ABSTRACT


I conducted the present study in order to examine flux of subjective age as a possible distancing technique from death. Building from previous literature examining age-related loss and subjective aging (Heckhausen, 1997; Weiss & Freund, 2011), I hypothesized that 40- to 60-year-old participants exposed to a mortality salience (MS) condition (e.g., Rosenblatt et al., 1989) would manifest relatively lower subjective ages than those in a parallel control condition. Furthermore, I predicted a condition by age effect in which older participants in the mortality salience condition would evince this distancing technique to a higher degree in relation to their younger counterparts. One hundred and twenty-one participants were assigned to either the MS condition or control condition, then prompted to respond to three measures of subjective age: felt age and ideal age (Kastenbaum et al., 1972) followed by Attitudes Toward Own Aging (Lawton, 1975). Multiple linear regression analyses were conducted to test the hypotheses. Contrary to expectations, there was no significant relationship between condition or age and felt age or the Attitudes Toward Own Aging scale. Condition and an age by condition interaction predicted ideal age, in the presence of an overall insignificant model. These results lend partial support to the hypothesis, but must be considered with caution. Additional linguistic analyses provided evidence that defense strategies may have affected the outcome variables. Limitations of this research and suggestions for future investigations are discussed.
Forever Young: Terror Management Theory and Subjective Age

by
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INTRODUCTION

Researchers examining subjective aging have documented a clear pattern of change across the lifespan. Individuals in their early 20s or younger typically feel older, whereas individuals approaching the age of 30 begin to feel younger than their chronological ages, and the gap between chronological and subjective age increases with participant age (Barrett & Montepare, 2015). After age 40, adults consistently feel 20% younger than their actual age (Rubin & Berntsen, 2006). From a lifespan developmental perspective, the change from feeling older to feeling younger pivots around internalized conceptions of the life course (Whitbourne, 1985). Montepare (2009) suggests that these enculturated ideas of age affix to the achievement of adulthood as a midpoint. If individuals are younger than this mark (near 30 years of age), they see themselves as older - closer to the mark. If, however, they are past this point, they see themselves as younger - closer to the mark. On either side of the lifespan, “adulthood” is seen as a developmental accomplishment. Although this pattern may seem to be a product of America’s idealization of youth, Barak (2009) found that, across 18 culturally-varying countries, adults consistently viewed themselves as younger than their chronological age. This study explored the idea that participants’ assessments of their positions in the lifespan could be temporarily altered as a means of managing existential dread.

**Subjective age.** When prompted to view one’s position in the lifespan, the typical subjective age trajectory described above can be further affected. Heckhausen (1997) instructed 510 young, middle, and older adults to give the five “most important personal hopes, plans, and goals for the next 5 to 10 years.” Along with these goals, participants were asked to describe the probability of attainment, personal control, and the normative age of the
goal, along with other measures of goal pursuit. By asking older adults to image these goals, the researchers assumed that these participants would face fears of loss. In order to quell these fears, this demographic employed several compensatory techniques, involving both primary (resources) and secondary (volitional commitment) control. The secondary compensatory techniques, necessary for motivation, included a shift in age identification; older adults believed themselves to be more closely related with middle adulthood and perceived their own developmental goals as typical for middle-aged adults. The results indicate that, to escape the reality of loss, older adults view themselves as an exception – not truly the same age, at least in feeling, as their peers.

Weiss and Freund (2011) conducted two similar experiments in which negative age-related information distanced older adults from their own age group. Of three age-related information conditions (positive, neutral, or negative) in the first experiment, participants in the negative age-related information condition had higher perceived salience of their own age. In the following study, participants were parsed into the same aforementioned conditions. When comparing themselves to photos of other people their age and a middle-aged group, the participants in the negative age-related information condition (as compared to the neutral and positive conditions) articulated distance between themselves and their peers while indicating similarity to middle-aged people. When confronted with age-related losses, older adults seem to take on a compensation strategy in order to protect themselves from threatening information.

**Existential dread.** If fears of loss or aging can lower one’s subjective age beyond the typical internalized conceptions of age, then perhaps anxiety related to the loss of one’s life may also affect subjective age. Such existential dread has been largely studied in the context
of Terror Management Theory (Greenberg, Pyszczynski, & Solomon, 1986). Terror Management Theory (TMT) posits that, when faced with the potentially paralyzing effects that come with existential terror, humans developed defense strategies to escape from these dreadful feelings. This defense strategy is two-pronged, consisting of both distal and proximal defenses (Pyszczynski, Greenberg, & Soloman, 1999).

Distal defenses are long-term, death-buffering strategies that involve aligning oneself with a particular cultural worldview and building up one’s self-esteem. For example, one may (unconsciously) defend the self from existential dread by joining a religion that promises life after death and provides a sense of belonging. Proximal defenses, however, provide immediate relief: ideas of one’s own demise are simply suppressed or rationalized. In suppression, the thought of death is avoided entirely, perhaps through distraction or refusal to think of the fact. The other successful proximal technique involves rationalizing the reality of death by believing death to be far away (Pyszczynski, Greenberg, & Soloman, 1999).

Younger adults can easily rationalize the reality of death, as they are seemingly far from death. It is easy for this age demographic to simply push the idea out of mind, justifying that it is “far away.” It is unknown, however, if adults at or beyond midlife use this technique to distance themselves from their own demise.

**Present Study**

As older adults are closer to death, the distancing technique may not be available, or cannot be utilized in the same manner as employed by younger participants. The present study examined this possibility by exploring how this distancing may change across a middle-to-older adult demographic. Proximal defenses are ultimately a strategy to relieve the anxiety of recognizing that we are mortal. The passage of time undeniably brings us closer to
the day that we will die. Since older adults are closer to death than middle-aged adults as a group, the motivation to deny the impending demise was hypothesized to be stronger among older participants; hence, it was hypothesized, that with increasing age, the participants would distance themselves from death to a higher degree. Support for this assumption is reflected in Weiss and Lang’s (2012) exploration into age-group and generation identity. When faced with their own age, participants distanced themselves by identifying with their generation, instead. Generation, here, is defined as attributes of their age group (e.g. history, culture, norms) as opposed to age as a number. This protective technique increased with advancement in age – presumably due to the increased likelihood of nearness to death.

Further support for the predicted effect on subjective age was provided by Heckhausen (1997), who found that, as age increases, older adults have a greater tendency for employing the compensatory secondary control of identifying with a younger age group.

By bringing death to participants’ minds through utilizing the typical death anxiety condition, known as a “mortality salience” in the Terror Management literature (Greenberg, Pyszczynski, & Solomon, 1986) it was hypothesized that older-adult participants faced with this inevitable loss would lower their subjective age in order to mentally escape from it. This manipulation involves asking participants to describe their own death. If not assigned to the mortality manipulation, respondents were placed in a parallel control condition in which dental pain is imagined. Participants were 40 years of age or over, firstly as they were assumed to be old enough to employ subjective age as a distancing technique. Secondly, as subjective ages are 20% lower across the board for individuals over the age of 40 (Rubin & Berntsen, 2006), subjecting participants to this criterion provides a consistent subjective age standard by which subjective age alterations can be examined. Terror Management
proponents would suggest that this distancing reflects the utilization of a proximal defense in order to protect oneself from thoughts of death (Pyszczynski, Greenberg, & Solomon, 1999). When death is in the immediate thoughts of an individual, he or she will push these thoughts away from mind, even if it means altering the perception of one’s own aging. While previous research has examined the role of loss on subjective age, loss in an existential perspective (i.e., death) has not been explored. Existential dread has been shown to elicit a proximal defense of distancing oneself from death. In this case, it may alter one’s subjective age. In order to measure subjective age, three different measures were utilized. Felt age and ideal age, two commonly used subjective age measures (Kastenbaum et al., 1972), were asked in order to examine potential distancing techniques – being a change in how old one feels, or how old one wishes to feel, respectively. The final measure, Attitudes Toward Own Aging (Lawton, 1975), was chosen in order to explore the alteration of subjective age on a different dynamic, as a reflection of disposition.

The hypotheses in the present study were: (1) Participants exposed to a mortality salience condition, as opposed to a control condition, would be more likely to respond with a lower subjective age, as a distancing technique from death. (2) Among participants in the mortality salience condition, older participants would evince lower subjective age to a greater degree than their younger counterparts. This differential response was hypothesized to be an act of compensation, as older adults are assumed to be closer to death.

METHOD

Participants and Design

A middle-to-older adult sample from throughout the United States was recruited via advertisement on Amazon’s Mechanical Turk (MTurk). Participation was limited to adults
aged 40 and over; however, participants were not aware that meeting this criterion was necessary to participate in the entirety of the study. In congruence with G*Power Statistical Power Analysis (Faul et al., 2007), using the average effect size of $r = .41$ for Terror Management Theory experiments involving Americans (Yen & Cheng, 2013), 120 participants were needed in order to detect a small to medium effect. After opting into the study, participants responded to demographic questions of age, gender, and ethnicity was asked. Each participant received $0.01 for answering these three demographic questions. Participants who qualified in age were lead to the remainder of the study and received an additional $0.39, as described in more detail below. Of 457 individuals who responded to a recruitment announcement placed on the Mechanical Turk site, 125 met the criterion of being above the age of 40 (see the Procedures section below for detailed information). Of the remaining participants, three were disqualified for choosing an age group (“over 40”) that did not correspond to the birth date they reported in separate questions. Lastly, one participant was barred from analyses due to unmatched birth dates in response to question asked at both the beginning and end of the study. This inconsistency was assumed to be a signifier of deception.

Among the 121 participants who qualified for the study on the basis of age, ages ranged from 40 to 68 years ($M = 51.45, SD = 7.12$). Seventy-six percent of the respondents were female ($n = 92$), while nearly a quarter of participants were male ($n = 29$). This gender difference is slightly greater than a typical Mechanical Turk sample for an older age demographic (Huff & Tingley, 2015). Eighty-five percent of respondents identified themselves as “Non-Hispanic White or Euro-American” ($n = 103$). While the sample is overwhelmingly white, this is not atypical for Mturk (Huff & Tingley, 2015).
Participants were randomly assigned to one of two conditions, differing only with regard to the scenario presented to them. More information about the manipulation can be found below.

**Measures and Materials**

**Mortality salience and control scenarios.** Mortality salience was manipulated with two open-ended questions about death. Previous TMT researchers have used this technique extensively (e.g., Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). Participants in the control condition responded to two parallel questions about dental pain. The distribution of participants across the two conditions was nearly equal. Sixty-two participants were randomly assigned to: (1) Please briefly describe the emotions that the thought of your own death arouses in you, and (2) Write, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead. Fifty-nine participants in the control condition were asked to respond to two analogous dental pain prompts commonly used in TMT research (Burke et al., 2010): (1) Please briefly describe the emotions that the thought of dental pain arouses in you, and (2) Write, as specifically as you can, what you think will happen to you as you physically experience dental pain. See Appendix A for a detailed example.

The content of the participants’ responses was examined in a series of ancillary analyses, as described below,

**Felt age and ideal age.** Following the mortality salience or control manipulation, two measures of subjective age were administered (Kastenbaum et al., 1972). The first measure of subjective aging, felt age, was assessed by asking participants to respond to the following prompt: “Right now I feel…” Participants indicated their responses on a 7-point Likert Scale
ranging from “a lot younger than my age” to “a lot older than my age” (e.g. Monteparte, 1996). Utilizing the same Likert Scale, participants were asked to respond to the second measure of subjective aging, ideal age: “If I could pick my age right now, I would like to be…”

**Attitudes toward own aging (ATOA).** The third and final measure of subjective aging (Brothers et al., 2015) is the five-item subscale of the Philadelphia Geriatric Morale Scale (PGMS), the “Attitudes Toward Own Aging Scale (AOTA)” (Lawton, 1975). Lawton provided evidence that the PGMS has high content validity, above the several other multidimensional morale measures of the time. My use of the ATOA yielded a moderately high level of internal reliability with Cronbach’s alpha = .70. The AOTA scale was used to assess participants’ views of their own aging. This scale consists of the five “yes or no” questions that indicate agreement with the statement (e.g., “I have as much pep as I did last year”). A higher score indicates a more positive view towards one’s own aging. All participants, regardless of condition, completed all three measures of subjective aging. See Appendix B for a detailed description of the measure.

**Demographic information.** This information was gathered before the manipulation and included age (measured by birth date; mm/dd/yyyy), gender (chosen as either male or female), and ethnicity (indicated by selecting from provided choices).

**Procedure**

The North Carolina State University Institutional Review Board approved all procedures. As indicated above, participants were recruited through Amazon’s Mechanical Turk. Responses took place between April 28th and May 18th of 2016. Participants were able to participate in the study by opting in after reading a brief description of the study listed on
Mturk’s website: “Give us your responses to the specific emotions and attitudes that come with age. 3 brief demographic questions for 1 cent. If you fit the demographics, you will take an extended survey and be rewarded an additional 39 cents.” Participants were notified that the study could take from five to ten minutes. The average completion time, as indicated by Qualtrics, ranged from four to five minutes.

After choosing to participate in the study, the participants followed a link to Qualtrics, where all measures were presented. After providing informed consent, all participants were led to the initial questionnaire and paid $0.01 for completing it, regardless of their answers. In order to deter spamming, the participants were first asked to answer “What is 2 +2?” The participants were instructed that this was only for verification of authenticity. Birth date was then recorded. At the end of the study, birth date was rerecorded in order to verify authenticity of age. After birth date, gender and ethnicity were recorded, as was well as responses to the question “Are you above 40 or under 40 years of age?” This step also acted as verification of age, as the Mturk advertisement conveyed no indication of desired age. If participants identified as “under 40,” the study ended and they were sent to a “thank you” page. If participants identified as “over 40,” they were then sent to either the mortality salience condition or the control condition. In order to recruit more participants on the older side of the desired demographic, this question was changed to “Are you above 60 or under the age of 60?” for the last 58 participants. Only respondents over the age of 60 were allowed to continue. Regardless of condition, the participants then went on to fill out the subjective aging questionnaires. Felt age and ideal age were presented together on a 1-7 Likert Scale. The Attitudes Towards Own Aging (AOTA) was then presented. Birth date was asked once
more and participants were then taken to a “thank you” page. Participants were “bonused” the additional $0.39 within three days of the completion of the survey.

**Coding and Scoring**

**Age.** Age was calculated from the birth date. The exact year of age was calculated in accordance to the date of survey completion. Birth date was chosen, instead of age, to ensure accuracy of reported age.

**Subjective age.** Two measures of subjective age, felt age and ideal age, were measured on one seven-point Likert scale, ranging from “a lot younger than my age” to “a lot older than my age.” A Likert scale was chosen in lieu of a numerical response in order to bolster statistical strength. The scores, 1-7, were compared as is during statistical analysis.

**Attitudes toward own aging questionnaire.** Following the scoring procedures used by Lawton (1975), the five questions of the AOTA were aggregated to one score. An agreement with each statement results in one point. A higher score indicates higher morale, or a better attitude towards one’s own aging. Questions 1 and 3 are reverse coded. In question 4, “better” indicates agreement. A singular score was calculated for each participant and used in the analyses.

**Content of descriptions.** In order to measure the success of the manipulation and to examine the affect of the participants, a series of content analyses were conducted on the text written in response to both the mortality salience condition and the control condition. These analyses utilized the Linguistic Inquiry and Word Count (LIWC) software, developed by Pennebaker et al. (2015). LIWC analyzes texts and reveals frequencies of word use by category. These frequencies are percentages of the total narrative, as written by the participants. LIWC categories were created through a rigorous process of word collection,
judgment, psychometric evaluation, and refinement (Pennebaker et al., 2015). Each category contains words and stems germane to that category. The “negative emotion” category was chosen both in order to examine if the manipulation caused significant distress, and if the two conditions were comparable with regard to the levels of negative affect they generated. Fear and anxiety were examined for comparison with Lambert and colleagues (in press). The means of both conditions were calculated and compared in order to observe the nature and success of the manipulation. T-tests were conducted in order to explore variance between the two conditions. “Position emotion” was also selected in order to see if the participant used positive feelings to diminish death anxiety. Lastly, two additional categories that should indicate distal defense strategies were examined for this same reason: the religion and social sections.

RESULTS

Preliminary Analysis

Prior to testing the hypotheses, I verified the appropriateness of the planned analyses. Firstly, I examined the age distribution of the sample to insure adequate representation across the portion of the lifespan examined (see Figure 1). Age distribution approximated normality ($M = 51.45$, $SD = 7.12$). Following, I inspected the distribution of scores for each measure to determine if transformations were necessary, calculated inter-correlations among the three measures to confirm that separate models could be tested, and examined gender differences to find out if this variable should be included in the models. The result of each of these analyses is discussed below.

**Dependent Measures.** As far as felt age, the sample typically scored between “somewhat younger than my age” and “the same age as my actual age” ($M = 3.55$, $SD =$
with participants responding to the full range of choices. In ideal age, however, participants only answered “the same as my actual age” and below with the average contributor scoring between “younger than my age and “somewhat younger than my age,” \((M = 2.61, SD = 0.83)\). On the ATOA questionnaire, responses ranged on the full scale (0-5), with a higher score indicating more positive attitudes towards one’s own aging. The mean ATOA was 2.83 \((SD = 1.66)\), indicating a generally less than positive score. See Table 1 for detailed descriptive characteristics of the dependent measures. While there was no correlation between felt age and ideal age \((r = 0.10, p = 0.29)\), ATOA had a small-moderate correlation with both felt age \((r = -0.33, p < .001)\) and ideal age \((r = 0.29, p = .001)\). Given that a large portion of the variance was not shared, ATOA along with ideal and felt age were examined in separate regression analyses.

**Gender differences.** Utilizing multiple independent-sample t-tests, it was discovered, as expected, that there were no significant differences between men \((M = 3.55, SD = 1.33)\) and women \((M = 3.54 SD = 1.32), t(119) = 0.03, p = 0.98\) on the measure of felt age. Nor was there significant variance in responses to ideal age for men \((M = 2.86, SD = 0.79)\) and women \((M = 2.53, SD = 0.83)), t(119) = 1.89, p = 0.06. Lastly, no significant gender differences were found for men \((M = 3.17, SD = 1.56)\) and women \((M = 2.73, SD = 1.68), t(119) = 1.26, p = 0.21) who completed the ATOA questionnaire. Gender was therefore not included in the following analyses.

**Multiple Linear Regression Analyses**

The primary analyses examined the variation in subjective age measures as a result of chronological age (as a continuous variable) and condition (mortality salience vs. control), as well as the interaction of these two predictors. Hayes’ Process Model 1 for SPSS (Hayes,
was used for ease of analysis. A separate model was analyzed with each of the subjective aging measures as dependent measures: felt age, ideal age, and Attitude Towards Own Aging. An alpha level of .05 was used for testing these models.

**Felt age and ideal age.** I hypothesized that felt age and ideal age would be younger for participants in the mortality salience condition as compared to those in the control condition. I also hypothesized that age would predict these two measures, with older adults having significantly younger felt age and ideal age than younger adults (relative to the age of the participant). An age by condition interaction was further hypothesized, in which older adults in the mortality salience condition would lower felt or ideal age to a higher degree than their younger counterparts. Contrary to my hypothesis, the model including age, condition, and the age by condition interaction was not significant for felt age: $F(3, 117) = 0.37, p = .77, R^2 = .01$. The model for ideal age approached significance: $F(3, 117) = 2.33, p = .08, R^2 = .06$, and hence individual predictors were examined for exploratory purposes. Within the model, age was not a significant predictor of ideal age ($b = 0.01, t(117) = 0.48, p = .63$). It was also revealed that condition is not a significant predictor of ideal age ($b = 0.02, t(117) = 0.15, p = .87$). The interaction effect, however, was significant ($b = -0.05, t(117) = -2.19, p = .03$).

The conditional effect of condition on ideal age was broken down from lower ages, a mean of 44.33 years, ($b = 0.35, t(117) = 1.66, p = 0.10$), to the average age, 51.46 years, ($b = 0.02, t(117) = 0.15, p = 0.88$), to the higher ages, 58.57 years, ($b = -0.31, t(117) = -1.44, p = 0.15$). While the direction of the effect did change from positive in lower ages to negative in older ages, as predicted, this change was not significant (see Figure 2). This fact coupled with case of an overall insignificant model leads me to believe that these findings should not be interpreted as support for the hypothesis, despite their falling in the predicted direction.
Attitudes toward own aging (AOTA). Similar to the aforementioned hypotheses, I predicted that the aggregate ATOA score would be higher for those in the mortality salience condition, acting as a buffer from death anxiety. This relationship was predicted to be moderated by age, as it was assumed that older participants would score significantly higher than younger participants because of the proximity of natural death. The model including age, condition, and the age by condition interaction was not significant for attitudes toward own aging: $F(3, 117) = 1.21$, $p = .31$, $R^2 = .03$.

Analyses of Content of Participants’ Reports

Content stemming from participants’ written reactions to the conditions was analyzed using LIWC. The mean number of words written for a participant in the mortality salience condition was 55.12 ($SD = 44.84$). These participants ranged from a text of 6 words to a text of 242 words. The mean number of words for participants in the control condition was 41.92 ($SD = 36.85$). Respondents to this condition ranged in word count from 5 to 169 words. Although the MS participations produced longer reports ($t(119) =1.95$, $p = .05$) than the control, the difference in word count is not a confound, since word categories are calculated as a percentage of the text.

Manipulation check. As coded by LIWC, both the mortality salience condition and the control had high levels of negative emotion words, at 4.21% of the response and 11.27% of the response, respectively. For both conditions, negative emotion words were the most frequently occurring words of any emotion category. The control (dental) condition, however, was significantly more likely to contain negative emotion words ($M = 13.36$, $SD = 8.41$) than the mortality salience condition ($M = 2.10$, $SD = 2.88$; $t(80.32) = -7.30$, $p <.001$).
Fear and anxiety. Lambert and colleagues (in press) conducted a similar mortality salience conduction online, also via Amazon’s Mturk followed by LIWC analyses of the participants’ written control responses. My study resulted in higher fear words in the MS condition (1.09%) as compared to anxiety-related words (0.22%). However, the percentage of fear words in my MS condition ($M = 1.47, SD = 2.52$) was not significantly different than the control ($M = 1.64, SD = 2.65$; $t(119) = -0.36, p = .72$). Dissimilar to the Lambert experiment, my control condition participants ($M = 1.10, SD = 2.29$) yielded a significantly higher level of anxiety than the MS condition ($M = 0.25, SD = 0.74$; $t(69.58) = -2.72, p = .008$).

Use of alternative defense techniques. In order to explore reasons for the absence of an effect of condition, I used LIWC to examine evidence for participants’ use of defense techniques that would have deflated the effect of the mortality salience condition. In order to combat Type 1 error, these analyses were conducted with a Bonferroni correction. The Bonferroni-adjusted critical p-value was the original alpha of .05 divided by four t-tests: .013. These relevant responses included the LIWC categories deemed as positive emotion, social, and religion. There were significantly higher reports of positive emotions for the mortality salience condition ($M = 3.67, SD = 3.61$) than the control condition ($M = 1.48, SD = 2.16$; $t(100.44) = 4.08, p < .001$). The mortality salience condition was also significantly more likely to contain social words ($M = 4.39, SD = 3.99$; $M = 2.10, SD = 2.88$; $t(119) = 3.6, p < .001$), and religious words ($M = 2.11, SD = 3.45$; $M = 0.12, SD = 0.58$; $t(64.69) = 4.50, p < .001$). There was a positive correlation between age and use of religious words ($r(119) = .44$, $p < .001$). Furthermore, use of positive emotion words was significantly correlated with
religious words \(r(119) = .63, p < .001\) and social words \(r(119) = .20, p = .03\). See Table 2 for detailed descriptions.

**DISCUSSION**

The goal of the present study was to expand the current literature on the temporary alteration of subjective age, particularly in the context of the threat of loss (Weiss and Freund, 2012; Heckhausen, 1997). Specifically, I examined the realization of the loss of one’s own life (existential dread) and the use of a subsequent distancing-from-death technique, known as a proximal defense in terror management literature (Pyszczynski, Greenberg, & Solomon, 1999). I sought to explore the possibility that an elicited proximal defense would alter measures of subjective age. As subjective age predicts several facets of one’s health (Westerhof & Barrett, 2005; Keyes & Westerhof, 2012; Uotinen et al., 2005), I theorized that if a relationship was found, there could be implications for those who are often faced with death (e.g. the elderly, the ill). I hypothesized that the older portion of the sample would employ this distancing technique to a higher degree, as they are chronologically closer to death. My hypotheses proved to be incongruent with the results, however. Condition did not predict felt age or Attitudes To Own Aging scores. However, there was a significant effect for ideal age, albeit in the presence of an overall insignificant model. I discuss the findings in more detail below. Further, a series of ancillary analyses examining the content of the participants’ reports suggests that participants were using distal strategies to cope with existential distress, alleviating the need for the proximal strategy of lowering subjective age.

**Summary of Findings**

**Mortality salience and subjective aging.** I first hypothesized that the three measures of subjective aging would be altered in response to the mortality salience induction;
specifically, I predicted that subjective age would be relatively lower for those in the mortality salience condition as compared to the control (dental) condition. Upon multiple regression analysis, it was discovered that the overall model for felt age was insignificant, as well as its individual predictors; no difference was found between the two conditions. The overall model for ideal age was also insignificant, but approached significance (p = .08), so the individual predictors were examined. Participants in the mortality condition were significantly more likely to have a lower ideal age than those in the dental condition. This aspect is in line with the hypothesis that the MS condition would comparatively lower subjective age. A significant interaction effect was found between condition and age for ideal age. As age increased in the mortality salience condition, ideal age score decreased. This change was not found in the control condition.

This finding partially validates the hypothesis – yet only older participants are dropping ideal age in reaction to a mortality salience condition. Perhaps the sample was too young and this effect can only take place in an older sample (~60 and above). My sample had a mean age of less than 52 years, and hence on average, participants could expect to live for about two and-and-a-half decades more. Given this life expectancy, perhaps mortality was not yet salient. Supporting this hypothesis, both Heckhausen (1997) and Lambert and colleagues used participants 60 and above or 65 and above for their older age groups, respectively. Adults around this age, however, appear much less frequently on Mturk and hence made up only a small portion of my sample. A Johnson-Newman test was used to determine at what age the condition effect becomes significant, however, the test revealed that there were no statistical significance transition points within the sample.
There are reasons why ideal age as an indicator of subjective age, in contrast to felt age or attitudes toward aging, would be most responsive to a mortality salience manipulation. Ideal age reflects volition, rather than feeling. Felt age and AOTA score may rely on too many objective factors so that they remained unaltered by a temporary mortality salience induction. A velleity such as ideal age has no anchor in self-reflection and may be a more accessible defense. Clearly, further research is necessary in order to support this interpretation.

**LIWC Analyses**

Both the mortality salience condition and control condition appeared to have produced negative emotions in participants. The participants in the control condition, however, showed significantly higher levels of negative emotion than those in the mortality salience condition. In order to determine if this effect was typical, affect was examined in the relevant literature. Much of the current Terror Management literature denies a change in affect due to morality salience (e.g. Arndt, Allen, & Greenberg, 2001). However, authors of a recent article (Lambert et al., in press) reviewed the literature and challenged this assumption. Much of the literature is self-report and the writers argue that true emotion may be lost during the reflection and potential reevaluation of how the information affects oneself. The authors used several types of methodological, analytical, and linguistic approaches to exploring the issue, including LIWC. Like the present study, they conducted their experiment through Amazon’s Mturk, theoretically barring any variance they may arise between online and in-person data collection. They created two custom categories (fear and anxiety) in order to analyze the affective outcomes of mortality salience versus a control condition. While our results both concluded that fear-related words were more likely to be generated than anxiety-
related words, our samples seemed to have differed otherwise. Whereas Lambert and colleagues found the MS condition to have higher levels of fear than the control condition, my own LIWC analyses, using these exact custom-dictionaries, did not find a difference between the MS condition and the dental control. The frequency of fear words was may have appeared low for both the MS and control condition, at 1.09% and 1.53%, respectively, but these percentages should not be considered trivial, as every word is measured in LIWC analyses, including grammatical terms. The authors of the forthcoming article found the MS condition to have higher levels of anxiety, while I, inversely, found the control condition to have higher levels of anxiety than the MS condition. Similarly to fear words, the frequency of anxiety words was low for both the MS condition and the control, at 0.22% and 0.91%, respectively. It is important to note that the authors of Lambert et al. (in press) did not use a dental condition as a control, but a control in which the participant was to describe mundane task. A dental condition is used in order to produce an uncomfortable situation without components of existentialism. Lambert et al.’s condition, however, was absent of any type of discomfort. This fact, despite similar data collection methods, makes an exact comparison difficult. Perhaps my mortality salience induction was successful, judging by a higher frequency of fear terms, but without equal control conditions, neither normality nor abnormality of condition reactions can be established.

Comparing the two conditions by word category frequency yields interesting results. Participants in the mortality salience condition were more likely to use words of the positive emotion, religion, and social categories than the control condition. Whereas both conditions used negative emotion words in high frequency, the control condition participants were more likely to use negative emotion words. It appears that those in the mortality salience condition
use words that protect them from death – positive emotions, religious words, and social words. These categories fall in line with typical distal responses of Terror Management theory: boosting self-esteem and strengthening cultural worldview (Pyszczynski, Greenberg, & Soloman, 1999). I was looking for proximal defenses, but perhaps distal defenses were already in play. TMT literature suggests that distal defenses are the strongest after about five minutes, when the thought of death is on the outskirts of one’s mind, not in direct consciousness (Greenberg et al., 1994). It may be that distal defenses begin immediately. Since the participants are asked to write about death, and are therefore unable to use proximal defenses to push death out of the mind, they may be employing distal defenses, even at such an early stage.

My findings build on the work by Lambert et al. (in press) in indicating the importance of content analysis in understanding participants’ responses to Terror Management. There is presently a lack of affect research in Terror Management literature. More studies must focus on affect away from self-reports and with varying control conditions, specifically the commonly used dental condition. Further research into affect and word analysis may help us to understand the exact timing and nature of proximal and distal defenses. It may be important to note that participants writing their reactions to the two condition prompts created a brief interval between the manipulation and the response. It is possible that this limited their expressions of fear and anxiety.

Limitations

To fully evaluate the hypotheses guiding this investigation, further research would be necessary. As mentioned earlier, an older demographic may have helped to explain the relationship between existential anxiety and subjective age. The use of Amazon’s Mechanical
Turk made it difficult to access this age group, as adults over the age of 60 makes up the smallest demographic on Mturk in America and our data collection period was no exception (“Mturk Tracker,” 2016). As previously mentioned, I attempted to gather more participants by limiting age to 60 and above, but few people met the criterion. Along with collecting older age demographics, in-person testing may have helped to produce a more common mortality salience and control effect. However, I do not have a reliable comparison in which to establish that my conditions produced abnormal effects.

Outside of age restrictions, my approach may have lacked depth. It may be the case that there are too many factors that affect subjective age far beyond mortality salience, including functionality, physical health, and mental health. My approach may have been too focused on a bottom-up view of mortality salience as opposed to top-down approach of subjective age. Furthermore, the great inclusion of religious words in the mortality salience condition leads me to believe that religion may be a coping mechanism utilized by those facing fears of death. Perhaps age can be viewed on an enlarged spectrum when considering an afterlife. Along with some suggested studies below, I think it would be beneficial to look at individual differences in religiosity as a moderator.

Conclusions and Future Directions

When confronted with death, older adults utilize several strategies in order to distance themselves from existential dread. These strategies may involve altering one’s perception of age. While the findings above suggest that felt age and Attitudes Toward Own Aging may not be changed by mortality salience, ideal age may be subject to this influence. Ideal age lies closer to volition than both felt age and ATOA. It may be that objectivity anchors the latter measures and prevents sway from death anxiety. The observed relationship between death
anxiety, age, and ideal age was weak and would require further experimentation in order to establish a firm affiliation. The relevant interaction effects suggest that an older sample might yield stronger results. Future studies may benefit from including a larger demographic well beyond 60 years of age. Besides sample changes, upcoming experimentation may improve from further examining the affective reactions to mortality salience. Lambert et al. (in press) have made great strides into resolving this seemingly underground issue. If affective reactions can be better understood, than mortality salience distancing techniques will be better understood – those both proximal and distal in nature. Future researchers may wish to include the dental condition, or another commonly used discomfort control when exploring affect; Lambert employed an unusual control condition that did not include any level of discomfort. Explorations into the affective nature of existential dread may also help to establish the differences, if any, between online and in-person mortality salience inductions.
REFERENCES


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<th>Descriptive Statistics for Measures of Subjective Age</th>
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<tr>
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<tr>
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</tr>
<tr>
<td>Ideal Age</td>
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<tr>
<td>ATOA Score</td>
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Note: Possible scores ranges from 1 to 7 for Felt Age and Ideal Age, and 0-5 for ATOA.
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<thead>
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Figure 1. Histogram depiction of participant age distribution.
Figure 2. Conditional effect of age on ideal age score.
APPENDICES
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Appendix A
Mortality Salience Induction and Control (Greenberg, Pyszczynski, & Solomon, 1986)

On the following page are two open-ended questions, please respond to them with your first, natural response.

We are looking for people’s gut-level reactions to these questions.

{EXPERIMENTAL CONDITION}

1. PLEASE BRIEFLY DESCRIBE THE EMOTIONS THAT THE THOUGHT OF YOUR OWN DEATH AROUSES IN YOU.
Appendix A Continued

2. WRITE, AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU AS YOU PHYSICALLY DIE AND ONCE YOU ARE PHYSICALLY DEAD.

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{CONTROL CONDITION} (Burke et al., 2010)

1. PLEASE BRIEFLY DESCRIBE THE EMOTIONS THAT THE THOUGHT OF DENTAL PAIN AROUSES IN YOU.

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2. WRITE, AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU AS YOU PHYSICALLY EXPERIENCE DENTAL PAIN.

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Appendix B
Attitudes Toward Own Aging Questionnaire (Lawton, 1975)

Respond to the following questions as they relate to your own aging.

1. Things keep getting worse as I get older (yes/no)
2. I have as much pep as I did last year (yes/no)
3. As you get older, you are less useful (yes/no)
4. As I get older, things are _____ than I thought they'd be (better/worse)
5. I am as happy now as when I was younger (yes/no)