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## Age-Related Differences in Responses to Thoughts of One's Own Death: Mortality Salience and Judgments of Moral Transgressions

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### Abstract

Two experiments explored age differences in response to reminders of death. Terror management research has shown that death reminders lead to increased adherence to and defense of one's cultural worldview. In Study 1, the effect of mortality salience (MS) on evaluations of moral transgressions made by younger and older adults was compared. Whereas younger adults showed the typical pattern of harsher judgments in response to MS, older adults did not. Study 2 compared younger and older adults' responses to both the typical MS induction and a more subtle death reminder. Whereas younger adults responded to both MS inductions with harsher evaluations, older adults made significantly less harsh evaluations after the subtle MS induction. Explanations for this developmental shift in responses to reminders of death are discussed.

### Keywords

terror management; fear of death; moral judgments and aging; healthy aging

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Aging entails more than just the emergence of new wrinkles, impaired memory, or increased joint pain; it also entails knowing that one is moving inexorably closer to death. For older adults, frequent medical problems, loss of loved ones, and deteriorating cognitive abilities are just a few reminders that the end of life is drawing nearer. Terror management theory (TMT);

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Greenberg, Pyszczynski, & Solomon, 1986) asserts that awareness of the inevitability of death has a potent impact on human judgment and behavior. Empirical support for TMT has been obtained in a large body of research (for a review, see Greenberg, Solomon, & Pyszczynski, 1997) showing that reminders of mortality increase young adults' self-esteem striving and defense of their cherished beliefs and values (i.e., their cultural worldviews). Although people of varying ages have been included in these studies, none of this research has explicitly examined these processes in older adults. Given older adults' more frequent encounters with mortality; the changes in cognitive, social, and emotional functioning that occur in later life; and the adaptations they often make in response to these changing life circumstances (e.g., P. B. Baltes & Baltes, 1990; Brandtstadter & Greve, 1994; Heckhausen & Schulz, 1995), it seems likely that this population would differ in their responses to mortality. Research is needed to assess possible age-related differences in the use and adaptation of terror management processes to cope with reminders of mortality. The research reported here explored this issue by testing hypotheses derived from an integration of TMT with ideas from a variety of developmental theories.

## TMT

Following Becker (1973), TMT posits that the uniquely human knowledge of the inevitability of death in an organism that is biologically oriented toward staying alive creates the potential for paralyzing terror. People are protected from the anxiety that awareness of death would otherwise produce by maintaining faith in their cultural worldviews and attaining self-esteem by living up to the standards of that worldview. Cultural worldviews provide structured, meaningful, and enduring conceptions of reality, along with standards of value that enable individuals to attain a sense of personal value or self-esteem. The self-esteem that people derive from believing that they are living up to their internalized versions of their culture's standards enables them to feel that they are special beings of enduring significance, rather than mere animals fated to absolute annihilation when they die.

Because cultural worldviews are humanly created linguistic constructions, faith in their validity depends heavily on consensual validation from others. When others agree with one's worldview, behave in accordance with its standards, and view one in a positive light, this increases confidence in one's worldview and self-worth and increases their effectiveness as anxiety buffers. However, when others disagree with one's worldview, violate its standards, or view one in a negative light, this decreases faith in these structures and undermines their ability to protect us from anxiety. Because of their need for protection from anxiety, people respond favorably to those who support their worldviews and self-esteem and unfavorably to those who threaten them. Thus, TMT posits that people strive to maintain self-esteem and faith in their cultural worldviews, at least in part to protect themselves from death-related anxiety.

A large and growing body of research supports the TMT proposition that perceiving oneself as a valued contributor to a meaningful universe mitigates the potential for death-related anxiety. Research has shown that reminders of mortality (mortality salience; MS) lead to more favorable reactions to people and ideas that support one's worldview and more unfavorable reactions to people and ideas that challenge it. In the first study testing this MS hypothesis, municipal court judges were asked to set bond for a woman accused of prostitution (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). Although judges in the control condition assigned an average bond of \$50, judges in the MS condition set bond at \$455. Florian and Mikulincer (1997) replicated this finding of MS-increased punitiveness across 10 distinct moral transgressions. From a TMT perspective, MS leads to harsher judgments of moral transgressors because thoughts of death increase people's need for the protection provided by their cultural worldviews, and those who violate moral standards implicitly deny the validity of those principles and the worldview from which they are derived.

Other research has shown that MS increases in-group bias and prejudice (e.g., Greenberg et al., 1990), nationalism (e.g., Dechesne, Janssen, & van Knippenberg, 2000), aggression (McGregor et al., 1998), stereotyping (Schimel et al., 1999), materialism (e.g., Kasser & Sheldon, 2000), preference for well-structured information (e.g., Landau et al., 2004), and many other socially significant behaviors. Many studies have shown that other aversive thoughts do not generate parallel effects; these effects have been found in response to a wide range of MS inductions; and MS effects have been found in a wide range of countries, including the United States, Germany, Italy, Israel, Iran, Turkey, Japan, Korea, and Australian Aborigines (for reviews, see Greenberg et al., 1997; Pyszczynski, Solomon, & Greenberg, 2003). Researchers have also shown that after self-esteem-enhancing positive personality feedback or success, people exhibit less self-reported anxiety, physiological arousal, and defensive cognitive distortions in response to threats (Greenberg et al., 1993, 1992). Furthermore, threats to self-esteem or one's cultural worldview increase the accessibility of death-related thoughts (e.g., Harmon-Jones et al., 1997; Schimel, Hayes, Williams, & Jahrig, in press). These studies provide converging evidence that self-esteem and cultural world-views function, at least in part, to provide protection against existential anxiety.

### Terror Management in Later Life

Although support for TMT hypotheses is extensive, most of this research has studied college students, or young adults, with the exception of a few studies with middle-aged adults (e.g., Rosenblatt et al., 1989, Study 1), older children (Florian & Mikulincer, 1998), and samples with a broad range of ages (e.g., Pyszczynski et al., 1996). The question of how older adults respond to reminders of their mortality has not yet been empirically addressed. Given the increased temporal proximity of older adults to death, this is a glaring omission in the TMT literature. At first blush, older adults would seem especially vulnerable to reminders of mortality. From an actuarial perspective, they are closer to death; experience more health problems that could ultimately lead to their demise; and are more likely to have experience with the death of friends, family, and other members of their cohort. To make matters worse, there are reasons to suspect that older adults might also experience problems maintaining self-esteem and faith in their worldviews, which would be expected to make them even more vulnerable to problems associated with their approaching mortality (cf. McCoy, Pyszczynski, Solomon, & Greenberg, 2000). With increasing age, many older adults become less capable of meeting the standards through which they obtained self-esteem in their younger years, which are typically focused on fiscal and physical successes that may be increasingly difficult to attain in one's later years. Although somewhat different standards for older and younger adults may exist, mainstream culture in the contemporary Western world is very youth-oriented, which may make it difficult for many older individuals to shift away from the standards through which they previously attained self-esteem. Furthermore, in a youth-oriented culture, the worldviews of older adults may be increasingly at odds with that of the cultural mainstream, leaving older individuals with a vision of the world that some view as outdated, which could lessen their sense of belonging to the culture in which they live. In a very real sense, the culture into which older adults were socialized may have been supplanted by new ideas, values, technologies, and lifestyles.

If reminders of mortality coupled with challenges to one's worldview and self-esteem make people more defensive, more aggressive, and less tolerant of dissimilar others, then one might expect older adults to be one of the most defensive, aggressive, intolerant groups in existence. However, this does not appear to be the case. Many, but certainly not all, older adults exhibit excellent psychological health and well-being in their later years. Diehl, Coyle, and Labouvie-Vief (1996) reported that older adults are generally less defensive and exhibit less aggressive methods of coping with adverse situations and proposed that this relative lack of defensiveness and aggression may result from older adults' tendency to distance themselves from conflict

and use denial or positive reframing to minimize conflict. Carstensen's (1992, 1995) socioemotional selectivity theory (SST) posits that with advancing age, people become more selective in their behavior, especially interpersonally, in order to maximize positive affect and minimize negative affect. From the SST perspective, this desire to maximize positive affect and minimize negative affect is motivated by a sense of limited time remaining to accomplish one's goals. Lawton, Kleban, and Dean (1993) presented a related analysis of increased emotional selectivity in later life and reviewed considerable evidence supporting this view. Along the same lines, John and Gross (2004) found support for their model of changes in emotion regulation in later life, in the form of a developmental trend toward decreased suppression of emotions accompanied by increased emotional reappraisal. These authors suggest that this reflects a positive shift toward an approach to emotional regulation more specifically tailored to the demands of later life.

A growing body of research shows that, for a large proportion of people, self-esteem, psychological health, and well-being are maintained (and sometimes improved upon) across the life span. A variety of theories propose that people often make adaptations that help them cope with the difficulties posed by advancing age. The model of selective optimization with compensation (SOC; M. M. Baltes & Carstensen, 1996; P. B. Baltes & Baltes, 1990) posits that successful adaptation to advanced age involves the prioritization of interests, selecting appropriate goals, and eliminating standards that are no longer realistic or adjusting them to fit one's current abilities. Compensation includes the development of new and altered methods to perform tasks and achieve goals that have become more difficult for the older person. The process of optimization involves the enrichment and expansion of resources that will assist the individual in functioning at the highest possible level. Taken together, these adaptations enable an individual with declining capabilities and resources to minimize losses and create new areas for growth, which could prevent the potential existential crises that increased proximity to death might produce.

Related to these processes for maintaining self-esteem in the face of changing abilities, Heckhausen and Schulz (1995) proposed a shift from reliance on primary control (in which behavior is aimed at achieving specific results in the external environment) to secondary control (in which behavior is aimed at making changes within the self to fit into the external environment). From their perspective, challenges in meeting external, culturally defined standards inevitably increase due to decreasing resources for obtaining cultural validation and self-esteem. These changes encourage older adults to shift from efforts to control external events toward a focus on internally based emotion regulation, as well as the development of compensatory skills allowing for disengagement from unrealistic goals and increased focus on the maintenance of primary control where achievable. All of these perspectives converge in suggesting that changes in the resources available to older adults provide an impetus that leads many people to undergo developments in their later years that help them deal with the emerging challenges of getting older and that these changes often (but not always) assist in maintaining psychological functioning and well-being. We have argued that the increased proximity to death is another factor that may encourage older adults to develop new ways of obtaining the meaning and value in life necessary for coping with their existential situation (McCoy et al., 2000).

To date, there has been only limited study of how older adults cope with the problem of death. The empirical research that has been reported is consistent with the idea that there are age-related differences in this domain. Gesser, Wong, and Reker (1988) found that older adults report lower fear of death than both middle-aged and younger adults. Similarly, Rasmussen and Brems (1996) found that death anxiety decreases across the life span. A review by Fortner and Neimeyer (1999) confirmed that death-related anxiety appears to decrease after midlife; however, they also reported that this anxiety seems to stabilize around the age of 60 rather than

decline throughout the later stages of life. Although this work is important, TMT research has shown that, at least among younger adults, self-reported fear of death is not predictive of cultural worldview defense in response to MS (Simon et al., 1997). Thus, these correlations between age and self-reported death anxiety are merely suggestive of how older adults respond to reminders of mortality. It is plausible that low self-reported fear of death reflects high levels of denial rather than an actual change in level of fear or method of coping. To our knowledge, then, the present studies are the first empirical investigations comparing younger and older adults' use of the kinds of symbolic worldview defense typically observed in response to MS.

## Present Research

The two experiments reported here investigated defense of the cultural worldview by older and younger adults in response to MS. To this end, we investigated the effect of MS on older and younger adults' judgment and punishment of moral transgressors. Research with younger adults has shown consistently that MS leads to harsher judgments of moral transgressors (Florian & Mikulincer, 1997; Rosenblatt et al., 1989), and we expected that this effect would be replicated among the young adults in the present study. Given the increased frequency of reminders of death for older adults, and the findings of less fear of death in the elderly, we expected that the effect of MS would be different among older adults. On the basis of the very limited prior relevant research, three hypotheses seemed plausible. First, because reminders of mortality are more common for older adults, and they report less fear, perhaps they have habituated to the problem or otherwise resolved it, and thus would simply be less affected, or unaffected, by an additional reminder. Findings supportive of this hypothesis would suggest that older adults may have come to terms with the problem of their mortality, and the problem of death exerts little influence on their behavior. A second possibility is that because older adults feel closer to death, MS may have a stronger impact on older adults, leading to especially harsh judgments of the moral transgressor; this is what would be expected on the basis of a straightforward literal extrapolation from findings with younger adults that assumes no later life changes in modes of coping with death. The third possibility is that older adults would respond to MS with more lenient rather than more punitive judgments of moral transgressors, perhaps because of a developmental shift in worldview, sources of self-esteem, or other psychological mechanisms used to cope with death-related anxiety. This could occur because of the greater focus on positive emotions and more balanced, less aggressive methods of coping often observed among older adults (e.g., Carstensen, 1992; Diehl et al., 1996; Heckhausen & Schulz, 1995).

## Study 1

In our first study, in addition to assessing the effect of MS on judgments of moral transgressors among younger and older adults, we also measured death thought accessibility along with positive and negative affective states. Research with younger samples has shown that MS increases death thought accessibility, but only after a delay (e.g., Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994). Research with younger adults has also shown that the MS induction used in the present study does not influence self-reported affect among younger persons and that affective responses to MS do not mediate increased worldview defense (for reviews, see Greenberg et al., 1997; Pyszczynski, Greenberg, & Solomon, 1999). Rather, it appears that heightened death thought accessibility increases the *potential* to experience death-related anxiety (Greenberg et al., 2003) and that worldview defense fulfills its anxiety-buffering function by reducing the accessibility of death-related thoughts (for a theoretical discussion of cognitive mechanisms through which thoughts of death lead to worldview defense and review of relevant evidence, see Arndt, Cook, & Routledge, 2004; Pyszczynski et al., 1999). Although we had no firm hypotheses regarding the effects of MS on death thought accessibility and affective state among older adults, we deemed it prudent to assess these variables to provide



age-related comparisons on these other terror management-related variables. If older adults cope with death differently than their younger counterparts, then they may show differences on these dimensions as well, perhaps in the form of lower death thought accessibility, lower negative affect, and higher positive affect.

## Method

**Participants**—Participants were 60 undergraduate students (47 women and 13 men) from the University of Colorado at Colorado Springs and 56 older adults from the surrounding community (40 women and 16 men). The younger adult group ranged in age from 17 to 37 years ( $M = 19.73$ ,  $SD = 3.58$ ), were recruited from introductory-level psychology courses, and were given extra credit in exchange for their participation. The older adults ranged in age from 61 to 84 years ( $M = 72.85$ ,  $SD = 6.13$ ), were recruited from senior centers in the community, and received \$10 for their participation. All older participants were living independently in the community and either transported themselves to the testing session or came with a spouse or friend. Additional information about the demographic and personality characteristics of our sample can be found in Tables 1 and 2.

**Procedure and Materials**—Participants completed the questionnaires alone in a quiet setting: young adults in a lab in the psychology department and older adults at the Colorado University Aging Center, a clinic providing social, educational, and mental health services to the local community. Participants were told that the study was an investigation of the similarities and differences in personalities and attitudes of younger and older adults. They received a packet of questionnaires (described in detail below) within which they were randomly assigned to either the MS or dental pain control condition. The order of the Moral Transgressions Scale (Florian & Mikulincer, 1997) and death-thought accessibility measure was counterbalanced. Aside from these two variations, all packets were identical. Participants took an average of 40 min to complete the questionnaires and were then debriefed.

**Filler measures:** To maintain the cover story and deflect attention from the MS manipulation, the packets started with two filler personality measures, Eysenck and Eysenck's (1967) Neuroticism scale and Levenson's (1981) Locus of Control scale. Because authoritarianism is associated with harsher judgments of moral transgressions, we included the Sanford, Adorno, Frenkel-Brunswik, and Levinson (1950) F-scale for use as a covariate.

**MS manipulation:** To manipulate MS, participants next answered either the Boyar (1964) Fear of Death Scale, consisting of 15 true–false statements regarding fear of death, or parallel questions about dental pain, to provide a control group with questions about an aversive topic not associated with death. For example, an MS item was “I am very much afraid to die,” whereas a parallel question in the control condition was “I am very much afraid of dental work.” This manipulation has been used in a variety of TMT studies (e.g., Rosenblatt et al., 1989) and has been shown to produce increased worldview defense among younger adults.

**Delay and distraction:** Previous research has shown that the effects of MS occur after a short delay and distraction (Greenberg et al., 1994), when thoughts of death are highly accessible but not in focal attention. To provide this delay, participants completed a word search puzzle, involving finding 12 neutral words that took 3–4 min to complete and has been used in many previous MS studies (e.g., Goldenberg, McCoy, Pyszczynski, Greenberg, & Solomon, 2000). The distractor task was followed by a word-stem completion task, the Moral Transgressions Scale, and a second word-stem completion task. There were two versions of the word-stem completion task: one used to measure death thought accessibility and a neutral version with the same number of items and level of difficulty. Counterbalancing whether the word-stem task with death-related words was completed before or after the Moral Transgressions Scale

enabled us to manipulate whether death thought accessibility was assessed before or after responses to moral transgressions while holding the timing of the moral transgressions assessment constant.

**Affect:** Participants completed the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) after the MS manipulation. The PANAS was included to assess possible affective responses to MS (Cronbach's alpha for Positive and Negative Affect subscales = .91 and .85, respectively). Participants were instructed to rate the "extent you feel this way right now, that is, at the present moment" on scales ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). Although research has shown that younger adults do not exhibit elevated affect in response to MS inductions, we deemed it important to include this measure to determine the effect of MS on the affective state of older adults.

**Death thought accessibility:** The word-stem completion death thought accessibility measure, modeled after Gilbert and Hixon (1991) and used in many previous TMT studies (e.g., Greenberg et al., 1994), consists of 25 words with letters missing. Participants were instructed to fill in the blanks to create a word (e.g., CA- – could be completed as CANE or CAGE). For the death thought accessibility version of this measure, 5 of these words could be completed in ways that either were or were not related to death (e.g., COFF- – could be completed as COFFEE or COFFIN). Scores on this measure could thus range from 0 to 5. Relatively few word stems with possible death-related completions are used in this measure because a larger number of death-related word stems might prime the concept of death, which would contaminate the MS manipulation and could lead participants to figure out the purpose of the measure. The number of death-related word completions, adjusted for the total number of word stems completed, constituted our measure of death thought accessibility. The neutral word-stem set did not contain any items that could be completed in death-related ways.

**Moral Transgressions Scale:** Florian and Mikulincer's (1997) Moral Transgressions Scale consists of a series of 10 vignettes in which an offense is described and participants rate its severity and recommend the extent of the punishment on scales ranging from 1 (*very light*) to 7 (*very severe*). The following is a sample vignette:

The head executive of a scholarship fund for low-income students fled overseas with the grant money. "He ran away with our future," said a representative of the students. "We have nothing. How are we supposed to stay in school? Our education was supposed to get us out of our situations, but now our dreams are pushed far away, maybe forever."

Previous research has shown that MS leads to harsher judgments on this scale in samples of young adults (e.g., Florian & Mikulincer, 1997).

**Demographic information:** After the second word-stem task, participants provided general demographic information: age, gender, ethnicity, education, marital status, and income. Participants were also asked to provide a self-assessment of their current health (1 = *very poor* to 7 = *excellent*). On the final page were three questions regarding spirituality (Markides, 1983).

**Mental status information:** Finally, older adults completed the Folstein Mini-Mental State Exam (Folstein, Folstein, & McHugh, 1975), a general assessment of cognitive capacity. To be included in analyses, older participants needed 27 of the 30 possible points, based on standards provided by Folstein et al. (1975). One participant was excluded on this basis.

After completing their questionnaires, all participants were thoroughly debriefed, thanked, and presented with extra credit or \$10 for their participation.

## Results<sup>1</sup>

**Moral Transgressions**—Composite scores for our primary dependent measure of world-view defense, the Moral Transgressions Scale, were computed by calculating the mean of all 20 questions; scores could range from 1 to 7 ( $\alpha = .93$ ). Because authoritarianism is conceptually related to judgments of moral transgressions and was associated with higher composite scores on the Moral Transgressions Scale,  $r(116) = .27, p = .01$ , authoritarianism was used as a covariate in a 2 (age)  $\times$  2 (MS)  $\times$  2 (gender) analysis of covariance (ANCOVA).<sup>2</sup> There was a significant main effect for age, with older adults rating transgressions more severely ( $M = 5.70, SE = .11$ ) than younger adults ( $M = 5.34, SE = .15$ ),  $F(1, 107) = 3.95, p = .05, \eta_p^2 = .04$ . More important, there was a nearly significant Age  $\times$  MS interaction,  $F(1, 107) = 3.54, p = .06, \eta_p^2 = .03$ . See Figure 1 for means. Planned pairwise comparisons revealed that although younger adults showed the usual pattern of harsher judgments of moral transgressions after MS,  $t(107) = 2.03, p < .05$ , older adults did not,  $t(107) = 0.40, p < .69$ . Looked at differently, older adults were significantly harsher than younger adults in their judgments in the control condition,  $t(107) = 3.47, p < .01$ , but not in the MS condition,  $t(107) = 0.06, p < .95$ .

**Death Thought Accessibility and Fear of Death**—To control for possible age-related differences in the number of word stems completed, we computed a percentage of death-related word-stem completions accessibility measure by dividing the number of death-related completions by the total number of word stems completed.<sup>3</sup> A 2 (age)  $\times$  2 (MS)  $\times$  2 (gender) analysis of variance (ANOVA) revealed no significant effects on death thought accessibility. A composite self-report fear-of-death score was computed following Boyar's (1964) procedure of counting the total number of responses to the true-false questions indicating fear of death, yielding a possible range of 1–15 ( $\alpha = .79$ ). An Age  $\times$  Gender ANOVA conducted on fear-of-death scores (which were obtained only in the MS condition) revealed only a main effect of gender. Women reported higher fear of death ( $M = 6.36, SE = 0.48$ ) than men ( $M = 2.94, SE = 1.28$ ),  $F(1, 53) = 6.28, p < .05, \eta_p^2 = .11$ . No other effects approached significance.

**Individual Differences**—*T* tests comparing younger and older participants revealed no age-related differences in authoritarianism or locus of control but did show that older adults were lower in neuroticism than younger adults,  $t(114) = 4.67, p < .01$ . Older adults also reported higher income,  $\chi^2(7, N = 109) = 52.34, p < .01$ ; poorer health,  $t(113) = 3.14, p < .01$ ; higher levels of education,  $\chi^2(4, N = 115) = 35.86, p < .01$ ; and were more likely to be married than younger participants,  $\chi^2(1, N = 115) = 70.28, p < .01$ .<sup>4</sup> Finally, a composite score of spirituality was calculated, averaging across the three questions asked; average scores ranged from 1 (*low spirituality*) to 5 (*high level of spirituality*). Older adults reported higher levels of spirituality than younger adults ( $M_s = 3.57$  vs. 3.10),  $t(113) = -2.12, p < .05$ . The age groups did not differ significantly in ethnicity. Means for all these measures are presented in Table 1, with the exception of income and education that are presented in Table 2.

<sup>1</sup>Preliminary analyses included the order in which the death accessibility and Moral Transgressions Scale were administered but showed no main effect or interactions with order; therefore, order was not included in subsequent analyses. Degrees of freedom differ slightly across analyses in both studies because some participants did not respond to some of the ancillary questions. Fortunately, there was no missing data on the major dependent measure.

<sup>2</sup>The assumption of equal regression slopes essential for ANCOVA was met for this and all other ANCOVAs reported in the present article.

<sup>3</sup>There was no age-related difference in the overall number of word stems completed (younger = 24.40; older = 24.11), and the same pattern of significant results was obtained with the unadjusted raw number of death-related completions.

<sup>4</sup>Because of the very low number of married participants in our sample of younger adults, the ANOVA testing for a possible impact of marital status on the primary dependent measure is a relatively insensitive test for such an effect. Still, this analysis showed no evidence that marital status influenced these results.



When the continuous variables that differed by age, neuroticism, income, health, education,<sup>5</sup> and spirituality were included in ANCOVAs on the primary dependent measure of evaluations of moral transgressions, they were not found to be significant covariates, and the results reported above were not significantly reduced. Similarly, when the categorical variable for which the age groups differed, marital status, was included as an additional variable in an ANOVA on this measure, it yielded no significant effects or interactions. Thus, these age-related differences in neuroticism, income, health, education, spirituality, and marital status cannot account for the effects reported above.

**Affect**—A 2 (age)  $\times$  2 (MS)  $\times$  2 (gender) ANOVA revealed that, as in previous research, the MS did not influence either positive or negative affect. However, there was a main effect for age on the Positive Affect scale, with older adults reporting higher positive affect than younger adults,  $F(1, 108) = 9.10, p < .01$ . Although older adults tended to report lower levels of negative affect than younger adults, this difference did not reach significance,  $F(1, 108) = 1.53, p = .22$ . See Table 1 for relevant means. When included as covariates in ANCOVAs on the moral transgression scales, neither positive nor negative affect was a significant covariate or significantly reduced the effects reported above.

## Discussion

Study 1 revealed a potentially important difference in the way younger and older adults responded to reminders of their mortality. Whereas younger adults replicated the pattern of harsher judgments of moral transgressions in response to MS found in many previous studies (e.g., Florian & Mikulincer, 1997; Rosenblatt et al., 1989), older adults' judgments of moral transgressions were not significantly affected by MS, with means in the opposite direction of the pattern shown by younger adults. Although older participants were harsher in their evaluations of moral transgressions than younger participants in the control condition, no age-related difference was found in the MS condition. Despite their greater temporal proximity to death and their more frequent confrontations with reminders of mortality, older participants did not show the signs of defensiveness in response to reminders of their mortality that younger adults displayed.

Because the older participants were more punitive than their younger counterparts in the dental pain control condition, we should consider the possibility that this reflected a different response to dental pain salience by the older participants rather than a baseline difference. We know from prior research that dental pain salience does not affect younger adults relative to neutral control conditions. Still, older adults do have more dental problems and a longer history of visits to the dentist, so perhaps they experience stronger affective reactions to reminders of dental pain. However, the fact that the younger and older groups did not differ in scores on positive or negative affective responses to dental pain salience, that affect scores were not correlated with moral transgression judgments, and that including affect scores as covariates did not change the results suggests that the difference in severity of moral transgression judgments was not the result of differential emotional responses to dental pain salience. In addition, we examined scores on the fear of dental pain measure and found no difference between the younger and older participants,  $t(55) = 0.21, ns$ . Furthermore, within the older group, fear of dental pain did not correlate with judgments of the moral transgressions,  $r(27) = .02, ns$ . Taken together, these findings cast serious doubt on the possibility that differential

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<sup>5</sup>For both studies, our measure of education was actually a categorical variable (see Tables 2 and 4 for categories included); therefore, we conducted additional Age  $\times$  MS  $\times$  Education ANOVAs, treating age as a grouping rather than as a continuous variable (as in the ANCOVA). Because of the very low variability in education levels reported by our younger sample of college students, we also conducted separate Education  $\times$  MS analyses on the data from older participants. In both studies, the Age  $\times$  MS interaction remained, and education did not interact with any of the other variables, again suggesting that the difference in education between the age groups was not responsible for the effect.

responses of the two groups of participants reflected a difference in responses to dental pain rather than to MS.

## Study 2

In Study 1, we found that older adults' responses to MS were different from those of younger adults. Whereas younger adults showed the previously documented pattern of harsher judgments of moral transgressors after MS, older adults' judgments were not significantly affected by MS. Study 2 was designed to shed further light on the question of how older adults cope with thoughts of death by comparing younger and older adults' responses to both the most widely used MS induction and a more subtle MS induction on a more sensitive measure of judgments of moral transgressions.

We suspected that more subtle reminders of mortality might be more likely to affect moral judgments among older adults because research with younger adults has shown that worldview defense is more likely to be increased by subtle reminders of death than by more blatant ones (Greenberg et al., 1994). TMT posits two very different modes of coping with conscious and nonconscious death-related thought. Conscious thoughts of death lead to proximal defenses that either use rational thinking to push death off into the distant future (e.g., "Because I don't smoke, eat a healthy diet, and get lots of exercise, I'll probably live well into my 90s") or suppress death-related thoughts (e.g., by avoiding the issue or seeking distractions). Nonconscious thoughts of death, however, lead to the more distal terror management defenses of clinging to one's cultural worldview and bolstering one's self-esteem. Pyszczynski et al. (1999) reviewed a considerable body of evidence supporting this dual-defense model.

Given that older adults are temporally closer to death and probably encounter more frequent reminders of their mortality than their younger counterparts, it may be that they have come to some level of acceptance of this inevitable reality, at least at a conscious level. Perhaps over six or more decades of life, many older adults have become somewhat habituated to the idea that death is inevitable and therefore have become less responsive to more blatant death reminders. However, if rather than simply "getting over the problem of death" they have adopted new ways of coping (in the present case, refraining from the defensive, punitive responses of younger participants), then perhaps a more subtle MS induction would produce stronger effects, and, as hinted at by the results of Study 1, the nature of these effects might be different from those exhibited by younger persons. Accordingly, in Study 2, we compared the effect of a more subtle MS induction, which exposes participants to the issue but does not require them to actively think about it, with the comparatively more blatant death-related questions used in many previous TMT studies. Given that the pattern of means in the MS and control condition for older participants in Study 1 was in the opposite direction of the significant effect found among younger adults, we wondered whether a more subtle MS induction might produce a clearer shift toward leniency in older adults in Study 2.

## Method

**Participants**—Participants consisted of 46 undergraduate students (32 women and 14 men) from the University of Colorado at Colorado Springs and 47 older adults from the surrounding community (31 women and 16 men). Undergraduates, ranging in age from 17 to 34 years ( $M = 20.72$ ,  $SD = 3.68$ ), were recruited from introductory-level psychology courses and offered extra credit in exchange for their participation. The older adults, ranging in age from 57 to 92 years ( $M = 73.72$ ,  $SD = 7.57$ ), were recruited from senior centers in the community and received \$10 for their participation. All of the older adults were living independently in the community and were able to transport themselves to the testing session. Additional information about the demographic and personality characteristics of our sample can be found in Tables 3 and 4.

**Procedure and Materials**—Participants were told that they would be filling out a questionnaire assessing different personality characteristics and personal opinions. After signing an informed consent form, they completed the questionnaires individually in a quiet setting. Younger adults were tested in an on-campus research lab, and older adults were tested at the Colorado University Aging Center, a university-run clinic providing social, educational, and mental health services.

**Filler measures:** As in Study 1, participants first completed filler measures of neuroticism (Eysenck & Eysenck, 1967), personal need for structure (PNS; Thompson, Naccarato, & Parker, 1989), and authoritarianism (Sanford et al., 1950) to obscure the purpose of the study and provide a covariate to reduce variance related to authoritarian tendencies.

**MS manipulation:** Following the measures of individual differences, participants received one of three treatments. Individuals were randomly assigned either to provide written answers to two open-ended questions about death or dental pain or to complete a word puzzle containing death-related words. The first two are the most widely used methods for priming participants with thoughts of either death or a negative experience that is unrelated to death and have been shown to reliably increase worldview defense on various measures, including responses to moral transgressions (Greenberg et al., 1990; Rosenblatt et al., 1989). Specifically, participants were asked to “Please briefly describe the emotions that the thought of your own death arouses in you” and to “Jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead.” Parallel questions were asked about experiencing dental pain. These conditions are henceforth referred to as *MS Essay* and *DP Essay*, respectively. In the third condition, participants completed a word puzzle, in which they were asked to find a list of neutral words such as *computer* and *baseball*. Embedded within the matrix of letters participants searched through were death-related words such as *death* and *burial*. This word puzzle was developed as a subtle method for priming participants with thoughts of death and has proved to be effective with younger adults (Martens, Greenberg, & Schimel, 2003); it is hereafter referred to as *MS Subtle*.

**Delay and distraction:** Because previous research has shown that MS effects occur when thoughts of death are not in conscious attention (Greenberg et al., 1994), a neutral-word puzzle was included to provide a delay and distraction following the inductions used. Thus, after the MS manipulation, all participants completed a word puzzle containing neutral words to provide a delay before proceeding to the dependent measures.

**Moral transgressions:** Participants then completed Florian and Mikulincer’s (1997) Moral Transgressions Scale as the primary dependent measure. Unlike Study 1, in which ratings were made on 7-point Likert-type scales, Study 2 used 15-point scales and included more detail in describing the rating points of the scale to enable participants to make finer distinctions regarding the severity of the transgressions and punishments recommended. Higher scores indicated greater severity of transgression and increased harshness of punishment.

**Affect:** Participants then completed the PANAS (Watson et al., 1988) to assess possible affective responses to MS reminders; Cronbach’s alphas for positive and negative affect were .89 and .83, respectively.

**Demographic information:** Next, all participants provided demographic information using the same measures described for Study 1. These included age, gender, race, education level, marital status, personal income, health status, and three questions regarding spirituality (Markides, 1983).

**Mental status information:** Finally, older participants' cognitive abilities were assessed with the Mini-Mental State Exam (Folstein et al., 1975). Because no one received a score below 27 (out of 30), all participants were retained for data analyses.

All participants were thoroughly debriefed and provided with the opportunity to ask questions before being thanked and presented with extra credit or \$10 for their participation.

## Results

**Content of Responses to MS Manipulation**—Written responses to the open-ended questions about death and dental pain were content analyzed. Specifically, essays were scored according to whether they included death-related words and/or mention of an afterlife, with raters blind to condition. Participants in the MS-Essay condition showed far more death-related thought than those in the dental pain control group,  $\chi^2(1, N = 62) = 54.49, p < .01$ . Whereas all but 2 participants in the MS condition specifically included death-related words and/or the mention of an afterlife, none in the dental pain condition did so (out of the 31 participants in each condition).

**Moral Transgressions**—As in Study 1, a composite Moral Transgression score was calculated by taking the mean of all 20 responses on the Moral Transgressions Scale (scores could range from 1 to 15;  $\alpha = .94$ ); because authoritarianism is conceptually related to judgments of moral transgressions and was associated with harsher judgments,  $r(93) = .28, p < .01$ , authoritarianism was again used as a covariate in a 2 (age)  $\times$  3 (MS condition)  $\times$  2 (gender) ANCOVA performed on the Moral Transgressions composite. The only main effect revealed by the ANCOVA was for age, with older adults generally making harsher judgments ( $M = 12.28, SE = .25$ ) than younger adults ( $M = 10.63, SE = .27$ ),  $F(1, 80) = 19.87, p < .01, \eta_p^2 = .20$ .

The predicted Age  $\times$  MS interaction was also significant,  $F(2, 80) = 5.95, p < .01, \eta_p^2 = .13$ . The means for this interaction are displayed in Figure 2. As in Study 1 and many previous studies (e.g., Dechesne et al., 2000; Florian & Mikulincer, 1997), reminders of death led to a significant increase in harshness of judgments for younger participants. Younger adults in both the MS-Essay,  $t(80) = 2.11, p < .05$ , and MS-Subtle conditions,  $t(80) = 2.43, p < .05$ , rated moral transgressions more harshly than younger participants in the dental pain control condition. Although older adults' judgments tended to be less harsh in the MS-Essay condition compared with participants in the dental pain condition, this difference was not significant,  $t(80) = 1.26, p = .21$ . However, older adults were significantly less harsh in their judgments of moral transgressions in the MS-Subtle condition than in the dental pain condition,  $t(80) = 2.33, p < .05$ . Looked at another way, older participants rated transgressions more harshly than younger participants in both the control,  $t(80) = 5.15, p < .01$ , and the MS-Essay,  $t(80) = 1.93, p = .06$ , conditions, but the two groups provided nearly identical ratings of the transgressions in the MS-Subtle condition,  $t(80) = 0.56, p = .58$ . Older adults' judgments did not vary between the MS-Essay and MS-Subtle conditions,  $t(80) = 0.93, p = .35$ ; this was also true for the younger group,  $t(80) = 0.42, p = .68$ .

**Individual Differences**—As in Study 1,  $t$  tests revealed significant differences between older and younger adults on some measures of individual differences. As may be seen in Table 3, older adults reported lower neuroticism,  $t(91) = 2.02, p < .05$ ; higher need for structure,  $t(91) = 3.53$ , and marginally higher levels of authoritarianism than younger adults,  $t(91) = 1.90, p = .06$ . Additionally, as may be seen in Table 3, older adults rated their overall health lower than younger adults,  $t(91) = 2.59, p < .05$ . Older adults also reported higher income,  $\chi^2(7, N = 88) = 26.63, p < .01$ ; higher levels of education,  $\chi^2(4, N = 93) = 28.44, p < .01$  (see Table 4 for these means); and were more likely to be married or widowed than younger participants,  $\chi^2(1,$

$N = 93$ ) = 41.30,  $p < .01$ . The two age groups did not significantly differ in ethnicity or spirituality. To ensure that the age-related differences in reactions to MS were not due to differences on these demographic and personality dimensions, ANCOVAs were performed with all of the individual-difference variables that showed significant age differences as covariates. None of these factors significantly affected the Age  $\times$  MS interaction, suggesting that the differences in harshness of judgment were not attributable to these individual differences.

**Affect**—Age differences were also found on 2 (age)  $\times$  3 (MS)  $\times$  2 (gender) ANOVAs performed on the Positive and Negative Affect subscales of the PANAS. These analyses revealed a main effect for age, with older adults reporting higher levels of positive affect than younger adults,  $F(1, 81) = 10.05$ ,  $p < .01$ . Though older participants also tended to report lower negative affect than younger adults, the difference was not significant,  $F(1, 81) = 0.85$ ,  $p = .36$ . See Table 3 for relevant means. As in Study 1, there was no effect of MS on either affect scale, affect did not correlate with the severity of moral transgression judgments, and including positive and negative affect in an ANCOVA did not change the significance of the critical Age  $\times$  MS interaction, suggesting that affect does not mediate this effect.

## Discussion

Study 2 replicated and extended the findings of Study 1 by showing that older and younger adults differ in the way reminders of death affect their evaluations of moral transgressions. Whereas younger adults who were reminded of death responded to both blatant and subtle reminders of mortality with harsher judgments of moral transgressions, older adults clearly did not. Older adults in Study 2 showed a significant shift toward more lenient judgments in response to the subtle MS induction that exposed them to death-related words but did not direct them to actively think about their own mortality.

## General Discussion

Taken together, the two studies reported here suggest that, at least under some circumstances, older adults respond to the problem of death quite differently than younger adults. Whereas younger adults in both of the present studies responded to MS with the same increased harshness in judgments of moral transgressions obtained in many previous studies (e.g., Florian & Mikulincer, 1997; Rosenblatt et al., 1989), and this effect emerged in response to three different MS inductions, older adults were not affected in this manner by any of these inductions. Both studies showed that the widely used blatant MS manipulations that led to harsher judgments in younger adults had no such effect among older adults; the absence of harsher judgments in response to MS in these conditions, coupled with the fact that the pattern of means was in the opposite direction for older and younger participants, shows that, at least in terms of their judgments of moral transgressions, older adults do not cope with reminders of their mortality in the same way that younger adults do. Indeed, the subtle MS induction used in Study 2 produced significant and diametrically opposed effects among the two age groups: Whereas younger participants became significantly harsher in their judgments, older participants became significantly more lenient. Together, the findings from these studies clearly show that older adults' responses to reminders of death are different from those of younger persons.

We have previously proposed (McCoy et al., 2000) that many, but by no means all, older adults change their strategies for coping with the problem of death in their later years in response to a confluence of factors that make such a shift adaptive. Older adults are temporally closer to death, they are likely to experience more frequent and potent reminders of their mortality in the form of deaths of loved ones and others of their cohort, while, at the same time, many of



the sources of self-esteem and meaning that were used in their younger years are likely to become less accessible, consensually validated, and successful in later life. This increase in the frequency and potency of reminders of mortality, coupled with a decrease in the effectiveness of long-standing strategies for protecting oneself from the potential for anxiety that accompanies awareness of death, may encourage a shift toward newer, more age-appropriate strategies for maintaining psychological equanimity and protecting oneself from the psychological problem of awareness of one's mortality (cf. P. B. Baltes & Baltes, 1990; Heckhausen & Schulz, 1995).

In a related vein, it may also be that as one grows older, death becomes more of an expected or normative event, and normative or typical events are less stressful and easier to cope with (Ryff & Dunn, 1985; Ryff & Heidrich, 1997). If this were the case, then one might expect that, among older participants, the effect of MS would depend on chronological age, because the older one is, the more expected and normative it is to die. To investigate this possibility, we performed Age  $\times$  MS regression analyses on moral transgression judgments within our older participants (Study 1, range = 61–84; Study 2, range = 57–92). These analyses showed no hint of Age  $\times$  MS interactions, suggesting that the shift away from harsher judgments in response to MS was not more prominent among the older participants in these studies, for whom death would presumably be more normative. Nonetheless, it is possible that it is one's subjective sense of how normative or expected death is that reduces its threat value and that chronological age only roughly taps into this dimension. Although the present studies did not provide support for this explanation for the age differences found, additional research will be needed to provide more definitive tests of exactly what it is about later life that leads to these different responses to reminders of one's mortality.

Our analysis is generally compatible with Carstensen's (1992, 1995) theory of socioemotional selectivity and other theories that posit a developmental shift toward different ways of coping and maintaining psychological equanimity in one's later years (e.g., Diehl et al., 1996; Heckhausen & Schulz, 1995; John & Gross, 2004; Lawton et al., 1993). We view these approaches as complementary, each emphasizing different aspects of the process of coping with the demands of later life; indeed, our developmental analysis was inspired, in part, by these perspectives. However, unlike these other theories, TMT is explicit in viewing the problem of death as a universal one that affects people's behavior in diverse ways at all points in the life span rather than as a problem that comes to prominence only in one's later years or when one is confronted with a shortened time perspective due to disease, accident, or other life events, as posited by SST. By showing clear differences between younger and older persons' responses to reminders of their mortality, with younger people giving harsher judgments of moral transgressions in response to both blatant and subtle MS inductions, and older people being unaffected by blatant MS inductions but giving more lenient judgments in response to subtle inductions, the present studies support this view of death being a universal problem that influences behavior differently at different points in the life span.

The fact that the subtle death reminder in Study 2 led older adults to shift toward more lenient judgments of moral transgressions suggests that death-related cognition quite clearly does affect them, but in a different fashion than it affects their younger counterparts. The fact that a subtle MS induction produced clearer effects than more blatant ones raises the possibility that although older adults have developed more effective ways of defusing the impact of conscious thoughts of death, the problem of death nonetheless continues to influence their lives in more subtle ways. It seems reasonable to speculate that their increased temporal proximity to death, coupled with the more frequent reminders of mortality they are likely to experience, might stimulate older adults to become better at defusing the potential for anxiety that blatant reminders of death entail, and perhaps come to a better acceptance of this inevitable reality, at least on a conscious level. The fact that the subtle MS induction clearly did affect older adults'

judgments of moral transgressors, albeit in the opposite direction of the effect it had on younger adults, suggests, however, that they have not simply “gotten over” the problem of their mortality.

Why did the MS-Subtle induction lead to shifts in the opposite direction among the two age groups? Whereas older adults made consistently harsher judgments of moral transgressions than younger adults in the control conditions of both studies, the shift toward leniency produced by the MS-Subtle induction in Study 2 eliminated the general tendency of older persons to make harsher judgments in our control conditions. This pattern is consistent with the possibility that advancing years leads to different ways of coping with death. Two explanations for why MS pushed older adults specifically toward more lenient judgments seem especially plausible. First, research from a variety of theoretical perspectives suggests that older adults strive to shift their affective balance in a positive direction, avoiding things that could produce negative affect or conflict and becoming more receptive of things that could produce positive affect (e.g., Carstensen, 1992, 1995; Labouvie-Vief, 2003; Labouvie-Vief, Hakim-Larson, DeVoe, & Schoeberlein, 1989; Lawton et al., 1993). For example, Mroczek and Kolarz (1998) found that older adults report higher levels of positive affect and lower levels of negative affect compared with their younger counterparts, supporting previous findings that older individuals experience greater contentment and less anxiety and depression (Lawton et al., 1993). Both of the studies reported here also found higher levels of positive affect in older than in younger adults. Older adults’ tendency to minimize negativity influences the types of information recalled on memory tasks. Charles, Mather, and Carstensen (2003) found that older adults are more likely to recall positively valenced and neutral images compared with negative images. It may be, then, that reminders of mortality increase this tendency to avoid negative experiences and that older adults responded to the MS-Subtle induction with increased leniency because they were trying to avoid the negative feelings associated with harsh judgments. Another possibility is that MS leads older adults to take a broader perspective when judging others, in which situational factors are given greater weight. Blanchard-Fields (1994) has shown that older adults are more likely than younger people to make complex attributions that incorporate both dispositional and situational factors when situations are ambiguous and the causes of events are unclear. Giving increased weight to situational factors might be expected to imply greater consideration of “mitigating circumstances,” which, in turn, encourages more lenient judgments.

Although the question of why older adults made more lenient judgments in response to subtle reminders of mortality is an important issue for future research, the present findings are clear in showing that older adults do not respond to reminders of their mortality in the same way that younger persons do. From a TMT perspective, this shift suggests that increasing age may promote a change in the way cultural beliefs and values are used to promote one’s own psychological equanimity. It may be that this shift entails a movement toward embracing tolerance and forgiveness as bases of emotional security. To the extent that tolerance and forgiveness are used in this way, it follows that reminders of one’s mortality would produce shifts in this direction. It may be that a more tolerant and merciful approach to obtaining one’s own emotional security is at least partially responsible for the reduced negative affectivity that has been observed in other research (e.g., Diehl et al., 1996; Lawton et al., 1993).

Perhaps this shift toward tolerance and forgiveness is related to the greater importance placed on generativity in later life. McAdams, de St. Aubin, and Logan (1993) found that, compared with younger adults, older individuals reported greater generative commitments and were more likely to recall generative actions when asked to identify and describe key events in their lives; they also report that generative concern was a strong predictor of happiness and overall life satisfaction. Beginning with Erikson (1950/1963) and continuing today, the aging literature points to the growing importance of one’s personal legacy in the later stages of life, and this generative concern may play a role in the present findings. It may be that reminders of death

increase generative motives among older adults and that a generative focus encourages a more lenient and forgiving response to moral transgressors. Providing a more thorough understanding of precisely how the various changes that have been documented in later life relate to reminders of mortality and the individuals' general psychological well-being should be an important priority for future research.

As in all cross-sectional research, it is possible that the age-related differences observed in the present studies reflect differences in our older and younger samples other than age per se. For example, it is conceivable that the cohorts from which the present samples were drawn were socialized into different ways of coping with their mortality and that these differences would have been detected at any point in their lives. It is also possible that the population of older persons who volunteer to participate in psychological research is more "select" and perhaps better adjusted than the population of younger persons who volunteer. Although there was no evidence that age-related differences in neuroticism, need for structure, authoritarianism, or demographic variables mediate the Age  $\times$  MS interactions found in the present research, it is still possible that some unmeasured difference in our samples other than age might be responsible for the age differences observed here. Only long-term longitudinal studies can definitively determine whether the age-related differences found in the present study are actually a result of developmental changes over the life span.

Given the very broad range of social behaviors shown to be affected by death-related thoughts in younger adults, and the central role this research suggests existential fears play in many aspects of ordinary life, understanding how older people come to grips with their approaching mortality seems an important priority for those seeking a well-rounded understanding of the later stages of life. Although the present studies show clear differences in how older and younger adults respond to reminders of their mortality, they only scratch the surface of the many potentially important questions about the role that death awareness might play in later life. Pending the outcome of such research, the present findings of age differences in responses to reminders of mortality are broadly consistent with Erikson's (1950/1963) view that coming to grips with the problem of death is a particularly important task for people in later life.

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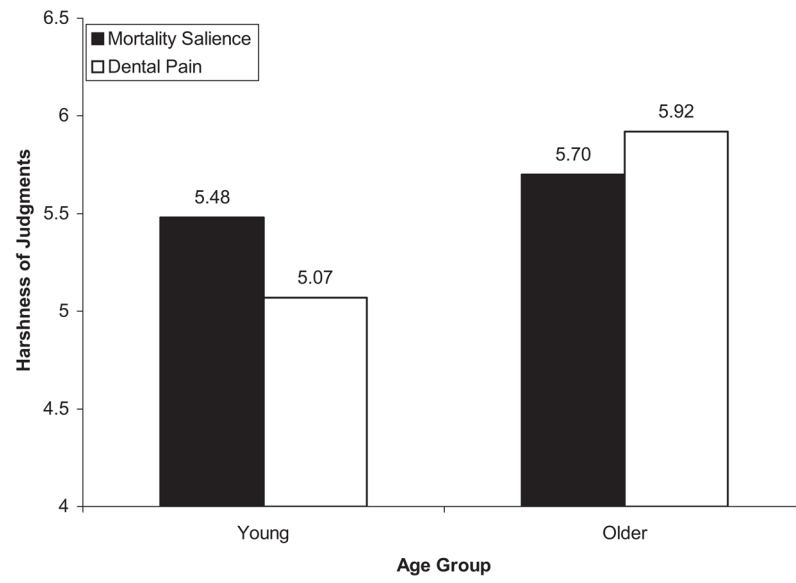
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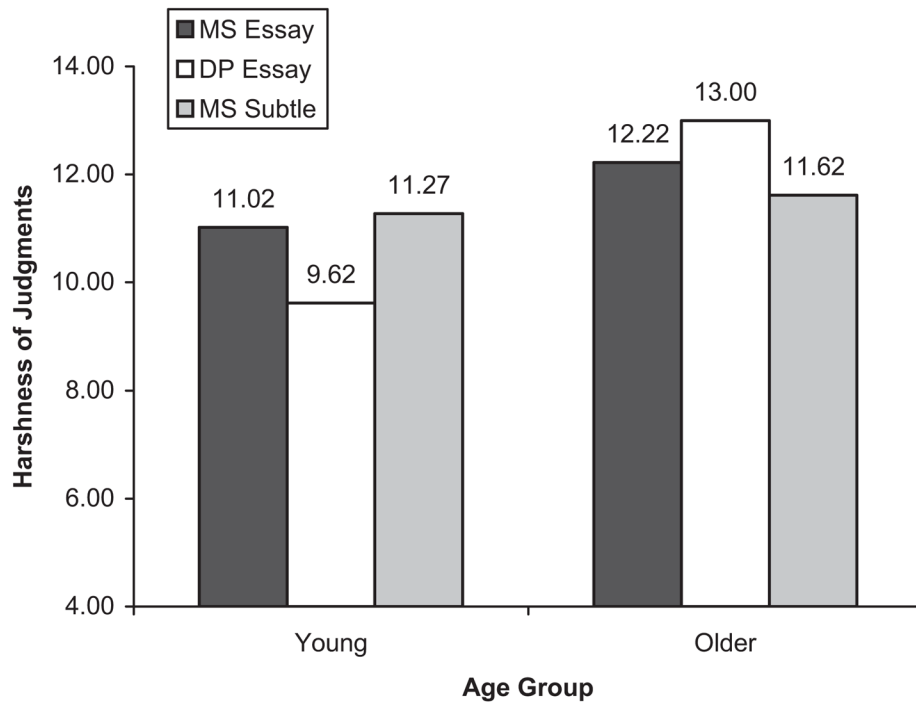
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**Figure 1.** Age differences in response to mortality salience on the Moral Transgressions Scale in Study 1. Scale ranges from 1 (*not severe at all/no punishment*) to 7 (*extremely severe/very heavy punishment*).



**Figure 2.** Age differences in response to mortality salience on the Moral Transgressions Scale in Study 2. Scale ranges from 1 (*minor/no punishment*) to 15 (*one of the worst things a person could do/most severe punishment possible*). MS = mortality salience; DP = dental pain.

**Table 1**

Individual Differences as a Function of Age in Study 1

Variable	Age group			
	Younger		Older	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Neuroticism **	10.07	5.38	5.68	4.68
Locus of Control	96.62	13.36	100.89	14.93
Authoritarianism	2.43	0.24	2.47	0.33
Positive affect *	30.18	8.36	34.36	7.59
Negative affect	14.18	4.82	12.04	4.58
Health **	5.88	0.94	5.18	1.43
Spirituality *	3.10	1.15	3.57	1.13
Marital status (proportion single) **	.97	0.18	.20	0.40
Ethnicity (proportion Caucasian)	.82	0.39	.93	0.26

\*  $p < .05$ .\*\*  $p < .01$ .

**Table 2**  
Income and Education as a Function of Age in Study 1

Variable	Younger		Older	
	%	<i>n</i>	%	<i>n</i>
Income				
\$0–\$10,000	81.7	49	16.3	8
\$11,000–\$20,000	8.3	5	32.7	16
\$21,000–\$30,000	8.3	5	20.4	10
\$31,000–\$40,000	0.0	0	8.2	7
\$41,000–\$50,000	0.0	0	12.2	6
\$51,000–\$60,000	0.0	0	8.2	4
\$61,000–\$70,000	1.7	1	0.0	0
\$71,000–\$80,000	0.0	0	2.0	1
Over \$80,000	0.0	0	0.0	0
Education				
Some high school	3.3	2	5.5	3
High school	3.3	2	21.8	12
Some college	85.0	51	32.7	18
College	8.3	5	21.8	12
Graduate school	0.0	0	17.9	10

Note. Test of association for income and education, respectively,  $\chi^2(7, N = 109) = 52.34, p < .01$ ;  $\chi^2(4, N = 115) = 35.86, p < .01$ .



**Table 3**

Individual Differences as a Function of Age in Study 2

Variable	Age group			
	Younger		Older	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Neuroticism *	9.63	5.32	7.23	6.07
Personal need for structure **	3.43	0.76	3.96	0.70
Authoritarianism	2.34	0.28	2.48	0.39
Positive affect **	30.83	7.61	36.62	6.86
Negative affect	14.04	3.15	13.02	6.76
Health *	5.94	1.20	5.26	1.33
Spirituality	2.96	1.48	3.47	1.11
Marital status (proportion single) **	.91	0.28	.26	0.44
Ethnicity (proportion Caucasian)	.80	0.40	.85	0.36

\*  $p < .05$ .\*\*  $p < .01$ .

**Table 4**  
Income and Education as a Function of Age in Study 2

Variable	Younger		Older	
	%	<i>n</i>	%	<i>n</i>
Income				
\$0–\$10,000	75.6	34	25.6	11
\$11,000–\$20,000	11.1	5	37.2	16
\$21,000–\$30,000	8.9	4	7.0	3
\$31,000–\$40,000	4.4	2	14.0	6
\$41,000–\$50,000	0.0	0	7.0	3
\$51,000–\$60,000	0.0	0	4.7	2
\$61,000–\$70,000	0.0	0	2.3	1
\$71,000–\$80,000	0.0	0	2.3	1
Over \$80,000	0.0	0	0.0	0
Education				
Some high school	2.2	1	2.1	1
High school	4.3	2	27.7	13
Some college	80.4	37	27.7	13
College	12.0	6	31.9	15
Graduate school	0.0	0	10.6	5

Note. Test of association for income and education, respectively,  $\chi^2(7, N = 88) = 26.63, p < .01$ ;  $\chi^2(4, N = 93) = 28.44, p < .01$ .