donated $16, and one donated $35). To include these participants in the analyses, the amounts donated were capped at a maximum of $15. Further, a proportion was calculated based on the original amounts donated to the in-group and the out-group to maintain the original intended donations (e.g., $15 to Care and Share and $20 to the World Food Program for a total donation of $35 were recoded to $6.43, $8.57, and $15 respectively). Data analyses were conducted using the 124 remaining participants (young adults = 41, middle-aged adults = 39, older adults = 44). Participants ranged in age from 18 to 86 years old ($M = 51.85$, $SD = 20.70$) and had a mean education level of 15.65 years ($SD = 2.07$). The majority of participants were female ($n = 96; 77.4\%$), White/Caucasian ($n = 106; 85.5\%$), non-Hispanic ($n = 108;
87.1%), spoke English as a first language (n = 113; 95.0%), and married/partnered (n = 66; 53.2%). See Tables 1 and 2 for additional descriptive statistics and frequencies for each age group.

Table 1

Descriptive Statistics by Age Group

<table>
<thead>
<tr>
<th></th>
<th>Young Adults N = 41</th>
<th>Middle-Aged Adults N = 39</th>
<th>Older Adults N = 44</th>
<th>Total Sample N = 124</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean SD</strong></td>
<td><strong>Mean SD</strong></td>
<td><strong>Mean SD</strong></td>
<td><strong>Mean SD</strong></td>
<td><strong>Mean SD</strong></td>
</tr>
<tr>
<td>Age</td>
<td>25.17 6.92</td>
<td>57.21 5.85</td>
<td>71.95 5.75</td>
<td>51.85 20.70</td>
</tr>
<tr>
<td>Education</td>
<td>14.78 1.65</td>
<td>16.38 1.71</td>
<td>15.82 2.43</td>
<td>15.65 2.07</td>
</tr>
<tr>
<td>Political Leaning</td>
<td>35.39 25.96</td>
<td>46.38 24.46</td>
<td>56.39 30.47</td>
<td>46.05 28.26</td>
</tr>
<tr>
<td>Income</td>
<td>1.53 1.96</td>
<td>4.00 2.19</td>
<td>4.05 2.56</td>
<td>3.18 2.53</td>
</tr>
<tr>
<td>TIPI-Extraversion</td>
<td>4.12 1.62</td>
<td>4.51 1.38</td>
<td>4.57 1.62</td>
<td>4.40 1.55</td>
</tr>
<tr>
<td>TIPI - Agreeableness</td>
<td>5.04 0.92</td>
<td>5.40 1.10</td>
<td>5.41 1.23</td>
<td>5.28 1.10</td>
</tr>
<tr>
<td>TIPI - Conscientiousness</td>
<td>5.59 1.12</td>
<td>5.90 1.03</td>
<td>6.18 0.96</td>
<td>5.89 1.06</td>
</tr>
<tr>
<td>TIPI – Emotional Stability</td>
<td>4.45 1.38</td>
<td>5.13 1.25</td>
<td>5.35 1.36</td>
<td>4.98 1.38</td>
</tr>
<tr>
<td>TIPI – Openness to Experiences</td>
<td>5.67 0.97</td>
<td>5.24 1.16</td>
<td>5.30 1.27</td>
<td>5.40 1.15</td>
</tr>
<tr>
<td>SGS</td>
<td>5.61 0.83</td>
<td>5.56 1.02</td>
<td>5.66 0.93</td>
<td>5.61 0.92</td>
</tr>
<tr>
<td>SDS</td>
<td>16.34 4.62</td>
<td>17.72 5.26</td>
<td>19.09 4.66</td>
<td>17.75 4.94</td>
</tr>
<tr>
<td>PANAS – Positive</td>
<td>3.29 0.79</td>
<td>3.13 0.60</td>
<td>3.77 0.71</td>
<td>3.41 0.75</td>
</tr>
<tr>
<td>PANAS – Negative</td>
<td>1.62 0.69</td>
<td>1.38 0.54</td>
<td>1.30 0.62</td>
<td>1.43 0.63</td>
</tr>
<tr>
<td>SSES</td>
<td>3.21 0.82</td>
<td>3.50 0.70</td>
<td>3.87 0.69</td>
<td>3.53 0.78</td>
</tr>
<tr>
<td>MFQ Care-Harm</td>
<td>5.20 0.79</td>
<td>5.29 0.72</td>
<td>5.36 0.79</td>
<td>5.29 0.77</td>
</tr>
<tr>
<td>MFQ In-group</td>
<td>3.87 0.98</td>
<td>4.16 0.92</td>
<td>4.51 1.11</td>
<td>4.19 1.04</td>
</tr>
<tr>
<td>Religious</td>
<td>4.63 2.43</td>
<td>6.31 2.89</td>
<td>7.45 2.87</td>
<td>6.00 2.94</td>
</tr>
<tr>
<td>IERS – Intrinsic</td>
<td>2.34 0.56</td>
<td>2.80 0.68</td>
<td>2.98 0.71</td>
<td>2.71 0.71</td>
</tr>
<tr>
<td>IERS – Extrinsic</td>
<td>1.92 0.63</td>
<td>2.19 0.63</td>
<td>2.03 0.65</td>
<td>2.05 0.64</td>
</tr>
<tr>
<td>OMCT</td>
<td>3.12 2.49</td>
<td>2.62 2.60</td>
<td>2.84 2.21</td>
<td>2.86 2.42</td>
</tr>
<tr>
<td>CS Donation$^a$</td>
<td>1.40 3.11</td>
<td>0.83 2.24</td>
<td>1.49 2.97</td>
<td>1.25 2.80</td>
</tr>
<tr>
<td>WFP Donation$^a$</td>
<td>1.11 1.95</td>
<td>1.68 3.83</td>
<td>0.76 1.95</td>
<td>1.17 2.69</td>
</tr>
<tr>
<td>Total Donation$^a$</td>
<td>2.51 4.34</td>
<td>2.51 4.91</td>
<td>2.25 4.34</td>
<td>2.42 4.49</td>
</tr>
</tbody>
</table>

$^a$Means and standard deviations were calculated using the original, untransformed variable.
Table 2

Frequencies by Age Group

<table>
<thead>
<tr>
<th></th>
<th>Young Adults</th>
<th>Middle-Aged Adults</th>
<th>Older Adults</th>
<th>Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>% of Group</td>
<td>N</td>
<td>% of Group</td>
</tr>
<tr>
<td><strong>Race (1st)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>3</td>
<td>7.3%</td>
<td>1</td>
<td>2.6%</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
<td>4.9%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Black/African</td>
<td>2</td>
<td>4.9%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>American White/Caucasian</td>
<td>26</td>
<td>63.4%</td>
<td>38</td>
<td>97.4%</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>19.5%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Relationship</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>21</td>
<td>51.2%</td>
<td>2</td>
<td>5.1%</td>
</tr>
<tr>
<td>Married/Partnered</td>
<td>12</td>
<td>29.3%</td>
<td>29</td>
<td>74.4%</td>
</tr>
<tr>
<td>Divorced</td>
<td>3</td>
<td>7.3%</td>
<td>7</td>
<td>17.9%</td>
</tr>
<tr>
<td>Widowed</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>12.2%</td>
<td>1</td>
<td>2.6%</td>
</tr>
<tr>
<td><strong>Relationship Binary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>12</td>
<td>29.3%</td>
<td>29</td>
<td>23.4%</td>
</tr>
<tr>
<td>Not Married</td>
<td>29</td>
<td>70.7%</td>
<td>10</td>
<td>8.1%</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buddhist</td>
<td>2</td>
<td>5.0%</td>
<td>1</td>
<td>2.6%</td>
</tr>
<tr>
<td>Christian(^a)</td>
<td>20</td>
<td>50.0%</td>
<td>27</td>
<td>69.2%</td>
</tr>
<tr>
<td>Jewish-Non</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
<td>2.6%</td>
</tr>
<tr>
<td>Orthodox</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other(^b)</td>
<td>18</td>
<td>45.0%</td>
<td>10</td>
<td>25.6%</td>
</tr>
<tr>
<td><strong>2016 Presidential Vote</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hillary Clinton</td>
<td>19</td>
<td>47.5%</td>
<td>17</td>
<td>44.7%</td>
</tr>
<tr>
<td>Donald Trump</td>
<td>7</td>
<td>17.5%</td>
<td>11</td>
<td>28.9%</td>
</tr>
<tr>
<td>Gary Johnson</td>
<td>6</td>
<td>15.0%</td>
<td>4</td>
<td>10.5%</td>
</tr>
<tr>
<td>Bernie Sanders</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Jill Stein</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
<td>2.6%</td>
</tr>
<tr>
<td>Mike Pence</td>
<td>0</td>
<td>0.00%</td>
<td>1</td>
<td>2.6%</td>
</tr>
<tr>
<td>Darrell Castle</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Did not Vote</td>
<td>7</td>
<td>17.5%</td>
<td>3</td>
<td>7.9%</td>
</tr>
<tr>
<td>“Independent”</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
<td>2.6%</td>
</tr>
</tbody>
</table>

\(^a\)Christian included responses for Catholic, Christian, and Protestant. \(^b\)Other included responses for agnostic, atheist, and not practicing.
Study Design

This study was modeled after previous research (Jonas et al., 2002; Maxfield et al., 2014) and used quasi-experimental methods to examine the effect that age (young: 18-39 years of age; middle-aged: 40-64 years of age; older: 65+ years of age) and death related awareness (MS prime versus DP prime) had on charitable giving behavior. Young, middle-aged, and older adult participants were randomly assigned to a priming condition.

Materials

The Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003). Participants completed the TIPI, which measures the “Big Five” Personality traits (Conscientiousness, Agreeableness, Neuroticism, Openness to New Experience, and Extraversion). In this brief survey, participants indicate the extent to which they agree that each of the 10 listed traits represents them (1 = disagree strongly to 7 = agree strongly), with higher mean scores indicating greater levels of the personality trait. Consistent with prior research (Erhart et al., 2009), the internal reliability of each subscale was generally low (Extraversion α = .71; Agreeableness α = .35; Conscientiousness α = .44; Emotional Stability α = .68; and Openness α = .40). Ehrhart and colleagues (2009) found high correlations between the TIPI and other, longer, measures of the Big Five Personality traits (greater than or equal to $r = .78$), which suggests the TIPI is reliable for use in research settings.

The Social Generativity Scale (SGS; Morselli & Passini, 2015). Participants completed the SGS, which is a 6-item scale measuring social generativity specific to concern for future generations in adults over 18 years of age. In this survey, participants
indicate their agreement that each of the statements is representative of them on a 7-point Likert-type scale (1 = strongly disagree to 7 = strongly agree), with higher mean scores indicating greater levels of social generativity. An example statement from the SGS is “I give up part of my daily comforts to foster the development of next generations.”

Because any mention of death prior to the priming conditions was undesirable, one of the questions on the SGS was modified from “I commit myself to do things that will survive even after I die” to “I commit myself to do things that will last.” The SGS had acceptable internal reliability (Cronbach’s α = .77) for this sample of participants.

The Marlow-Crowne Social Desirability Scale (SDS; Crowne & Marlow, 1960). Participants completed the SDS, which is a 33-item measure of social desirability with statements such as “I have never intensely disliked anyone.” Participants responded by indicating whether the statements were “true” or “false” for them. One point is scored for each socially desirable response, with higher sum of scores indicating higher social desirability bias. The SDS had acceptable internal consistency (Cronbach’s α = .75) for this sample.

Priming manipulation. Participants in both priming conditions completed primes commonly used in TMT research, wherein participants are asked to write about their own death or an aversive control topic unrelated to death (Burke et al., 2010). Participants in the MS condition were asked to write responses to two questions specifically related to death: “Please briefly describe the emotions that the thought of your own death arouses in you” and “Jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead.” The use of these questions as a MS induction has been effective for adults over 18 years of age (Greenberg et al., 1990).
Participants in the control condition were asked to write responses to two questions specifically related to DP: “Please briefly describe the emotions that the thoughts of experiencing pain due to dental work arouse in you” and “Jot down, as specifically as you can, what you think will happen to you as you experience dental pain.” The use of these questions as a control condition has been effective for adults over 18 years of age (Greenberg et al., 1990).

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Participants completed the 20-item PANAS as a distractor task and assessment of emotional state. The PANAS includes 10 positive (e.g., “content”) and 10 negative (e.g., “anxious”) words related to affect. Participants indicated the extent to which they feel each type of affect “right now” on a 5-point scale (1 = not at all to 5 = extremely) with mean higher scores indicating higher levels of that emotion. The internal reliability of the PANAS positive subscale (Cronbach’s $\alpha = .88$) and the PANAS negative subscale (Cronbach’s $\alpha = .90$) were high for this sample of participants.

Attention check questions. Based on prior research, it is expected that approximately 10% - 12% of participants respond carelessly to studies conducted online and can be detected via the use of attention checks (Meade & Craig, 2012). Though this study was not conducted anonymously online, a large portion was completed on a computer in a private research room. To reduce the potential effects of careless responding, two attention checks were included in this study: 1) “For this item, please select the option ‘strongly agree,”” and 2) “True or false, currently the earth has 10 moons.” It was anticipated that data sets would be excluded if participants missed both attention checks; none were excluded based on this condition.
**Charitable giving materials.** The charitable giving materials were formatted after those used by Aknin, Dunn, Whillans, Grant, and Norton (2013) and Jonas and colleagues (2002). Participants received a packet containing an instruction sheet, a brochure describing two charities (one local and one global), and two donation envelopes (one pre-labeled for the local charity and one pre-labeled for the global charity).

**Introduction sheet.** Participants read the following introduction information:

“Thank you for taking the time to read this information. Researchers around the country have joined to raise funds for charity. We would like to invite you to contribute as well. We do not want you to feel pressured to donate or support either charity. Please read the enclosed brochure describing two charities and decide if you want to donate. If you decide to donate, place your donation into the envelope for the charity(ies) you choose and place them in the donation box. If you decide not to donate, put both empty envelopes in the donation box so that the researcher does not know whether or not you donated. Thank you for considering a donation to one or both of the charities. You can be reassured that all money donated will be given directly to the charities.”

**Charity brochures.** The WVS (World Values Survey, 2016) results indicate that 53.1% of people report that the most serious world problem is meeting the needs of people living in poverty and need, followed by inadequate education (18.9%), poor sanitation and infectious diseases (13.0%), environmental pollution (9.9%), and discrimination against girls and women (4.0%). Based on the idea that meeting the needs of people in poverty is important to the majority, two charities providing food for those in need, one local (Care and Share Food Bank for Southern Colorado) and one global (The United Nations World Food Programme) were used in this study. These charities were
selected to be as similar as possible in terms of their mission, with the primary difference being that one represented a local, in-group organization and one represented a global, out-group organization. Two versions of a brochure were created containing information for the local and global charities. The brochures were counterbalanced for the charity presented at the top of the page to minimize recency effects (Jonas et al., 2002). Ankin and colleagues (2013) found that participants felt better about giving to charity when they knew how their donation would be used. To equalize potential positive emotions toward the charities, specific information regarding how donations are typically used was presented for both Care and Share Food Bank for Southern Colorado and The United Nations World Food Programme.

**Donation envelopes.** Participants received two donation envelopes. The outside of each envelope was labeled with the name of one of the two charitable organizations and pre-printed with instructions to place the desired donation amount, if any, into the envelope for the organization(s) they would like to donate to, if they chose to donate at all. Participants were then asked to seal the envelopes and to place them both in the drop box regardless of whether they chose to donate.

**Donation drop box.** To provide participant donation privacy and reduce social pressure to donate, a slotted box was placed inside the research room. After participants left the study, the researcher retrieved the donation envelopes, noted the participant ID number, and the amount donated on the outside of the envelopes for accurate data matching purposes.

**Demographic questionnaire.** Participants completed a demographic questionnaire with questions relating to age, gender, education, ethnicity, race,
relationship status, annual income, religion, language, health status, 2016 presidential vote, and political leaning.

**The State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991).** Participants completed the SSES, which is a measure of state self-esteem. On the SSES, participants indicate the extent to which they agree with statements relating to self-esteem on a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree), with higher mean scores indicating higher levels of self-esteem. An example statement from the SSES is “I feel that others respect and admire me.” The 20-item SSES has high internal consistency and construct validity. Five of the questions on the SSES are specific to academic success (e.g., “I feel that I have less scholastic ability right now than others”). Because many participants in this study were not students, the five questions relating to academic success were removed, resulting in a 15-item measure of state self-esteem. The internal consistency of the modified scale was high (Cronbach’s α = 0.92).

**The Moral Foundations Questionnaire (MFQ; Ditto et al., 2016; Graham et al., 2011).** Participants completed the care/harm and in-group/out-group subscales of the MFQ. Each subscale consists of six questions, for a total of 12 items. Participants were asked to evaluate whether statements were relevant to their personal views of right or wrong, or to what extent they agreed or disagreed with a statement. Participants responded to the statements using a 7-point Likert-type scale (1 = not at all relevant/strongly disagree to 7 = extremely relevant/strongly agree). Higher mean scores indicate higher personal importance of that specific moral foundation. An example statement from the care/harm subscale is: “Compassion for those who are suffering is the most crucial virtue.” An example statement from the in-group/out-group subscale is: “It is
more important to be a team player than to express oneself.” The internal reliability for
the care/harm subscale (Cronbach’s $\alpha = .66$) and the in-group/out-group subscale
(Cronbach’s $\alpha = .75$) were acceptable for this participant sample.

**Religiosity/spirituality.** Though the charitable organizations selected for this
study are unrelated to religious organizations, people who are religious may feel
obligated to help others in need. Thus, religiosity was measured in this study using a
categorical question relating to participants’ chosen denomination (included in the
demographic survey), a subjective question relating to how religious the participant
thinks he or she is (“On a scale of 1-10, 1 = *not at all* to 10 = *completely*, how religious
are you?), and the 14-item Intrinsic/Extrinsic Religiosity Scale (I/ERS; Gorsuch &
McPherson, 1989). The I/ERS is a measure of intrinsic and extrinsic motivation for
religiousness. On the I/ERS, participants respond to a series of statements relating to
religious motivation using a 4-point Likert-type scale (1 = *strongly disagree* to 4 =
*strongly agree*), with higher mean scores indicating higher levels of intrinsic or extrinsic
motivation, depending on the subscale. An example statement from the I/ERS is “I pray
mainly to gain relief and protection (from the extrinsic subscale). To be more inclusive
of those who consider themselves spiritual, all references to “religion” were changed to
“spirituality” and “church” was changed to “place of worship.” The internal reliability of
the I/ERS was high (Cronbach’s $\alpha = .84$).

**The Short Orientation-Memory-Concentration Test (OMCT; Katzman et al.,
1983).** The OMCT is a 6-item measure for use in detecting cognitive impairment.
Participants receive a point for each incorrect response (up to 12) and errors are weighted
to calculate a total score (maximum of 24). Scores less than or equal to eight generally
indicate normal cognitive functioning, thus the data sets from participants who score a nine or greater were excluded from data analysis. Previous research has reported the six items on the OMCT are strongly correlated with Katzman and colleagues’ Blessed measure of cognitive function \((r > .90;\) Katzman et al., 1983)

**Procedure**

**Pre-priming procedure.** A graphic representation of the procedures can be seen in Figure 1. Participants were paid $15 (one $5 bill and ten $1 bills) at the onset of the study. To ensure that participants were blind to the priming conditions (MS) and outcome measures (charitable behavior), a vague cover story was presented, introducing the study as an examination of age and personality. Typically, UCCS students participate in research for extra credit, though in this study they were participating for financial compensation. To minimize potential suspicion related to receiving payment, rather than the typical extra credit for students, participants were told that the Lilly Foundation, which funded the study, requires researchers to pay participants for their involvement in the study (patterned after research conducted by Jonas et al., 2002).

Immediately following the cover story and study introduction, participants were asked to sign an informed consent form. Participants who felt uncomfortable providing consent, would have been given the opportunity to leave; none expressed a desire to discontinue the study. Additionally, participants were informed that their participation was voluntary and that they could discontinue the study at any time for any reason.

Participants then began the study on a laptop computer. The researcher provided basic instructions concerning the computer software (e.g., answer questions by clicking on the option that is best and advance the screen using the arrows at the bottom right of
Figure 1. Graphic representation of procedural flow.
the screen). To support the cover story and provide additional information regarding individual differences, participants began by completing the TIPI (Gosling et al., 2003), the SGS (Morselli & Passini, 2015), and the SDS (Crowne & Marlow, 1960), followed by the priming manipulation.

**Priming manipulation.** Participants were randomly assigned to either the experimental condition (MS) or the control condition (DP) using Qualtrics computer software. Participants completed the open-ended questions associated with their assigned condition.

**Post-priming procedure.** A meta-analysis of TMT literature (Burke et al., 2010) revealed that MS effects on cultural worldview defense are more powerful after a delay period (5-7 min), typically created by including a series of distractor tasks that allow thoughts related to death to leave conscious awareness (see Pyszczynski, Greenberg, & Solomon, 1999). Following the priming condition, the 20-item PANAS (Watson et al., 1988) was used as a distractor task. Participants were then shown a screen on the computer indicating the end of the computerized portion of the study and asking them to inform the researcher they were done.

**Charitable giving measure.** After participants completed the computer surveys and priming portion of the study, the researcher re-entered the private research room and told the participants the remainder of the study would be conducted on paper. The demographic survey was placed on the table in front of the participant. To keep participants blind to the study’s purpose, the researcher then presented a cover story that some of the paper surveys had been forgotten in the other room and would need to be retrieved. As the researcher was leaving the room, participants were told that a group of
psychology graduate students were raising funds for charity and the researcher had agreed to share the information with participants. The participants were asked to complete the demographic survey and read the charitable giving materials while the researcher retrieved the “forgotten” surveys. So the researcher would not interrupt the participants during this time, they were told to open the door to the research room when they had finished the demographic survey and after they had looked at the giving materials.

**Manipulation checks and debriefing.** After participants completed the demographic survey and read the giving materials, the researcher re-entered the room. Participants were then asked to complete the SSES, I/ERS and MFQ. The researcher then administered the OMCT to all participants. The researcher provided a thorough debriefing outlining the purpose of the study and each of the hypotheses. So that participants would not feel they had been manipulated into donating, they were offered the opportunity to receive their money back (patterned after Jonas et al., 2002). Only one participant opted to receive their money back ($5 initially donated to Care and Share Food Bank for Southern Colorado). Participants were given the opportunity to ask questions about the procedures and hypotheses before leaving. A note was made if participants spontaneously indicated suspicion that the charitable giving request was part of the study. The amount of money left for each charity by participants was calculated and recorded. Additionally, a note was made as to whether the participants asked for their money back after the debriefing as well as the amount returned to the participant, if any. All money left by participants was donated to the designated charity ($173 to Care
and Share Food Bank for Southern Colorado; $166 to The United Nations World Food Programme).
CHAPTER III

RESULTS

Statistical Assumptions and Data Transformation

**Independence of participants.** The assumption of independence was met. Participants could not be randomly assigned to an age group, but participants from each age group were randomly assigned to a priming condition using Qualtrics computer software. Each participant completed the study only one time and served in only one priming condition.

**Data distribution.** The skewness statistic was used to evaluate the assumption of normality. All variables of interest were normally distributed with the exception of the PANAS – Negative (skewness = 2.21), donations to Care and Share Food Bank for Southern Colorado (skewness = 2.92), donations to The United Nations World Food Programme (skewness = 3.09), and the total amount donated (skewness = 1.96). A square root transformation was applied to the skewed variables, which resulted in approximately normal distributions: PANAS – Negative (skewness = 1.71), donations to Care and Share Food Bank for Southern Colorado (skewness = 1.67), donations to The United Nations World Food Programme (skewness = 1.75), and total donations (skewness = 1.24). The transformed variables were used in all data analyses; however, the untransformed means and standard deviations are reported for ease of interpretation.

**Outliers.** Inspection of boxplots was used to determine the presence of significant outliers. One extreme outlier was observed. The outlying participant donated
$35 (7.40 SD above the mean). As noted in the participant section, three participants’
donations (one extreme outlier, and two who donated $16) were capped at the maximum
$15 participant payment.

**Priming Condition Equivalency.** Priming condition equivalency was evaluated
using t-tests and Chi-square tests. The only significant difference occurred within the
relationship variable ($x^2 = 9.42, p = .05$). After the relationship variable was recoded into
a binary factor (married/partnered versus not married: single, divorced, widowed, or
other), no significant difference was found between priming conditions ($p = .37$). After
modification of the relationship variable, no significant differences were found on any of
the measures or demographic variables for either priming condition ($p > .05$). See Table
3 and Table 4 for descriptive statistics and frequencies by priming condition.

**Results of Primary Hypotheses: Effects on Total Donation**

A bivariate linear regression was calculated to determine whether age, as a
continuous variable, predicted total donations to charity. The assumptions of linearity
and normal distribution were violated. However, the assumptions of independence, no
extreme outliers, and homoscedasticity were met. Because only some of the assumptions
for linear regression were met, the results should be interpreted with caution. The
relationship between age and total donations was not significant, $F(1, 122) = 0.000, p = .99,$
with an $R^2$ of 0.00. Hypothesis one was not supported; age was not a significant
predictor of total donations to charity. Due to assumption violations and a non-
significant model, the effect of age on total giving may be better evaluated using age as a
categorical variable.
Table 3

Descriptive Statistics by Priming Condition

<table>
<thead>
<tr>
<th></th>
<th>Mortality Prime N = 63</th>
<th>Dental Pain Prime N = 61</th>
<th>Total Sample N = 124</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Age</td>
<td>51.10</td>
<td>21.58</td>
<td>52.62</td>
</tr>
<tr>
<td>Education</td>
<td>15.59</td>
<td>2.04</td>
<td>15.72</td>
</tr>
<tr>
<td>Political Leaning</td>
<td>48.12</td>
<td>27.62</td>
<td>43.91</td>
</tr>
<tr>
<td>Income</td>
<td>3.00</td>
<td>2.64</td>
<td>3.38</td>
</tr>
<tr>
<td>TIPI-Extraversion</td>
<td>4.54</td>
<td>1.47</td>
<td>4.26</td>
</tr>
<tr>
<td>TIPI - Agreeableness</td>
<td>5.35</td>
<td>1.07</td>
<td>5.21</td>
</tr>
<tr>
<td>TIPI - Conscientiousness</td>
<td>5.95</td>
<td>1.02</td>
<td>5.84</td>
</tr>
<tr>
<td>TIPI – Emotional Stability</td>
<td>4.75</td>
<td>1.47</td>
<td>5.22</td>
</tr>
<tr>
<td>TIPI – Openness to Experiences</td>
<td>5.48</td>
<td>1.12</td>
<td>5.32</td>
</tr>
<tr>
<td>SGS</td>
<td>5.57</td>
<td>0.98</td>
<td>5.65</td>
</tr>
<tr>
<td>SDS</td>
<td>17.97</td>
<td>4.75</td>
<td>17.52</td>
</tr>
<tr>
<td>PANAS – Positive</td>
<td>3.41</td>
<td>0.75</td>
<td>3.40</td>
</tr>
<tr>
<td>PANAS – Negative</td>
<td>1.53</td>
<td>0.68</td>
<td>1.32</td>
</tr>
<tr>
<td>SSES</td>
<td>3.42</td>
<td>0.85</td>
<td>3.65</td>
</tr>
<tr>
<td>MFQ Care-Harm</td>
<td>5.27</td>
<td>0.78</td>
<td>5.31</td>
</tr>
<tr>
<td>MFQ In-group</td>
<td>4.17</td>
<td>1.02</td>
<td>4.21</td>
</tr>
<tr>
<td>Religious</td>
<td>5.90</td>
<td>2.78</td>
<td>6.11</td>
</tr>
<tr>
<td>IERS – Intrinsic</td>
<td>2.71</td>
<td>0.68</td>
<td>2.72</td>
</tr>
<tr>
<td>IERS – Extrinsic</td>
<td>2.05</td>
<td>0.67</td>
<td>2.04</td>
</tr>
<tr>
<td>OMCT</td>
<td>3.00</td>
<td>2.51</td>
<td>2.72</td>
</tr>
<tr>
<td>CS Donation</td>
<td>0.99</td>
<td>2.17</td>
<td>1.52</td>
</tr>
<tr>
<td>WFP Donation</td>
<td>1.26</td>
<td>2.79</td>
<td>1.07</td>
</tr>
<tr>
<td>Total Donation</td>
<td>2.25</td>
<td>4.20</td>
<td>2.59</td>
</tr>
</tbody>
</table>

*aMeans and standard deviations were calculated using the original, untransformed variable.

A 2 (priming condition: MS, DP) x 3 (age: young, middle-aged, older) analysis of variance (ANOVA) was used to evaluate the mean differences of total amount of money donated to charity. The assumption of homogeneity of variance was not met, as observed in the Levene’s test ($p = .007$). The analysis was still conducted because ANOVA is robust to violations of homogeneity of variance. No main effect was found for age group on the total amount of money donated to charity, $F(2, 118) = 0.20, p = .82, \eta^2_p = .003$. Hypothesis two was not supported. The mean amount of total money donated to charity
Table 4

Frequencies by Priming Condition

<table>
<thead>
<tr>
<th></th>
<th>Mortality Salience Prime</th>
<th>Dental Pain Prime</th>
<th>Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>% of Group</td>
<td>N</td>
</tr>
<tr>
<td>Race (1st)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>0</td>
<td>0.0%</td>
<td>4</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
<td>3.2%</td>
<td>0</td>
</tr>
<tr>
<td>Black/African American</td>
<td>2</td>
<td>3.2%</td>
<td>0</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>55</td>
<td>87.3%</td>
<td>51</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>6.3%</td>
<td>6</td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>16</td>
<td>25.4%</td>
<td>11</td>
</tr>
<tr>
<td>Married/Partnered</td>
<td>36</td>
<td>57.1%</td>
<td>30</td>
</tr>
<tr>
<td>Divorced</td>
<td>7</td>
<td>11.1%</td>
<td>12</td>
</tr>
<tr>
<td>Widowed</td>
<td>0</td>
<td>0.0%</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>6.3%</td>
<td>2</td>
</tr>
<tr>
<td>Relationship Binary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>36</td>
<td>54.5%</td>
<td>30</td>
</tr>
<tr>
<td>Not Married</td>
<td>27</td>
<td>46.6%</td>
<td>31</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buddhist</td>
<td>1</td>
<td>1.6%</td>
<td>3</td>
</tr>
<tr>
<td>Christian</td>
<td>43</td>
<td>68.4%</td>
<td>36</td>
</tr>
<tr>
<td>Jewish-Non Orthodox</td>
<td>1</td>
<td>1.6%</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
<td>27.4%</td>
<td>19</td>
</tr>
<tr>
<td>2016 Presidential Vote</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hillary Clinton</td>
<td>25</td>
<td>41.0%</td>
<td>25</td>
</tr>
<tr>
<td>Donald Trump</td>
<td>25</td>
<td>41.0%</td>
<td>15</td>
</tr>
<tr>
<td>Gary Johnson</td>
<td>3</td>
<td>4.9%</td>
<td>8</td>
</tr>
<tr>
<td>Bernie Sanders</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
</tr>
<tr>
<td>Jill Stein</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
</tr>
<tr>
<td>Mike Pence</td>
<td>1</td>
<td>1.6%</td>
<td>0</td>
</tr>
<tr>
<td>Darrell Castle</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
</tr>
<tr>
<td>Did not Vote</td>
<td>6</td>
<td>9.8%</td>
<td>6</td>
</tr>
<tr>
<td>“Independent”</td>
<td>1</td>
<td>1.6%</td>
<td>0</td>
</tr>
</tbody>
</table>

\(^{a}\)Christian included responses for Catholic, Christian, and Protestant. \(^{b}\)Other included responses for agnostic, atheist, and not practicing.
by young adults ($M = 2.51, SD = 4.34$) was not different than the mean amount of total money donated by middle-aged adults ($M = 2.51, SD = 4.91$), which was not different from the mean amount of total money donated by older adults ($M = 2.25, SD = 4.34$).

No main effect was found for priming condition on the total amount of donations made to charity, $F(1, 118) = 0.14, p = .71, \eta^2_p = .001$. Hypothesis three was not supported. The mean amount of total money donated to charity by participants asked to write about death ($M = 2.25, SD = 4.20$) was not significantly different than the mean amount of total money donated to charity by participants asked to write about DP ($M = 2.59, SD = 4.80$).

A significant age x priming condition interaction was found, $F(2, 118) = 4.20, p = .02, \eta^2_p = .07$. A Least Significant Difference comparison was used to evaluate the pattern of mean differences. Hypothesis four was partially supported. Young adults donated significantly less total money to charity after a MS prime ($M = 1.05, SD = 1.75$) than after a DP prime ($M = 4.05, SD = 5.62$), $p = .05$. No difference was observed in total overall donations made by middle-aged adults after a MS prime ($M = 2.19, SD = 4.79$) or a DP prime ($M = 2.89, SD = 5.17$), $p = .53$. Older adults donated significantly more total money to charity after a MS prime ($M = 3.52, SD = 4.20$) than after a DP prime ($M = 1.09, SD = 3.25$), $p = .04$. See Figure 2.

Pearson correlations were performed to assess the relationships between potential covariates (generativity, social desirability, gender, education level, relationship status, income, health, and political leaning) with the total amount of money donated to charity. No significant relationships were found between the potential covariates and total giving; therefore, it was determined that analysis of covariance was not appropriate.
Figure 2. Age x priming condition interaction on total amount donated. Error bars represent standard errors. Young adults donated significantly less total money after a mortality salience prime than after a dental pain prime. No significant difference was observed in the total amount donated by middle-aged adults. Older adults donated significantly more total money after a mortality salience prime than after a dental pain prime.

Secondary Hypotheses: Effects on Group-specific Support

Overall donation to each group. A paired samples t-test was used to evaluate the pattern of mean differences in donations made to the in-group and the out-group, \( t(123) = 0.38, p = .71, d = .03 \). Hypothesis five was not supported. The mean amount of money donated to the in-group (Care and Share Food Bank for Southern Colorado; \( M = 1.25, SD = 2.80 \)) was not significantly different than the mean amount of money donated to the out-group (The United Nations World Food Programme \( M = 1.17, SD = 2.69 \)).

Group-specific support main effects and interaction. A two-way multivariate analysis of variance (MANOVA) was calculated with two independent variables (age group and priming condition) and two dependent variables (in-group support and out-group support). The assumption of linearity was met based on observation of scatterplot graphs. The assumption of homogeneity of variance was violated as observed in
Levene’s test ($p < .001$). Based on Pearson correlation coefficients, the assumption of no multicollinearity was met ($|r| < 0.9$). The assumption of homogeneity of covariance was violated based on Box’s M test ($p < .001$). Because assumptions of homogeneity of variance and covariance were violated, results based on Pillai’s Trace, a more conservative approach because it is robust to assumption violations, were used in reporting.

No significant main effect was found for age on overall group-specific support, $F(4, 236) = 1.72$, $p = .15$, Pillai’s Trace = .06, $\eta_p^2 = .03$. Further, no significant main effect was found for priming condition on overall group-specific support, $F(2, 117) = .67$, $p = .51$, Pillai’s Trace = .01, $\eta_p^2 = .01$. Hypothesis six was not supported. A significant interaction was found between age group and priming condition on group-specific support, $F(4, 236) = 3.40$, $p = .01$, Pillai’s Trace = .11, $\eta_p^2 = .05$. Hypothesis seven was partially supported.

**Age and priming condition effects on in-group support.** No significant main effect was found for the impact of age on the amount of money donated to the in-group charity (Care and Share Food Bank for Southern Colorado), $F(2, 118) = 1.09$, $p = .30$, $\eta_p^2 = .02$. The mean amount of money donated to the in-group was not different between young adults ($M = 1.40$, $SD = 3.11$), middle-aged adults ($M = 0.83$, $SD = 2.24$), and older adults ($M = 1.49$, $SD = 2.97$). Further, no significant effect was found for the impact of priming condition on the amount of money donated to the in-group charity, $F(1, 118) = 0.76$, $p = .39$, $\eta_p^2 = .006$. The mean amount of money donated to the in-group (Care and Share for Southern Colorado) after a MS prime ($M = .99$, $SD = 2.17$) was not different than the mean amount donated after a DP prime ($M = 1.52$, $SD = 3.33$).
A significant interaction effect was found between age group and priming condition for in-group donations, $F(2, 118) = 5.38, p = .006, \eta^2_p = .08$. Least Significant Difference comparisons were used to evaluate the pattern of mean differences in donations made to the in-group (Care and Share Food Bank for Southern Colorado). For young adults, the mean amount of money donated to the in-group after a MS prime ($M = 0.24, SD = 0.54$) was significantly less than the mean amount given after a DP prime ($M = 2.62, SD = 4.12$), $p = .006$. For middle-aged adults, the mean amount of money donated to the in-group after a MS prime ($M = 0.76, SD = 2.39$) was not different than after a DP prime ($M = 0.92, SD = 2.12$), $p = .69$. For older adults, the mean amount of money donated to the in-group after a MS prime ($M = 0.99, SD = 2.17$) was not different than after a DP prime ($M = 1.52, SD = 3.33$), $p = .08$. Additionally, after a MS prime, the mean amount of money donated to the in-group by older adults ($M = 0.99, SD = 2.17$) was significantly more than the mean amount donated by both young adults ($M = 0.24, SD = 0.54; p = .02$) and middle-aged adults ($M = 0.76, SD = 2.39; p = .04$). Within the DP condition, the mean amount of money donated to the in-group by younger adults ($M = 2.61, SD = 4.12$) was greater than the mean amount donated by middle-aged adults ($M = 0.92, SD = 2.11, p = .05$) and older adults ($M = 1.04, SD = 3.24, p = .03$); middle-aged and older adults’ in-group donations did not differ. See Figure 3.

**Age and priming condition effects on out-group support.** No significant main effects were found for the impact of age on the amount of money donated to the out-group charity, $F(2, 118) = 0.82, p = .44, \eta^2_p = .01$. The amount of money donated to the out-group was not different between young adults ($M = 1.11, SD = 1.95$), middle-aged adults ($M = 1.68, SD = 3.83$), and older adults ($M = 0.76, SD = 1.95$). Further, no
Figure 3. Age x priming condition interaction on in-group specific support. Young adults donated significantly less to the in-group after a mortality salience prime than after a dental pain prime. No significant difference was observed in the amount donated to the in-group by middle-aged or older adults after a mortality salience prime or a dental pain prime. After a mortality salience prime, older adults donated significantly more to the in-group than both young and middle-aged adults.

A statistically significant interaction effect was found between age group and priming condition for out-group donations, $F(2, 118) = 3.72, p = .03, \eta^2_p = .06$. Least Significant Difference comparisons were used to evaluate the pattern of mean differences in donations made to the out-group (The United Nations World Food Programme). For young adults, the mean amount of money donated to the out-group after a MS prime ($M = 0.81, SD = 1.60$) was not different than after a DP prime ($M = 1.43, SD = 2.27$), $p = .33$. No significant effect was found for the impact of priming condition on the amount of money donated to the out-group charity, $F(1, 118) = .06, p = .81, \eta^2_p = .001$. The mean amount of money donated to the out-group (The World Food Programme) after a MS prime ($M = 1.26, SD = 2.79$) was not different than the mean amount donated after a DP prime ($M = 1.07, SD = 2.60$).
For middle-aged adults, the mean amount of money donated to the out-group was not different after a MS prime ($M = 1.43, SD = 3.80$) than after a DP prime ($M = 1.97, SD = 3.96$), $p = .37$. For older adults, the mean amount of money donated to the out-group after a MS prime ($M = 1.55, SD = 2.62$) was significantly more than after a DP prime ($M = 0.04, SD = 0.21$), $p = .02$. After a MS prime, the age groups did not differ in giving to the out-group. However, within the DP condition, both young adults ($M = 1.43, SD = 2.27; p = .02$) and middle-aged adults ($M = 1.97, SD = 3.96; p = .02$) donated significantly more to the out-group than older adults ($M = 0.04, SD = 0.21$). See Figure 4.

Figure 4. Age x priming condition interaction on out-group support. Older adults gave significantly more to the out-group after a mortality salience prime than after a dental pain prime. No significant difference was observed in donations made to the out-group by young adults or middle-aged adults after a mortality salience prime or a dental pain prime. After a dental pain prime, both young and middle-aged adults donated more to the out-group than older adults.
Exploratory Analyses

**Age x Priming Condition on Binary Donation.** A binary donation variable was created wherein participants who donated were coded as “1” \( n = 44 \), and participants who did not donate were coded as “0” \( n = 80 \). A 2 (priming condition: MS, DP) x 3 (age: young, middle-aged, older) ANOVA was computed to evaluate the mean differences of binary donation. No main effects were observed for age \( (p = .34) \) or priming condition \( (p = .84) \) based on binary donation. Further, no age x priming condition interaction was observed \( (p = .06) \). The proportion of young adults who donated was .44 (MS = 33.0%, DP = 55.0%). The proportion of middle-aged adults who donated was .28 (MS = 24.0%, DP = 33.0%). The proportion of older adults who donated was .34 (MS = 48.0%, DP = 22.0%).

**Age x Priming Condition on Group-bias.** Group-bias was calculated by subtracting the total amount given to the out-group from the total amount given to the in-group; positive numbers indicated an in-group bias and negative numbers indicated an out-group bias. A 2 (priming condition: MS, DP) x 3 (age: young, middle-aged, older) ANOVA was computed to evaluate the mean differences of group-bias. No main effects were observed for age \( (p = .07) \) or priming condition \( (p = .25) \) on group-bias. Further, no interaction effect between age and priming condition was observed \( (p = .31) \).

Pearson correlations were performed to assess the relationships between potential covariates (generativity, social desirability, and previously listed demographic variables) with group-bias. Social desirability was correlated with group-bias \( r(122) = .18, p = .05 \). A 2 (priming condition: MS, DP) x 3 (age: young, middle-aged, older) ANCOVA was calculated to evaluate the effect of social desirability on mean group-support. No
significant main effects were observed for age ($p = .07$) or priming condition ($p = .20$) on group-bias after controlling for social desirability. Further, no significant interaction effect was observed ($p = .18$) after controlling for social desirability.

**Suspected Study Purpose.** At the conclusion of the study, it was noted whether participants indicated suspicion that the charitable giving drive and study purpose were connected (suspected $n = 22; 17.6\%$) A one-way ANOVA evaluating the effect of suspicion on total giving was significant, $F(1, 119) = 12.04, p = .008, \eta^2_p = .06$. Participants who suspected that the charitable giving request was part of the study donated a higher mean amount to charity ($M = 4.50, SD = 5.69$) than those who did not suspect the study purpose ($M = 1.96, SD = 4.11$). A one-way ANOVA evaluating the effect of suspicion on binary donation (donated versus did not donate) was also significant, $F(1, 119) = 7.05, p = .009, \eta^2_p = .06$. The proportion of participants who donated after suspecting the study purpose was $.59 (SD = 0.50)$, whereas the proportion of those who donated who did not suspect the study purpose was $.30 (SD = .46)$.

It is possible that those participants who suspected the study purpose donated in order to engage in a socially desirable behavior. To evaluate the potential effect that social desirability bias had on the giving behavior of participants who suspected, a one-way ANOVA was conducted. No significant difference was found in mean levels of social desirability between those who suspected the study purpose ($M = 17.27, SD = 5.62$) and those who did not suspect the study purpose ($M = 17.98, SD = 4.70$), $F(1, 120) = 0.38, p = .54, \eta^2_p = .003$.

To evaluate the impact of those who suspected the study purpose, participants who indicated suspicion that the charitable giving request was part of the study were
removed from the data set \((N = 22)\). The original 2 (Priming Condition: MS, DP) x 3 (Age: Young, Middle-aged, Older) ANOVA was recalculated including only those participants who did not indicate suspicion. No main effect of age \((p = .78)\) or priming condition \((p = .90)\) occurred. A significant age x priming condition interaction effect was observed, \(F(2, 96) = 3.04, p = .05\). Least Significant Difference analyses were used to compare the pattern of mean differences. No difference was observed in the amounts donated by young adults \((p = .07)\), middle-aged adults \((p = .67)\), or older adults \((p = .12)\) after either a MS or DP prime. However, young adults who were asked to write about DP donated significantly more money to charity \((M = 3.44, SD = 5.28)\) than older adults who were primed with DP \((M = 0.95, SD = 3.44; p = .03)\).

**Gender.** A one-way ANOVA was conducted to examine the effect of gender on total amount of money given. No significant difference was found, \(F(1, 122) = 1.34, p = .25, \eta^2_p = .01\). The mean amount of money given by women \((M = 2.11, SD = 4.19)\) was not different than the mean amount of money given by men \((M = 3.46, SD = 5.36)\).

**Income.** According to the U.S. Census Bureau (2017), the median income in the United States is $57,617. Because it is difficult to evaluate income as a categorical variable, a binary variable was created near the median U.S. income. A one-way ANOVA was conducted to examine the effect of income level (below $50,999 and above $51,000) on the total amount of money given. No significant difference was found, \(F(1, 117) = 0.66, p = .42, \eta^2_p = .006\). The mean amount of money given by participants who reported their income below $50,999 \((M = 2.00, SD = 3.72)\) was not different than the mean amount of money given by participants who reported their income above $51,000 \((M = 3.32, SD = 5.56)\).
**Self-esteem.** A 2 (bivariate donation: donated, did not donate) x 2 (priming condition: MS, DP) ANOVA was conducted to examine the effect that MS and the act of donating (versus not donating) had on self-esteem. No main effects were observed for priming condition \( (p = .42) \) or donating/not donating \( (p = .07) \) on self-esteem. A significant interaction effect was observed, \( F(1, 120) = 6.67, p = .01, \eta^2 = .05 \). Least Significant Differences comparisons were used to evaluate the pattern of mean differences. After a MS prime, the mean self-esteem level of participants who donated \( (M = 3.83, SD = 0.74) \) was significantly higher than those who did not donate \( (M = 3.20, SD = 0.83), p = .002 \). For participants who received a DP prime, no difference was observed between mean self-esteem levels of those who donated \( (M = 3.58, SD = 0.67) \) compared to those who did not donate \( (M = 3.68, SD = .71), p = .61 \).

**Religiosity/spirituality.** A bivariate linear regression was calculated to evaluate how well religiosity/spirituality \( (1 = not \ at \ all \ to \ 10 = completely) \) predicted total donations to charity. The relationship between religion/spirituality and total donations was not significant \( F(1, 97) = 1.61, p = .21 \), with an \( R^2 \) of 0.016. Though not significant, for this participant sample, the total amount of money donated to charity decreased 0.204 for each 3.91-point increase (i.e., more religious/spiritual) on the religiosity/spirituality scale.

**Political leaning.** A bivariate linear regression was calculated to evaluate how well political leaning \( (0 = completely \ liberal \ to \ 100 = completely \ conservative) \) predicted total donations to charity. The relationship between political leaning and total donations was not significant \( F(1, 116) = 0.21, p = .65 \), with an \( R^2 \) of .002. Though not significant,
for this participant sample, the total amount of money donated to charity decreased 0.007 for each 2.81-point increase (i.e., more conservative) on the political leaning scale.

**Cognitive function.** A 2 (priming condition: MS, DP) x 3 (age: young, middle-aged, older) ANOVA was conducted to examine the effect that MS and age had on cognitive function. No significant effect was observed for age ($p = .6557$) or priming condition ($p = .54$). Further, no significant interaction effect was observed ($p = .812$).

**Personal self-bias.** A 2 (priming condition: MS, DP) x 3 (age group: young, middle-aged, older) ANOVA was calculated to evaluate the mean differences of money kept by participants (self-bias). No main effects were observed for age ($p = .96$) or priming condition ($p = .60$) on self-bias. However, a significant interaction occurred, $F(2, 118) = 4.03, p = .02, n_p^2 = .06$. Young adults exhibited a stronger self-bias, keeping more money for themselves, after a MS prime ($M = 13.95, SD = 1.75$) than after a DP prime ($M = 10.95, SD = 5.62$), $p = .03$. No difference was observed in the mean amount of money kept for middle-aged adults after a MS prime ($M = 12.81, SD = 4.79$) or a DP prime ($M = 12.11, SD = 5.17$) $p = .63$. Additionally, no difference was observed in the mean amount of money kept for older adults after a MS prime ($M = 11.48, SD = 5.06$) or a DP prime ($M = 13.91, SD = 3.25$), $p = .07$. 
CHAPTER IV
DISCUSSION

This study expanded on prior research, which suggests that older adults’ awareness of mortality prompts generative concern (Maxfield et al., 2014) as a means of caring for future generations (Erikson & Erikson, 1997) and ensuring symbolic mortality (e.g., leaving something of oneself behind; see Pyszczynski et al., 2015). Increasing the external validity of this study by evaluating donation behavior in a more natural setting.

Hypotheses Outcomes

Age group effects. No a priori hypothesis was put forth regarding the effect of age on group-specific support. However, it was expected that older adults would donate more money total money to charity, followed by middle-aged adults, who would, in turn, give more than young adults. Age alone was not enough to influence charitable giving behaviors. The lack of age differences contrasts with prior research suggesting that adults between 65 and 85 years of age give the most to charity (Wiepking & James, 2013) and that adults in Erikson’s (1997) psychosocial stage of generativity should be more likely to give. Wiepking and James (2013) reported that adults between 65 and 85 years of age donate more than other age groups, though they did not report the types of charities older adults support, or the circumstances in which they gave. Additionally, many middle-aged adults in this study reported that they donate to charity through matching programs at work. It is possible that the contrived research setting and predetermined charities affected the anticipated age effect. Future research would benefit...
from increasing the external validity of this study by evaluating donation behavior in a more natural manner.

**Priming condition effects.** It was expected that participants would donate more total to charity and to the in-group after a MS prime than after a DP prime. Reminders of death, independent of other factors, were not enough to influence charitable giving behaviors in this study. These results contrast with prior research suggesting that death reminders prompt individuals to engage in culturally acceptable pro-social behaviors (Hirschberger et al., 2008, Jonas et al., 2002), and that those primed with thoughts of death are more likely to support the in-group (see Pyszczynski et al., 2015). The lack of priming condition effects may be best attributed to the fact that young and older adults’ responses to MS were in direct opposition and no effects were observed for middle-aged adults. The effects of age and priming condition are better understood within the context of the interaction.

**Group-support effects.** It was expected that participants would give more to the in-group charity (Care and Share Food Bank for Southern Colorado) than the out-group charity (The United Nations World Food Programme). The total amount of money donated to the in-group charity was not different than the total amount of money donated to the out-group charity. This result conflicts with prior research suggesting that being part of a group or culture influences the desire to give as well as receive from the group (Bennett, 2003). According to the WVS (World Values Survey, 2016), 53.1% of respondents indicate that the most important social concern is meeting the needs of people living in poverty. It is possible that participants did not differentiate the charities, both food banks, as in-group or out-group organizations because they both serve the same
social purpose. Future research would benefit from listing a variety of local, national, and international charities and asking participants about which charities they personally identify with to better understand group identification.

**Interaction effects.** Because of the complexity of the interaction between age and reminders of death, discussion of interaction effects have been broken down by age group, beginning with young adults, followed by middle-aged adults, and finally, older adults.

Young adults were expected to exhibit no difference in the total amount of money given to charity after either a MS or DP prime. However, they were expected to give more to the in-group after being reminded of death. After a MS prime (compared to a DP prime), young adults donated less total money to charity overall, and less to the in-group. The pattern of giving exhibited by young adults contrasts with prior research. Maxfield and colleagues (2014) assert that young adults display no difference in generative concern after MS or a control prime. Conflicting research exists relating to frequency of young adult pro-social behaviors after a death reminder. Jonas and colleagues (2002) report that young adults engage in more pro-social behavior toward an in-group after a death reminder (compared to a DP prime). Kasser and Sheldon (2000), and Zaleskiewicz and colleagues (2013) report that they display higher levels of greed, or self-oriented bias after MS versus a negative control prime. Regarding the total amount of money donated to charity by young adults, it appears that their behavior was consistent with research suggesting that thoughts of death result in higher levels of greed, or self-bias. Because young adults are typically focused on creating personal security for the future (see Kotre,
1984), self-oriented bias, particularly after being primed with thoughts of death, may be developmentally appropriate.

Research has shown that for young adults, the more similar others are to an individual, the more likely one is to provide support after a death reminder (see Pyszczynski et al., 2015). The young adult sample in this study primarily consisted of university students. It is possible that this group identifies as part of global culture rather than with local culture, which may have impacted giving behavior toward the local charity. Though group identification was not assessed, if young adults in this sample view themselves as members of a global culture, they may have viewed the global (out-group) charity as part of their in-group. In support of this idea, Killick (2012) suggests that university students who are exposed to opportunities to develop global citizenship, report stronger global identities. If students at UCCS, who made up the majority of the young adult sample, have participated in educational courses intended to increase their global awareness, they may have developed identities as members of a global community, which would make the out-group charity in this study more aligned with their worldviews than the in-group charity. Future research would benefit from assessing participant cultural worldviews and global versus national group identification.

Though no prior TMT research has evaluated the effects of MS on charitable giving behaviors in middle-aged adults, developmental theorists suggest that members of this age group are likely to have developed the psychosocial and financial ability to care for others in pro-social ways. As such, it was expected that middle-aged adults would give more in total donations to charity after a MS prime than after a DP prime. Additionally, based on prior research suggesting that middle-aged adults are more
punitive to the out-group after thoughts of death (compared to a control; Rosenblatt et al., 1989), they were expected to give more to the in-group after a MS prime than after a DP prime. Interestingly, middle-aged adults did not respond to MS in any way; their giving patterns did not differ between MS and DP conditions. Prior researchers have reported that, when presented with explicit self-report measures of death anxiety, the age-related pattern of responding appears similar to a normal distribution. Young and older adults report low levels of death anxiety, but middle-aged adults report high levels (Fortner & Neimeyer, 1999; Neimeyer et al., 2004). Though middle-aged adults report high levels of explicit death anxiety, they do not appear to react to reminders of death, such as MS. It is possible that, because middle-aged adults acknowledge their fear of death, reminders of their mortality do not affect them as strongly as other age groups. Death anxiety was not measured in this study. Future research would benefit from further evaluation of middle-aged adults’ self-reported death anxiety and their responses to MS.

Older adults were expected to give more to charity after a MS prime compared to a DP prime. It was also expected that older adults would give more to the out-group after a MS prime compared to a DP prime. Consistent with prior research, older adults gave significantly more in total donations to charity after a MS prime compared to a DP prime. Additionally, older adults gave more to the out-group after being primed with thoughts of death compared to a DP prime. Both outcomes were conceptually consistent with prior research, wherein older adults report higher levels of generativity and are less punitive of out-group members after MS primes.
Exploratory Outcomes

**Binary Donation.** Though not significant, young and middle-aged adults tended to donate less frequently after a MS prime than after a DP prime. This pattern was reversed for older adults, who tended to donate more frequently after a MS prime compared to a DP prime. This pattern is more consistent with prior research than when giving amounts are evaluated. Young adults tended to be less generous after a reminder of mortality compared to DP, which is consistent with the findings of Kasser and Sheldon (2000), as well as those of Zaleskiewicz and colleagues (2013). In contrast, older adults tended to be more generous after a reminder of mortality compared to control conditions, which is consistent with the findings of Maxfield and colleagues (2014). However, this pattern is interpreted with caution given the lack of statistical significance.

**Suspected Study Purpose.** Participants who suspected that the charitable giving request was part of the study gave more to charity overall, and gave proportionately more often than those who did not suspect. The possibility that social desirability played a role in this pattern of behavior was considered. However, the mean social desirability scores were not different between those who suspected and those who did not. It may be that participants who suspected the study purpose reacted with expectancy bias, and may have donated to fulfill the study expectations. Participant motivation in donating was not assessed, and it would be beneficial to include in future research.

**Gender.** Previous research has found that American men self-report lower likelihood of donations to charity than American women (Mesch, Brown, Moore, & Hayat, 2011; Willer, Wimer, & Owens, 2015). For this sample, there were no gender differences in the amount of money donated to charity. Willer, Wimer, and Owens
(2015) reported that, in an online study, the gender difference in self-reported willingness to donate to charity was eliminated when charitable organizations were framed as supporting issues that negatively affect all people equally. In contrast, when the charities were presented without the universal benefit clarifier, women expressed higher willingness to donate than men. Willer and colleagues suggest that when problems are framed as universal, self-interest in the outcome is higher, thereby eliminating the gender effect of giving. Though identification with the charities was not assessed in this study, it is possible that the self-interest in food banks was equal for both women and men. As previously mentioned, future research would benefit from a pilot study evaluating charities with which participants identify.

**Income.** It has been reported that the relationship between giving and income typically occurs in a non-linear pattern, with those at very low and very high levels of income giving more than people in the middle income ranges (James & Sharpe, 2007). Income was unrelated to the amount of money donated to charity in this study. Additionally, observation of a scatterplot graph indicated that participants generally donated at the same rate across all income levels. Income was measured as a categorical variable (i.e., selecting an appropriate income range), which limited the types of analyses that could be conducted with this variable. Future research would benefit from asking participants to share their actual income to better understand the relationship between income and this type of giving.

**Self-esteem.** In North American culture, personal value is, in part, derived from generous, pro-social behavior (see WVS, 2016). According to TMT, when individual behavior is in concordance with cultural values, self-esteem is higher (Pyszczynski et al,
2004; Pyszczynski et al., 2015; Solomon et al., 1991). Strong self-esteem provides a psychological buffer against the terror that arises with death awareness (Pyszczynski et al., 2004; Solomon et al., 1991). In this study, self-esteem did not differ for participants who gave and those who did not. However, after a death reminder, participants who donated reported higher levels of self-esteem than those who did not; the same effect was not observed in the DP condition. This outcome is consistent with prior research suggesting that self-esteem acts as a buffer for reminders of death; in other words, when reminded of death, participants who behave consistently with cultural worldviews and social expectations, experience greater self-esteem (Pyszczynski et al., 2015).

Religiosity/spirituality. Again according to TMT, cultures, such as religious organizations, define what a person must do to be a “good” and “valuable” member of society, and provide literal or symbolic immortality to those who meet expectations (Pyszczynski et al., 2015). Using data from the 2001 “Giving and Volunteering in the United States” survey, Li (2017) found that people who engage in more frequent religious activity (e.g., attending religious services at least once a week) are 25.0% more likely to donate to a religious cause and 3.0% more likely to donate to a secular cause than their peers who engage in religious activities less frequently. For the present sample, religiosity/spirituality were unrelated to the amount of money donated to charity, though most of the participants in this study identified with a religion (69.7% as Buddhist, Christian, or Jewish). Using data from the 2001, 2003, and 2005 waves of the “Panel Study of Income Dynamics,” Ottoni-Wilhelm (2010) reported that participants who identified as nonaffiliated and Jewish were more likely to give to charity than those who identified as Catholic, Evangelical, and Protestant. Future studies may benefit from
assessing the extent to which participants have internalized specific religious teachings and values related to charitable behaviors.

**Personal self-bias.** Kasser and Sheldon (2000) reported that after a MS prime, first year university student participants exhibited higher levels of greed and resource consumption. Additionally, Zaleskiewicz and colleagues (2013) reported that MS motivates young adults to request more money in exchange for waiting longer to receive payment, which could be described as higher greed after being reminded of death. It is possible that thoughts of death prompt individuals to protect their personal interests rather than becoming more pro-social. In this study, young adults exhibited higher levels of self-bias after a MS prime than after a DP prime, which is consistent with Kasser and Sheldon’s and Zaleskiewicz and colleagues’ results. From a developmental framework, young adults are typically more focused on creating personal security for the future, and less focused on care of others (see Kotre, 1984). In this sense, the young adults in this sample appear to have behaved in a developmentally appropriate manner, though their intentions were not assessed.

**Limitations and Future Directions**

In addition to limitations already discussed, several participants told the researcher that they did not donate because they did not have any money with them, even though they had been given $15 at the onset of the study. It is possible that the observed behavior was a defensive response to being asked to give to charity in a research setting. As evidence of this, during the debriefing, some participants also told the researcher they felt it was inappropriate to ask for donations during a research study, though this data was
not explicitly tracked. Future research would benefit from increasing the external validity of the charitable giving measure by making the donation request less contrived.

Additionally, possible confounding historical events happened during the data collection portion of this study: several hurricanes occurred, and relief support organizations conducted aggressive donation campaigns. Several participants noted that they had donated to relief efforts and, thus, felt they had done their part to support others.

It is possible that the charities selected for this study did not adequately represent generative concern, as they do not focus solely on care of future generations. Follow-up research could allow participants to select their own charity to better capture generativity meaningful to the individual participant. The charities selected by participants, if given the opportunity, may also reflect individual cultural worldviews.

Cultural worldviews are malleable and change over time. The study conducted by Jonas and colleagues (2002) was conducted several years ago. It is possible that as the United States has become more “global,” participants have learned to view themselves as part of the global community as well, which may explain the differences in young adult giving behaviors after a death reminder. Because worldviews are dependent on external influences, it would be beneficial to the TMT literature base to examine the relationship between MS and charitable giving behavior more frequently to assess patterns of change over time.

**Conclusion**

The outcomes of this study are best understood through examination of the interaction effects. Though the results were not entirely as hypothesized, interesting reactions to death reminders occurred. Young adults responded to reminders of death by
engaging in less pro-social behavior (i.e., gave less to charity) and by being less generous toward the in-group, though this appears to be consistent with developmental expectations. No differences between MS and DP were observed in the behaviors of middle-aged adults, whereas older adults responded to death reminders by being more generous in overall donations and in donations specifically to the out-group. In spite of the previously identified limitations, the present study adds to the existing TMT literature by evaluating age-related charitable giving behaviors, as opposed to self-reported attitudes, in response to a death reminder, and by examining the effects of MS for middle-aged adults.

Limited research exists evaluating the effect of MS on middle-aged adults. Middle-aged adults differ from young and older adults in self-reported levels of death anxiety; middle-aged adults report high death anxiety, whereas young and older adults report low (Fortner & Neimeyer, 1999; Neimeyer et al., 2004). Additionally, middle-aged adults’ behavioral responses to MS differ from young and older adults; young and older adults are more reactive to MS, whereas middle-aged adults are less reactive. This pattern of attitudes and behavior may highlight that open acknowledgement of one’s fear of death may minimize the effects of MS. It is yet to be determined if this pattern affects long-term behavior. However, based on the outcomes of this study, it appears that being less reactive to MS also makes participants more neutral in the realm of pro-social behaviors. Additional research evaluating the effects of MS in middle-aged adults is recommended to better understand how death anxiety and responses to MS interact for this age group.
Due to social desirability bias, self-reported attitudes may not always be congruent with actual behavior. Though the studies conducted by Maxfield and colleagues (2007, 2012, 2014) examined age-related differences to MS, the dependent variables were based on self-report. The current study examined behavioral, age-related differences to MS, albeit in a contrived laboratory setting, which was still likely influenced by social desirability.

Though the results of this study did not fully support the hypotheses, the outcomes provided interesting information regarding the effects of age and MS on charitable giving behaviors. A primary theme identified for future research relates to the importance of evaluating personal identification with charities. It would be worthwhile to conduct a follow-up study addressing the limitations previously noted in order to obtain a broader picture of how MS affects charitable giving behaviors. Additionally, a follow-up study conducted online may reduce the effect of social desirability bias, which was present in this study. In summary, the results of this study were not completely consistent with prior TMT research, and may reflect changing worldviews. Nevertheless, given the positive impact generativity and charitable giving have on psychological health (e.g., Andreoni, 1990; Dunn, Aknin, & Norton, 2008), further evaluation of the reported outcomes would be warranted.
REFERENCES


APPENDIX

IRB APPROVAL

University of Colorado
Colorado Springs
Institutional Review Board (IRB) for the Protection of Human Subjects

Date: 9/26/2016

IRB Review

IRB PROTOCOL NO.: 17-029
Protocol Title: Understanding Personality Across the Adult Lifespan
Principal Investigator: Molly Maxfield
Faculty Advisor if Applicable: N/A
Application: New Application
Type of Review: Expedited Category 7
Risk Level: No more than Minimal Risk
Renewal Review Level (if changed from original approval) if Applicable: N/A No Change
This Protocol involves a Vulnerable Population: N/A (No Vulnerable Population)
Expires: 25 September 2017

Note: This protocol is considered expedited. Changes to the protocol that increase the risk to participants must be approved by the IRB. In addition, the protocol may include more than one subject category not listed.

Externally funded: ☐ No ☑ Yes
OSP #: 43000436 Sponsor: Indiana University Lilly Family School of Philanthropy

Thank you for submitting your Request for IRB Review. The protocol identified above has been reviewed according to the policies of this institution and the provisions of applicable federal regulations. The review category is noted above, along with the expiration date, if applicable.

Once human participant research has been approved, it is the Principal Investigator’s (PI) responsibility to report any changes in research activity related to the project:
- The PI must submit all protocol, recruitment, advertising, and consent form amendments/revocations to the IRB for approval.
- The IRB must approve these changes prior to implementation.
- If you are a student, please note that it is required to include the IRB approval letter to the library when you submit the dissertation/thesis.
- The PI must promptly inform the IRB of all unanticipated serious adverse events (within 24 hours). All unanticipated adverse events must be reported to the IRB within 1 week (see 45 CFR 46.103(d)). Failure to comply with these federally mandated responsibilities may result in suspension or termination of the project.
- Renew study with the IRB at least 10 business days prior to expiration.
- Notify the IRB when the study is complete.

If you have any questions, please contact Research Integrity Specialist in the Office of Sponsored Programs and Research Integrity at 719-255-3903 or irb@uccs.edu

Thank you for your concern about human subject protection issues, and good luck with your research.

Sincerely yours,

Zak Valkyrie
Zak Valkyrie, PhD
IRB Reviewer

www.uccs.edu/irb
Version 7.15.16
1630 Austin Bluffs Parkway Colorado Springs, CO 80916
719-255-3321 phone 719-255-3700 fax