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The protective identity: Evidence that mortality salience heightens the clarity and coherence of the self-concept

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ABSTRACT

Research guided by terror management theory has shown that self-esteem provides a buffer against mortality concerns. The current research extends the theory to examine whether clarity and coherence in the structure of the self-concept serve a terror management function independent of enhancing self-esteem. Specifically, five studies tested whether mortality salience (MS) heightens diverse tendencies to clarify and integrate self-relevant knowledge, especially in individuals predisposed to seek structured knowledge. MS led high, but not low, structure-seeking participants to prefer coherent (Study 1) clearly-defined (Study 2), and simply organized (Study 3) conceptions of their personal characteristics. Also, MS led high structure-seeking participants to prefer causal coherence in recent experience (Study 4) and meaningful connections between past events and their current self (Study 5). Supporting the specificity of these effects on self-concept structuring, MS increased self-enhancement in Studies 1, 4, and 5 but these effects were not moderated by preference for structured knowledge.

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Psychologists have a long-standing interest in people's efforts to know *who they are* by seeking clear and coherent conceptions of their personal characteristics and experiences. Influential theorists such as Erikson (1968) and Allport (1955) described people's preoccupation with defining and organizing elements of their personality and experience into an integrated, temporally continuous identity. More recently, researchers have identified specific cognitive tendencies that people use, to varying degrees, to conceptually structure elements of the self-concept (Showers & Zeigler-Hill (2003) review this work). For example, people often seek to articulate their personal characteristics (Campbell, Assanand, & Di Paula, 2003) and to group those characteristics into self-defining categories (e.g., *me-with-friends*; Linville, 1985).

Early theorists (e.g., Allport, 1955; Kelly, 1955) posited that, at least for some people, a well-structured understanding of the self satisfies a general epistemic motivation to avoid ambiguity and disorder. Consistent with these claims, research shows that people often seek clear and coherent self-conceptions independent of pursuing positive self-evaluations (Sedikides, 1993), although high levels of self-concept structure can support the maintenance of self-esteem (Campbell et al., 2003; Sedikides & Gregg, 2007). Indeed, research inspired by self-verification theory (Swann,

Rentfrow, & Guinn, 2003) shows that people sometimes strive to create social environments that satisfy their desire for coherent self-knowledge even when doing so runs counter to their desire for positive self-evaluations.

But why, fundamentally, are people often motivated to seek a well-structured identity or self-concept? One perspective on this question comes from the works of May (1953), Frankl (1963), and Becker (1973), and other theorists who synthesized insights from existential philosophy and psychoanalysis to characterize the motivations underlying the experience of selfhood. Broadly speaking, these theorists argued that, for many people at least, the perception of selfsameness and continuity of experiences over time serves to psychologically protect the individual against the threatening awareness of death's inevitability. By defining and integrating elements of their personality and experience, people can view themselves as real, integral entities that are likely to continue existing, rather than as contradictory bundles of identity fragments enduring an arbitrary series of isolated moments terminating in obliteration. In other words, while existence might seem invalidated by the promise of eventual eradication, many people protect themselves from this potential invalidation by maintaining a clearly defined and temporally coherent identity (for further discussion, see Landau, Greenberg, and Solomon (2008)).

While similar existential accounts of self-concept structure are prominent in influential treatments of self and identity

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(e.g., McAdams, 1994), to our knowledge no prior research has experimentally assessed whether the tendencies to seek clarity and coherence in the structure of the self-concept function to defend against mortality concerns. The current research investigates this possibility within the framework of terror management theory (TMT; Greenberg, Solomon, & Arndt, 2008). TMT draws on the existential psychodynamic tradition just mentioned, and posits that the uniquely human awareness that one's death is always potentially imminent and ultimately inevitable conflicts with motivational systems geared toward continued life and thereby threatens the individual with anxiety. People assuage the potential for anxiety through a dual-component anxiety-buffer consisting of a cultural worldview and self-esteem. Cultural worldviews are beliefs about reality that convey a sense that the world is meaningful and stable, and that offer opportunities for symbolic immortality (e.g., by amassing a great fortune) and literal immortality (e.g., by the promise of an afterlife) to those who meet the culture's standards of value. Self-esteem is attained by believing that one is a valuable participant in a meaningful world and therefore eligible for symbolic and/or literal continuance beyond death.

Because TMT proposes that self-esteem is the primary psychological defense against mortality concerns (Greenberg, Pyszczynski, & Solomon, 1986), terror management research on the self has until now focused on people's efforts to enhance self-esteem and defend it against threats. This research shows, for example, that temporarily bolstering self-esteem buffers anxiety and reduces defenses against death-related ideation (Greenberg et al., 1992), and that reminders of death (i.e., mortality salience; MS) lead people to enhance their self-worth in personally valued domains (e.g., physical attractiveness; see Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004, for a review). But research has not yet explored the possibility, advanced by TMT's theoretical predecessors (e.g., Becker, 1973), that a clear understanding of the self as a coherent, continuous entity protects the individual from death concerns independent of bolstering self-esteem. To fill this gap, in five studies we tested whether MS intensifies cognitive tendencies to clarify and integrate self-relevant knowledge.

Distinguishing self-concept structuring from self-enhancement

As mentioned, although the motives for self-concept structure and self-esteem are empirically separable, there is some evidence that self-concept clarity promotes positive self-evaluations (e.g., Campbell et al., 2003). To specifically test the terror management function of self-concept structure, we therefore designed the current studies to empirically distinguish between MS-induced self-concept structuring and the previously documented effects of MS on self-enhancement. First, we used diverse paradigms for measuring tendencies to clarify and organize self-relevant knowledge independent of self-enhancement. Some of these measures have been validated in prior research, whereas others we created to assess the epistemic structuring processes described in theoretical perspectives on identity and self-continuity (e.g., Erikson, 1968; McAdams, 2001). In Study 1 we coded autobiographies for concern with seeking a clear identity irrespective of its valence; Study 2 used an evaluatively neutral measure of self-concept clarity developed by Campbell (1990); Study 3 utilized Linville's (1985) card-sorting task to assess preference for simpler organizations of both positive and negative characteristics; Study 4 looked at spontaneous references to causal links between separate elements of recent experience (Pennebaker, Mehl, & Niederhoffer, 2003); Study 5 examined preference for meaningful connections between both positive and negative past events and one's current self.

In addition, we tested whether MS effects on self-concept structuring and self-enhancement are differentially moderated by

individual differences in preference for clear and confident knowledge, as measured with the personal need for structure (PNS) scale (Thompson, Naccarato, Parker, & Moskowitz, 2001). From a TMT perspective, individual differences such as PNS partly reflect the different sources of meaning that each individual invests in to manage mortality concerns (Solomon, Greenberg, & Pyszczynski, 1991).¹ We would therefore expect high-PNS individuals to respond to MS with increased efforts to clarify and integrate self-relevant knowledge, whereas low-PNS individuals would not show these effects because they are less invested in well-structured knowledge. If, alternatively, our self-concept structuring measures are confounded with self-enhancement, we would not expect PNS to moderate MS effects because there is no evidence that high-PNS individuals are more invested than low-PNS individuals in positive self-evaluations. To further assess our analysis we tested the effects of MS and PNS on separate measures of self-enhancement in Studies 1, 3, 4, and 5. Based on prior evidence of MS-induced self-enhancement (Pyszczynski et al., 2004), we expected main effects of MS, but not MS \times PNS interactions, on these measures.

Lastly, we hypothesized that insofar as structured self-conceptions provide protection against mortality concerns, then MS should heighten the tendency to clarify one's personal characteristics, but this effect should be attenuated if people are given the opportunity to affirm a self-defining characteristic following the MS manipulation. We test this hypothesis in Study 2.

Specifying the role of death concerns

We claim that the hypothesized MS effects on self-concept structuring are due specifically to concerns about death. However, research linking structural aspects of the self with affective and stress-related outcomes (e.g., Linville, 1985; Linville, 1987; Showers, 1992) raises the alternative possibility that these effects are due to a generalized reaction to reminders of any aversive or uncertain outcome. Although plausible, this explanation is challenged by a large body of evidence that MS elicits different responses compared to the salience of a variety of topics that are aversive (e.g., pain, paralysis), anxiety-provoking (e.g., embarrassment, social exclusion), and uncertainty arousing (e.g., upcoming events, meaninglessness; see Greenberg, Solomon, & Pyszczynski, 1997; Greenberg et al., 2008).

Furthermore, internal analyses have consistently failed to indicate that MS effects are mediated by self-reported affect (e.g., Greenberg et al., 1995).² To further test the unique role of death concerns in the current studies, we compared MS to the salience of intense physical pain (Studies 1–3), general feelings of personal uncertainty (Study 4), and worries about the fate of one's career and close relationships after graduating college (Study 5), which

¹ Studies supporting this claim show that MS effects are moderated by a host of theoretically specified individual difference variables, including trait self-esteem, authoritarianism, the valuing of tolerance, neuroticism, attachment style, intrinsic religiosity, and investment in specific bases of self-worth (see Greenberg et al., 2008, for review).

² Other research supports the unique role of death concerns in MS effects (see Arndt, Cook, & Routledge, 2004; Greenberg et al., 2008, for more complete discussions). This research has established the parameters of MS effects using diverse operationalizations (e.g., explicit death reminders followed by a delay, subliminal "death" primes, proximity to a funeral home). Also, research on the cognitive processes associated with MS shows that explicit death reminders instigate a unique set of immediate proximal defenses followed by delayed distal terror management defenses involving meaning-seeking and self-esteem striving. The latter defenses are triggered by increased accessibility of death-related thought outside of current focal attention. Furthermore, threats to central aspects of an individual's bases of meaning and self-worth increase the accessibility of death-related thought, but not other negative thoughts, and bolstering these structures reduces this accessibility back to baseline levels (e.g., Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997; Schimel, Hayes, Williams, & Jahrig, 2007).

simultaneously controls for thinking about aversive, uncertain, and personally important future outcomes. Furthermore, in all studies we measured self-reported affect following MS and analyzed whether MS influenced affect and whether affect played any mediating role in the hypothesized effects.

Study 1: identity concerns

We initially examined the terror management function of self-concept structure by testing whether MS increases people's concern with seeking a clear personal identity. Participants primed with either death or intense pain wrote short autobiographies that were coded for the prevalence of identity concerns. The foregoing analysis suggests that MS will increase identity concerns specifically among high-PNS participants, and so we measured PNS to assess this possibility. We coded autobiographies for identity concerns independent of the valence of specific life events or the overall evaluative tone of the autobiography. In addition, we separately measured self-enhancement by coding autobiographies for perceptions of positive change in the self over the life-span. We expected participants to respond to MS by portraying themselves as improving with time, but we did not expect this effect to be moderated by PNS because it concerns self-evaluation rather than self-concept structure.

Method

Seventy psychology undergraduates (47 female and 23 male)³ took part in a study of personality and personal memories. In separate cubicles, they were randomly assigned a packet of questionnaires, the contents and order of which are described next.

PNS

Thompson et al.'s (2001) PNS-scale followed two filler questionnaires (experimenter-fabricated scales of media preferences and morningness–eveningness) included to support the cover story. Participants indicated their agreement with 12 statements (e.g., “I like having a clear and structured mode of life.”) on a 6-point scale (1 = *strongly disagree*, 6 = *strongly agree*). In this and the following studies, the PNS-scale showed high internal reliability (α_{range} : .87–.92).⁴

MS and affect

The next questionnaire was the MS manipulation. Participants in the MS condition responded to two open-ended questions (used in previous studies, e.g., Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989): “Please briefly describe the emotions that the thought of your own death arouses in you” and “Jot down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead.” Participants in the control condition responded to parallel questions about experiencing intense physical pain. Self-reported affect was measured immediately following the MS manipulation using the 60-item Positive and Negative Affect Schedule-Expanded Form (PANAS-X; Watson, Clark, & Tellegen, 1988).

³ In this and the remaining studies, the analyses were originally conducted with gender as a between-subjects factor. There were no main effects or interactions involving gender. Consequently, gender is not reported in subsequent analyses to simplify presentation.

⁴ After appropriate reverse-scoring, the range of possible scores on the PNS-scale is 12–72 (midpoint = 42). The range of actual PNS scores was as follows. Study 1: 22–63; Study 2: 18–68; Study 3: 21–57; Study 4: 23–71; Study 5: 22–53. PNS scores were normally distributed in all studies.

Autobiographies and coding

Participants then typed autobiographies with instructions to write naturally and honestly about different periods of their lives. Writing was self-paced and took approximately 20 min. Autobiographies were content-analyzed for the extent to which their authors saw issues of personal identity as having importance in their lives. Specifically, two independent coders (unaware of condition and hypotheses) assessed how much each autobiographer expressed concerns with gaining a clear understanding of her personal characteristics (e.g., traits, talents, ideological commitments) and on what basis they came to be defined over her life thus far (e.g., peer feedback). Ratings were made on a 3-point scale (0 = *no significant emphasis on identity concerns*, 1 = *some identity concerns*; 2 = *significant identity concerns*). Autobiographies rated as high in identity concerns featured, for example, a preoccupation with understanding one's own actions (e.g., “I started to analyze myself at this point along with others and would spend long hours just pondering about why I said things in the past.”) or extended reflections on how past life events shaped one's current outlook (e.g., “It all made me realize, all the harassment, all the shit I had seen, I feel as though I was forced to grow up quickly. . . but in the process, I came out on top. . . having learned lessons that many people who lead more sheltered lives won't learn for years, or may never learn.”). Autobiographies rated as lower in identity concerns were less likely to express such themes. Autobiographies were also rated for the valence of personal change over time on a 5-point scale ranging from –2 (highly negative change) through 0 (no evaluative change) to +2 (highly positive change). Initial coding resulted in an interrater reliability of $r = .80$. Coding differences were reconciled by discussion, resulting in 100% final agreement across all autobiographies. Scores on both coding dimensions spanned the full range of possible scores and were normally distributed.

Results and discussion

Affect

In this and the following studies, we assessed whether MS influenced self-reported affect by performing MANOVAs and ANOVAs on the various subscales of the PANAS-X and ANOVAs on the aggregate positive and negative affect scores using our primary predictors. Consistent with previous TMT research demonstrating that MS does not engender self-reported affect, these analyses revealed no effects ($ps > .30$). To ensure that the MS effects were not mediated by affect, we conducted ANCOVAs with the affect subscales scores as covariates and our primary predicted effects remained

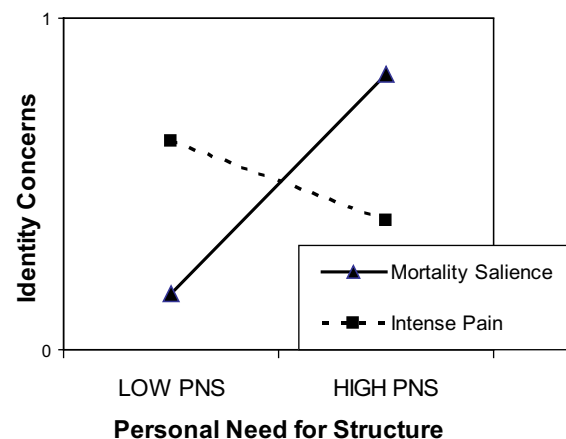


Fig. 1. Identity concerns as a function of mortality salience and personal need for structure (Study 1). Note: possible scores ranged from 0 to 2.

significant. Thus, we are quite confident that, as in past research, the findings reported in the present studies are not caused by affective differences between MS and control conditions or by the interactive effects of MS and PNS.

Identity concerns

To test whether high-PNS participants seek a clearer autobiographical identity under MS, we regressed identity concern scores onto MS (MS vs. intense pain; dummy-coded), PNS (continuous and centered), and their interaction. We observed the expected MS \times PNS interaction, $\beta = .41$, $t(66) = 2.37$, $p = .02$ (for both main effects, $p > .43$). We plotted the interaction in Fig. 1 using 1 standard deviation above (High-PNS) and below (Low-PNS) the centered mean of PNS (Aiken & West, 1991). As predicted, simple slopes analysis revealed that PNS was positively and significantly associated with identity concerns under MS, $\beta = .40$, $t(66) = 2.31$, $p = .02$. In contrast, PNS did not predict identity concerns in the control condition, $p = .34$. A comparison of the predicted means (re-centered at 1 SD above the PNS individuals mean) shows a trend for high-PNS individuals to express greater identity concerns under MS than pain salience, $\beta = .27$, $t(66) = 1.70$, $p = .08$. Finally, we observed a somewhat unexpected trend among low-PNS participants to express less identity concern under MS than pain salience, $\beta = .30$, $t(66) = 1.72$, $p = .09$.

Inasmuch as an emphasis on identity concerns may be confounded with autobiography length, it is possible that MS simply led high-PNS participants to write more about themselves. Contrary to this alternative, regressing word count onto MS and PNS revealed no significant main effects or interactions (all $ps > .45$), and repeating our primary analysis with word count as a covariate did not change the pattern of results.

Self-enhancement

Regressing evaluative change scores onto MS, PNS, and their interaction revealed only the predicted MS main effect, such that those participants primed with mortality were more likely to describe themselves as changing positively over the lifespan ($M = .13$, $SD = .71$) than those primed with intense pain ($M = -.18$, $SD = .51$), $\beta = .25$, $t(67) = 2.14$, $p = .04$. Importantly, neither the PNS main effect ($\beta = .09$, $p = .47$) nor the MS \times PNS interaction ($\beta = .09$, $p = .60$) approached significance.

The results of Study 1 indicate that MS led high-PNS individuals – those predisposed to structured knowledge – to spontaneously express a greater concern with seeking a clear identity when writing about their lives. This effect was not observed among those who thought about intense pain, and was not observed among those low in PNS. Indeed, the trend for low-PNS participants to express less identity concern under MS was unexpected but consistent with some studies (Landau, Johns, et al., 2004) showing marginal trends for low-PNS individuals to prefer less epistemic structure under MS. We return to this issue of how low-PNS individuals respond to existential threat in the “General discussion”. Importantly, these effects do not seem to be due to MS-induced striving for self-enhancement: although MS generally led people to describe their lives in more positive terms, PNS did not moderate this effect. Taken together, these findings suggest that clear self-conceptions serve a terror management function independent of enhancing self-worth, at least for high-PNS individuals.

Although the present finding offers encouraging support for the guiding hypothesis, it is important to recognize that these open-ended responses could of course be influenced by writing style, ability, and other individual differences; further, even with interrater reliability there is considerable subjectivity in coding judgments. These other sources of variability could account for the marginal pairwise comparison between MS and pain conditions

among high-PNS participants. In light of these considerations, we designed Study 2 to conceptually replicate Study 1 using a measure that more directly assesses a preference for clear self-definition.

Study 2: self-clarity

Campbell (1990) discussed self-clarity as the possession of clearly articulated characteristics, and she measured it as the tendency to characterize oneself at either extreme of bipolar trait continua as opposed to the more ambiguous middle. One particularly useful feature of Campbell’s measure for our present purposes – in light of the alternative possibility that MS-induced self-structuring is confounded with self-enhancement – is that it assesses self-clarity independent of self-enhancement because each set of bipolar traits included in the measure consists of traits equivalent in social desirability. If, as we claim, clarity in the self functions to assuage mortality concerns, then MS should increase self-clarity seeking among high-PNS participants. Study 2 tests this hypothesis. Study 2 also tests whether MS-induced self-clarity is attenuated by the affirmation of a self-defining characteristic.

Method

Seventy-five undergraduates (45 female and 30 males) completed a packet of questionnaires that began with the materials and order described in Study 1: two filler questionnaires, the PNS-Scale, the MS manipulation, and the PANAS-X. The next questionnaire was the self-defining affirmation manipulation. Participants in the affirmation condition were asked to think about a core, self-defining characteristic and describe a time when they displayed that characteristic. Participants in the no affirmation condition were asked to describe mundane aspects of their daily activities (e.g., watching television).⁵ A manipulation check item followed the induction: “How much does the experience you wrote about reflect your core sense of ‘who you are?’” (1 = *not at all*; 9 = *very much*). To specify, the design included three conditions: MS/no affirmation, pain/no affirmation, and MS/affirmation (and PNS as a potential moderator).

Self-clarity measure

The final questionnaire was Campbell’s self-clarity measure. Participants were given nine pairs of bipolar traits (silly/serious, assertive/soft-spoken, gentle/boisterous, deliberate/spontaneous, competitive/cooperative, quiet/outspoken, cautious/risky, ambitious/laid-back, yielding/dominant), each pair separated by a 7-point continuum, and asked to circle a number that best describes themselves. For example, ratings for the trait pair competitive/cooperative ranged from 1 (completely competitive) through 4 (some mix of competitive and cooperative) to 7 (completely cooperative). Following Campbell’s procedure, we recoded responses on the self-clarity measure such that responses at either extremes of the scale midpoint (4) indicated high clarity, and averaged these responses to form a composite 4-point scale ($\alpha = .89$).

Results and discussion

Analyzing responses to the affirmation manipulation check show that, as expected, participants in the affirmation condition

⁵ Because MS effects are time sensitive and the affirmation manipulation followed the MS manipulation, we compared the word count of responses on the affirmation and control inductions as an index of time spent writing. As we expected, responses to the affirmation and control inductions did not significantly differ in length ($p = .25$), and entering word count as a covariate in our primary analyses did not significantly alter the predicted pattern of results. We are therefore confident that the observed effects are not simply due to writing time differences.

wrote about characteristics perceived as more self-defining ($M = 7.86$, $SD = 1.60$) than those in the no affirmation condition ($M = 4.70$, $SD = 2.23$), $t(73) = 5.99$, $p < .001$.

Self-clarity

We predicted that MS would heighten high-PNS participants' preference for self-clarity, and that this effect would be eliminated by affirming a self-defining characteristic. We represented our three treatment conditions by two dummy-coded variables, one that captured the MS/no affirmation vs. pain/no affirmation comparison and one that captured the MS/no affirmation vs. MS/affirmation comparison (with the MS/no affirmation condition serving as the reference group). Hierarchical analysis was used because the test of each main effect or interaction involving treatment condition needed to be represented as two terms entered together on a single step. Thus, the interaction between PNS and treatment condition predicting self-clarity is tested as the change in R^2 for the step of the analysis including two interaction terms: PNS \times MS/no affirmation vs. pain/no affirmation; PNS \times MS/no affirmation vs. MS/affirmation. On Step 1 of the analysis, we entered PNS (continuous and centered) and the two aforementioned dummy-coded variables. In Step 2 we entered the aforementioned terms representing the PNS \times treatment condition interaction.

Neither the main effect for PNS ($\beta = .17$, $t = 1.5$, $p = .13$) nor the treatment condition terms ($ps > .4$) reached significance. The inclusion of the interaction terms in Step 2 contributed significantly to our ability to account for variance in self-clarity, $\Delta R^2 = .08$, $F(2, 69) = 3.10$, $p = .05$. We then examined the two interaction terms entered in Step 2. The term representing PNS \times MS/no affirmation vs. pain/no affirmation was significant, $\beta = .32$, $t(69) = 2.01$, $p = .05$. This indicated that the relationship between PNS and self-clarity in the MS/no affirmation condition was significantly different from the relationship between PNS and self-clarity in the pain/no affirmation condition. We plotted this interaction in Fig. 2. Simple slope analyses revealed that PNS was positively and significantly associated with self-clarity in the MS/no affirmation condition, $\beta = .52$, $t(69) = 2.69$, $p = .009$, but PNS did not predict self-clarity in the pain/no affirmation condition, $\beta = .13$, $t = .69$, $p = .49$.

The term representing PNS \times MS/no affirmation vs. MS/affirmation primes was also significant, $\beta = .37$, $t(69) = 2.36$, $p = .02$. Simple slopes analysis revealed that, in contrast to the significant PNS and self-clarity relationship in the MS/no affirmation condition, when participants were primed with mortality but subsequently affirmed a self-defining characteristic, PNS was no longer predictive

of self-clarity, $\beta = .16$, $t(69) = .81$, $p = .42$. Also consistent with predictions, the predicted mean of self-clarity for high-PNS participants in the MS/no affirmation condition was significantly higher than the predicted means for high-PNS participants in the MS/affirmation ($\beta = .45$, $t = 2.56$, $p = .01$) and pain control ($\beta = .38$, $t = 2.07$, $p = .04$) conditions.

Consistent with hypotheses, MS increased high-PNS participants' preference for self-clarity as assessed by a tendency to view personal characteristics as unambiguously defined. These results provide a conceptual replication of Study 1's findings using a more straightforward measure of self-clarity seeking. Furthermore, the comparison between high-PNS participants in the mortality and intense pain control conditions, while marginal in Study 1, here attained significance. Study 2 goes further, however, by showing that high-PNS participants do not seek self-clarity in response to MS if they are led to affirm a core, self-defining characteristic. These findings support the claim that seeking self-clarity functions, at least in part, to protect individuals against mortality concerns, particularly among those high in structure-seeking.

Study 3: self-complexity

Given the previous effects of MS enhancing identity concerns and self-clarity among those high in PNS, might parallel effects emerge for people's expressions of self-complexity? Linville (1985), Linville (1987) defines high self-complexity as the possession of many self-descriptive aspects (e.g., *me-at-school*) characterized by relatively distinct sets of traits (e.g., *hard-working*). Low self-complexity, in contrast, entails having fewer self-aspects that share overlapping traits. Self-complexity is measured using a card-sorting task in which 40 self-descriptive trait adjectives are sorted into groupings that represent meaningful aspects of oneself or one's life.

Linville and others (Showers, 1992) have shown that high self-complexity buffers the deleterious effects of specific stressors. Yet others suggest that people often seek to integrate seemingly disparate or conflicting self-aspects (e.g., *me-as-loving-wife*; *me-as-staunch-feminist*) so that they can be viewed as integral parts of the same self-concept, and that fragmenting the self into many distinct categories can undermine a unified sense of identity (Donahue, Robins, Roberts, & John, 1993; Erikson, 1968). These latter perspectives and the results of Studies 1 and 2 led us to hypothesize that MS would increase preference for simple, unified self-conceptions, particularly among high-PNS individuals. Like the self-clarity measure used in Study 2, Linville's card-sorting task is designed to measure the structural organization of self-relevant knowledge independent of self-enhancement. Using this measure thus provides another opportunity to assess whether the hypothesized structuring effects occur outside of any self-enhancement proclivities. However, to further examine this alternative, we also measured self-enhancement as the percentage of positively valenced traits used to represent the self.

Method

Eighty-four undergraduates (24 males and 60 females) completed the same questionnaire packet used in Study 1 followed by the self-complexity measure.

Self-complexity measure

Following Showers' (1992) procedure, we gave participants 40 cards, half labeled with positive traits (e.g., *friendly*) and half with negative traits (e.g., *Like a failure*). Participants were instructed to sort traits into personally meaningful groups that describe some aspect of themselves or their life. They were also told they could

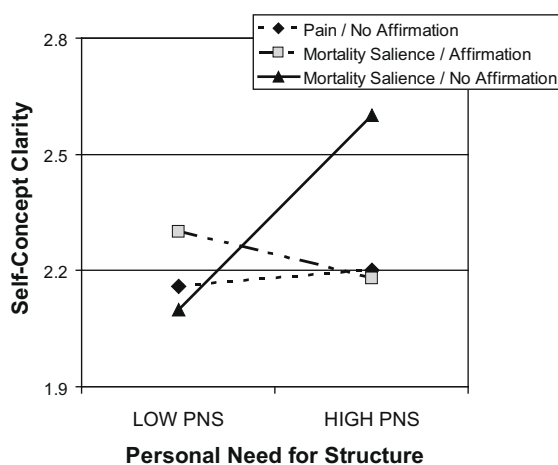


Fig. 2. Self-concept clarity as a function of mortality salience, personal need for structure, and self-defining affirmation manipulation (Study 2). Note: possible self-concept clarity scores ranged from 1 to 4.

form as many groups as they found personally meaningful, ignore personally nondescriptive traits, and reuse the same trait in multiple groups. Participants wrote the traits that corresponded to their groupings on columned forms.

Results and discussion

Self-complexity

We computed self-complexity scores using the *H* statistic (Attneave, 1959), which reflects the number of groupings and the degree of trait redundancy among them (see Linville, 1987). A high *H* value reflects many groupings of relatively distinct sets of traits (high complexity), whereas a low *H* value indicates fewer groupings with more overlap or shared traits among them (low complexity). Self-complexity scores were regressed onto MS (dummy-coded), PNS (centered), and their interaction. This analysis revealed only the predicted MS \times PNS interaction, $\beta = .46$, $t(80) = 2.49$, $p = .02$ (for both main effects, $p > .37$). We plotted the interaction in Fig. 3. As predicted, simple slopes analyses revealed that PNS was negatively associated with self-complexity under MS ($\beta = .38$, $t(84) = 2.39$, $p = .02$), but was not significantly associated with self-complexity under pain salience ($\beta = .14$, $t(80) = 1.02$, $p = .31$). Also consistent with our predictions, analysis of the predicted means show that high-PNS participants preferred simpler self-conceptions under MS compared with pain salience, $\beta = .36$, $t(80) = 2.43$, $p = .02$. Inspection of the predicted means for low-PNS participants revealed no simple effect of MS ($\beta = .17$, $t = 1.11$, $p = .27$).

Self-enhancement

To test possible effects on self-enhancement, we conducted an MS \times PNS regression analysis on the proportion of positively valenced traits used in forming self-relevant categories. This analysis revealed no significant effects ($ps > .54$), including the expected MS main effect. Note, however, that the card-sorting task is partly designed to allow people to use negative characteristics to define themselves but, at the same time, to protect their positive self-image by grouping those characteristics into categories that are compartmentalized from other categories (Linville, 1985; Showers, 1992). Therefore, the proportion of positive/negative characteristics used to define the self may not provide a sufficiently sensitive measure of self-enhancement. Therefore, in Study 5 we used a more straightforward measure of linking positive and negative knowledge to the self. Nevertheless, the null results for the MS \times

PNS interaction term on self-enhancement observed in this and the first study suggest that the self-structuring effects of primary interest are not confounded with self-enhancement.

In sum, MS led high-PNS participants to spontaneously organize their self-concepts in a simpler, more unified fashion. These findings support our broader claim that coherent self-conceptions function to protect the individual from mortality concerns, at least those predisposed to invest in structured knowledge. Furthermore, neither MS nor its interaction with PNS influenced participants' choice of positive vs. negative characteristics in forming self-relevant categories, suggesting that MS heightened high-PNS participants' concern with the structural organization of self-relevant information and not necessarily with the valence of the information chosen.

Study 4: causal coherence in recent experience

The self-concept includes, in addition to broad knowledge of interwoven characteristics, a vast store of self-relevant experiences. Habermas and Bluck (2000) and McAdams (2001) propose that coherence in the self-concept is largely sustained by organizing elements of experience over time into cause-and-effect relationships. Insofar as coherent conceptions of experience serve a terror management function, then MS should increase people's efforts to perceive a coherent causal sequence of events in their recent experience. However, causal coherence might not provide psychological security for everyone, perhaps because some individuals are not as motivated to identify clear causal links in their ongoing experience. We therefore predicted that only high-PNS participants would respond to MS by seeking causal coherence.

Habermas and Bluck suggest that a useful measure of causal coherence is the prevalence of causal language as it occurs spontaneously in open-ended descriptions of experience. Accordingly, Pennebaker et al. (2003) have demonstrated diverse psychological implications of using causal words (e.g., *because*, *effect*) in writing about personal experiences. Building on this work, we predicted that MS would lead high-PNS participants to spontaneously use more causal words in describing their recent and ongoing experience. To assess self-enhancement, we measured the use of positive feeling words (e.g., *happy*, *joy*, *love*) in describing experience.

Method

Participants were 41 undergraduates (29 females and 12 males). The PNS-scale was administered during a mass survey session approximately 2 months prior to the experiment.

Participants were recruited to the laboratory between 6:30 and 7:30 PM and completed a packet of questionnaires identical to that described in Study 1, with the exception that participants in the control condition contemplated feelings of personal uncertainty rather than intense pain. Specifically, we used van den Bos' (2001) uncertainty salience induction, wherein participants respond to the following open-ended questions: "Please briefly describe the emotions that the thought of your being uncertain arouse in you" and "Please write down, as specifically as you can, what you think physically will happen to you as you feel uncertain."

Experience descriptions and coding

Participants were then asked to write about their day as if they were writing in a personal journal. Using instructions adapted from Pennebaker and King (1999), we instructed them to write freely, honestly, and without concern for grammar. Using a computerized

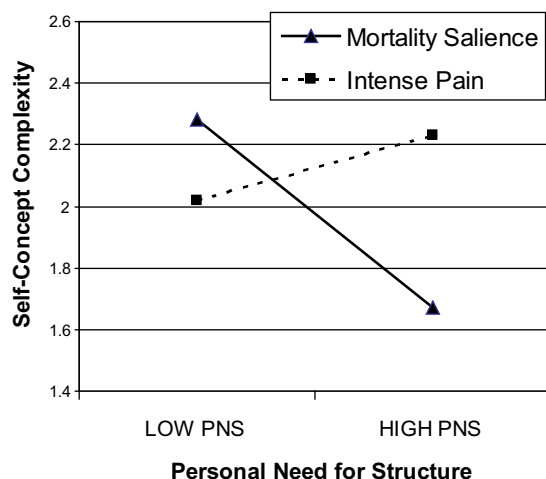


Fig. 3. Self-concept complexity as a function of mortality salience and personal need for structure (Study 3).

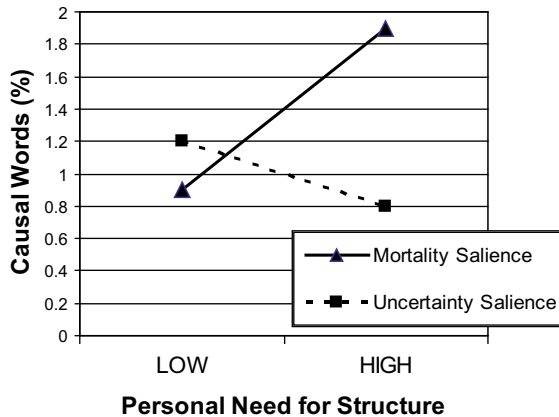


Fig. 4. Causal word use in written descriptions of recent experience as a function of mortality salience and personal need for structure (Study 4). Note: possible causal word use percentages ranged from 0 to 100.

text analysis program called the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001), we analyzed participants' entries for the percentage (out of 100%) of words related to causation⁶ and positive feelings.

Results and discussion

Causal coherence

Regressing causal word use onto MS, PNS, and their interaction revealed only the two-way interaction, $\beta = .63$, $t(37) = 2.50$, $p = .02$ (see Fig. 4). As predicted, simple slopes analysis indicated that PNS was positively associated with causal word use in descriptions of recent experience under MS, $\beta = .61$, $t(37) = 2.30$, $p = .03$, but not under uncertainty salience, $\beta = .26$, $t(37) = 1.15$, $p = .25$. Also as predicted, a comparison of the predicted means indicate that high-PNS participants used more causal words under MS than uncertainty salience, $\beta = .69$, $t(37) = 2.84$, $p = .01$. No simple MS effect was found among low-PNS participants, $\beta = .18$, $t(37) = .72$, $p = .48$. Because the LIWC measures the percentage of causal language, it is unlikely that these effects are due to differences in the length of the written entries. Furthermore, regressing word count onto MS, PNS, and their interactions revealed no significant effects ($ps > .40$), and the pattern of predicted results remained significant when word count was entered as a covariate.

Self-enhancement

Submitting positive feeling words to our primary analysis revealed only the expected main effect for MS. MS-primed participants made more references to positive feelings in describing their day ($M = .30$, $SD = .34$) than uncertainty-salient participants ($M = .14$, $SD = .24$), $\beta = .37$, $t(38) = 2.06$, $p = .05$. This suggests that MS led participants to think about their personal experiences more positively. Importantly, however, this effect was not moderated by PNS ($p = .62$).

As predicted, MS led high-PNS individuals to spontaneously use more causal words in describing their day, suggesting that they sought causally coherent conceptions of their recent experience. This finding presents, to our knowledge, the first evidence that MS-induced motivation to seek structured self-knowledge influences how people temporally organize elements of their experience.

⁶ The distribution of causal word use was somewhat positively skewed, skewness = .84 ($SE_{skewness} = .35$). Our primary analyses yielded the same pattern of significant results when we used transformed scores with a normal distribution.

Study 5: connecting past events to the current self

In Study 5 we continued our investigation of the motivation for organizing personal experiences across time, but now with emphasis on the organization of events over the broader span of one's personal history. Multiple authors have argued that people sustain coherence in the self-concept in large part by integrating memories of past events with one's current sense of self (e.g., McAdams, 2001). Inasmuch as this coherence protects the individual against mortality concerns, then MS should increase the tendency to connect separate past events with the current self. We also expect this effect to be specific to high-PNS individuals predisposed to seek coherent knowledge; low-PNS individuals may be more comfortable viewing their experience as unfolding in time in a less structured fashion. Furthermore, we assessed self-enhancement as the tendency to connect positively valenced vs. negatively valenced past events to the current self.

Method

Participants were 121 undergraduates (88 female and 33 male). They were first asked to recall three events each from five periods in their past (family history, early childhood, grade school, middle school, high school) and, for each event, write a summary sentence, indicate whether it was globally positive or negative, and label it with a representative keyword. The experimenter then explained that the information needed time to settle, and that participants could in the meantime complete an unrelated packet of questionnaires.

The packet was identical to that described in Study 1, with the exception of two new control conditions. First, we included a future uncertainty condition to control for the possibility that the effect of MS is due to the increased salience of an uncertain, highly likely, and personally significant future event rather than death per se. Specifically, participants in this condition were asked: "Please briefly describe the emotions that the thought of worries after college arouses in you, such as not being able to find a good job or losing touch with friends" and "Jot down, as specifically as you can, what you think will happen to you as you worry about uncertainties after college." This future uncertainty condition allowed us to further control for concerns with uncertainty (as in Study 4) as well as highly personal future events. Second, we included a neutral control condition in which participants were asked parallel questions about the experience of shelving books.

The experimenter then administered instructions for the remainder of the personal memories task. Each participant received a legal-sized sheet printed with 15 small boxes around the perimeter and one large box labeled "Current Self" in the middle. After writing in each box the keywords representing the earlier recalled events, participants were instructed to draw lines connecting the event boxes to the "Current Self" box only if those events had a significant influence in shaping who they are today.

Results and discussion

Meaningful connections

As in Study 2, we conducted a hierarchical regression that represented our three-level MS factor by two dummy-coded variables (MS vs. future uncertainty; MS vs. neutral) with MS as the reference group. These were entered along with PNS in Step 1. In Step 2 we entered the components of the predicted MS \times PNS interaction: PNS \times MS vs. future uncertainties and PNS \times MS vs. neutral prime. The only main effect to emerge was for the dummy variable representing the contrast between MS and the non-aversive control prime conditions, $\beta = .24$, $t(117) = 2.33$, $p = .02$ (all other $ps > .20$).

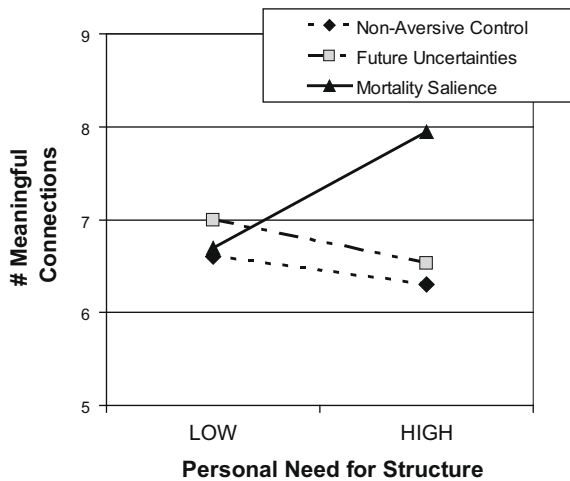


Fig. 5. Number of meaningful connections made between past events and current self as a function of mortality salience and personal need for structure (Study 5). Note: possible number of connections ranged from 0 to 15.

The inclusion of the interaction terms in Step 2 contributed significantly to our ability to account for variance in the number of meaningful connections made, $\Delta R^2 = .05$, $F(2, 115) = 3.06$, $p = .05$. The interaction term representing PNS \times MS vs. future uncertainty was significant, $\beta = .30$, $t(115) = 2.29$, $p = .02$, indicating that PNS predicted connection-forming differently in the MS and future uncertainty conditions.

We plotted this interaction in Fig. 5. Simple slopes revealed that PNS was positively associated with forming connections between past events and the current self in the MS condition ($\beta = .31$, $t(115) = 2.07$, $p = .04$) but not in the future uncertainty condition ($\beta = .16$, $t = 1.15$, $p = .25$). The PNS \times MS vs. neutral prime term was also significant, $\beta = .23$, $t(115) = 2.00$, $p = .05$. When participants were primed with a non-aversive control topic, PNS was not predictive of the number of meaningful connections drawn ($\beta = .13$, $t = .72$, $p = .47$). Also as expected, comparisons of the predicted means indicate that high-PNS participants drew more meaningful connections in the MS condition than in the future uncertainty ($\beta = .36$, $t(115) = 2.50$, $p = .01$) and neutral prime conditions ($\beta = .43$, $t(115) = 3.03$, $p = .003$). Comparison of the predicted means for low-PNS participants revealed no effects of MS ($p = .52$).

Self-enhancement

Were participants more likely to connect positive memories to their current self? Submitting the number of positive connections to our primary analysis revealed no significant effects involving PNS ($ps > .34$). To simplify our analysis we ran our analysis as an ANOVA and found the predicted MS main effect ($F(1, 116) = 3.04$, $p = .05$), such that mortality salient participants connected more positive memories to their current self ($M = 5.44$, $SD = 2.22$) than did participants primed with future worries ($M = 4.50$, $SD = 1.63$; $p = .03$) and shelving books ($M = 4.84$, $SD = 1.61$; $p = .05$).

Supporting hypotheses, participants predisposed to structured knowledge responded to MS by drawing more meaningful connections between past events and their current self-concept. These findings support the broader theoretical notion that imposing meaningful continuity upon separate experiences in time serves, in part, to buffer the individual from concerns about death. This effect was observed using two control conditions that primed two different topics, uncertainties after college and shelving books.⁷

The future uncertainties condition allowed us to compare the effects of MS with an induction that simultaneously controls for aversive, uncertain, highly personal, and highly likely future outcomes. Therefore, we are confident that the observed effects are specific to thoughts of death and are not the result of thinking about aversive topics, personally significant future events, personal uncertainty, or simply any personal experience. Finally, we found that MS led to an overall self-enhancing bias to connect more positively (vs. negatively) valenced past events to the current self-concept. Importantly, however, this self-enhancing tendency was not moderated by PNS, further supporting our claim that a coherent understanding of one-self serves to manage death concerns independent of positive self-evaluations, at least for individuals disposed to structured knowledge.

General discussion

Five studies assessed whether a coherent self-identity serves a terror management function by examining the effect of mortality salience (MS) and individual differences in personal need for structure (PNS) on diverse means of clarifying and integrating conceptions of one's personal characteristics and experiences over time. In Study 1, high-PNS participants responded to MS by spontaneously expressing more concern with a clear narrative self-understanding. Study 2 provided a conceptual replication of this effect by showing that MS led high-PNS participants to prefer unambiguous conceptions of their personal characteristics, and furthermore showed that this effect was eliminated if participants affirmed a self-defining characteristic following the mortality induction. In Study 3 high-PNS participants primed with death preferred a simpler, more integrated organization of self-descriptive characteristics.

Focusing on the self in time, Study 4 showed that MS-primed high-PNS participants used more causal words in spontaneously describing their day, suggesting a greater concern with imposing causal coherence on the separate elements of their recent experience. In Study 5, high-PNS participants primed with death perceived more meaningful connections between past events and their current sense of self, suggesting a heightened concern with establishing continuity between their personal past and present.

These studies utilized diverse control topics and diverse methods for assessing people's conceptions of various types of self-knowledge, including narrative accounts, personal characteristics, trait groupings, elements of daily experience, and episodic memories over the life-span. Despite this variety of approaches, a consistent theme emerges that transcends particular operations. Taken together, the findings suggest that increasing the salience of personal mortality heightens motivation to conceptually clarify and integrate the characteristics that constitute one's personality, and to piece together the episodes that make up one's experience over time into a coherent and temporally continuous whole, particularly for those chronically disposed to seek structured knowledge. As such, these results provide converging evidence for the current claim that seeking and maintaining structural organization in the self-concept can serve to protect individuals against the threatening awareness of death's inevitability. In addition to extending TMT research beyond a focus on self-esteem, these studies contribute to research on the self by demonstrating how distal psychological motivations – in this case terror management needs – can significantly shape people's efforts to understand who they are.

Distinguishing self-structuring from self-enhancement

Prior TMT research focuses on how MS increases concern with bolstering and protecting self-worth; here, we extend this research

⁷ The findings of this study were also replicated using the intense physical pain control condition used in Studies 1–3. Details available from the first author upon request.

with the first systematic examination of the role of terror management motivation in people's epistemic tendencies to structure the contents of their self-concept, in particular by clarifying and organizing self-relevant knowledge. To accomplish this we relied on the unique effects of PNS as well as diverse measures designed to assess self-concept structuring independent of self-enhancement.

Separate lines of prior research showed that MS leads most people to self-enhance (Pyszczynski et al., 2004), whereas MS leads high-PNS individuals in particular to seek out epistemic structure (e.g., Landau, Johns, et al., 2004). The present studies are the first to simultaneously assess the interactive effect of MS and PNS on tendencies toward self-enhancement and self-structure. Supporting the specificity of self-structuring, we consistently found that high, but not low, PNS individuals responded to MS with heightened tendencies toward self-concept structure, but this individual difference did not moderate self-enhancing effects.

Indeed, under MS participants described their lives (Study 1) and their days (Study 4) in more positive ways, and meaningfully connected more positive memories to the self (Study 5). To the extent that such judgments of the self over time offer a forum for self-enhancing biases (see e.g., Wilson & Ross, 2001), these findings are consistent with prior findings that MS increases self-enhancement, while extending these findings to open-ended accounts of personal experience and perceptions of past events. More importantly for our current purposes, in no study was there any hint that MS effects on these self-enhancing tendencies were moderated by PNS. Furthermore, in all studies we ran our self-concept structuring analyses with the self-enhancement measures as covariates and the pattern of significant effects remained unaltered. These analyses provide evidence that the present studies are not primarily capturing self-enhancement motives, but rather, highlight how a particular type of defense is beneficial for individuals who appear to derive security from epistemic structure. It would appear that, after MS, people generally seek to enhance self-esteem, but only people high in PNS seek to bolster self-coherence and structure.

On the responses of those low in PNS

As mentioned, people low in PNS did not respond to MS with heightened desire for self-structuring. How do low-PNS people cope with the threat of death, if not by pursuing simpler epistemic conceptions of themselves and their social environments? One possibility is that low-PNS individuals derive a sense of meaning in life from exploring alternative and novel interpretations of the world and themselves. Recent research supports this possibility. Vess, Routledge, Landau, and Arndt (in press) found that after reminders of death, individuals low, but not high, in PNS were more inclined to explore novel information, and that doing so served to increase self-reported meaning in life after MS. These findings suggest that low-PNS individuals respond to existential threat by using more open epistemic strategies to imbue life with meaning.

Why then did we not see more consistent efforts for those low in PNS to avoid self-structure after MS in the present studies? There are at least two possibilities. It may be that the dependent measures used in these studies do not lend themselves to the kind of epistemic exploration that is preferred by low-PNS individuals under MS. In addition, it may be that such individuals, as defined by their objective scores on the PNS scale, are not sufficiently low in preferences for structure to manifest such reactions. Indeed, one standard deviation below the mean in the current studies results in a range of scores between 30.40 and 32.9 (on a scale that ranges from 12 to 72). While considerably lower than those at one standard deviation above the mean, such a score is more reflective of a lack of need for structure, rather than an active desire for ambiguity and novelty. Consistent with this speculation,

when low-PNS individuals are defined as those at 2 SD below the mean, they tend to show stronger avoidance of self-concept structuring, suggesting that they may manage mortality concerns by viewing themselves in more nuanced and complex ways. However, as the current studies were specifically designed to test how PNS relates to seeking structure, they did not allow for a careful consideration of the distinct types of defense tactics low-PNS people may utilize. Future work is needed to more fully explore these and other possibilities.

Limitations and theoretical issues

Alternative explanations of MS

Across the current studies, death reminders were demonstrated to have specific effects not observed in conditions priming more general aversiveness (Studies 1–3) and personal uncertainty (Study 4). In addition, Study 5 compared MS to making salient worries about post-graduation life to further control for thinking about non-hypothetical future events that are aversive, uncertain, and highly personal. Although concerns about uncertainty and other topics may heighten a subset of defensive reactions under certain circumstances (e.g., van den Bos, Poortvliet, Maas, Miedema, & van den Ham, 2005), key to the present discussion is the fact that the security conferred by self-concept structuring was uniquely sought in response to death thoughts.

It is possible, however, that these effects are due to factors other than making mortality salient. One alternative explanation is that death is a more personally engaging topic than the control topics, and writing about it primed participants to be more thoughtful in describing themselves.⁸ This explanation, while plausible, has difficulty accounting for a large body of evidence that MS leads people to cling onto familiar knowledge structures (e.g., simple stereotypes; salient norms) rather than think deeply or carefully about social information (see Greenberg et al., 2008 for review). And in the current studies, our measures of seeking self-structure do not appear to tap generally thoughtful self-reflections. In Study 2, for example, high self-clarity was measured as describing the self at the extremes of bipolar trait continua (Campbell, 1990), whereas a more thoughtful response would likely result in less extreme, more complex descriptions (“Sometimes I’m cooperative, but I can also be competitive”). In Study 3, we would similarly expect individuals seeking integrative coherence in their personal characteristics to organize them in simple ways, whereas those led to be thoughtful would likely distribute them into many distinct self-aspects. Indeed, Margolin and Niedenthal (2000) found that situational pressure to efficiently portray oneself to others (a context that presumably precludes deep self-reflections) led participants to view themselves more simply – precisely what morality salient high-PNS participants did here. To empirically assess this explanation, we tested whether MS led participants in Studies 1 and 4 to write longer autobiographies and accounts of recent experience, and to use more complex grammar, which would seem to index more engaged self-reflections. In neither study did we observe significant effects involving MS or PNS on any of these variables (all $ps > .34$).

In addition, the future uncertainty induction used in Study 5 was designed largely to control for the salience of personally significant events. We expected that writing about the fate of one's career and close relationships after graduation would be more engaging than writing about shelving books, and yet participants in this condition were no more likely than neutral control participants to draw meaningful connections between past events and the current self.

⁸ We thank an anonymous reviewer for pointing out this and other possible limitations of the current research.

This explanation also has difficulty explaining why MS effects on self-structuring were consistently moderated by variations in PNS. PNS represents a dispositional tendency to rely on preexisting knowledge structures and form clear and simple interpretations of social information. Indeed, the PNS construct (along with the closely akin construct of need for closure; NFC) was developed as a dispositional analogue to situational variations in people's desire to close in on a conclusion that reduces ambiguity and confusion (Kruglanski, 2004). Accordingly, both PNS and NFC are negatively correlated with need for cognition (Thompson et al., 2001; Webster & Kruglanski, 1994) and are positively related to stereotyping (Kruglanski & Freund, 1983; Neuberg & Newsom, 1993), the formation of spontaneous inferences based on traits (Moskowitz, 1993), and the assimilation of social judgments to accessible constructs (Ford & Kruglanski, 1995; Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994).

Furthermore, TMT research shows that, among high-PNS participants, MS increases diverse tendencies to assimilate information into existing knowledge structures rather than entertain novel or ambiguous interpretations, as evidenced by the tendencies to derogate counter-stereotypic (Schimel et al., 1999) and behaviorally inconsistent targets (Landau, Johns, et al., 2004), seek out information consistent with the preexisting belief that the world is a just place (Landau, Johns, et al., 2004), and disparage artwork devoid of clear and easily interpretable meaning (Landau, Greenberg, et al., 2006). Taken as a whole, these findings seriously call into question the possibility that MS led high-PNS participants to engage in more thoughtful or "deep" reflections on their personal characteristics and experiences.

Alternative explanations for PNS

Another noteworthy alternative explanation for the current findings is that MS instigates self-structuring tendencies regardless of variations in PNS, but mortality was particularly salient among high-PNS participants. That is, perhaps high-PNS individuals are not especially motivated for structured knowledge but, rather, took the MS manipulation more seriously and were more absorbed in writing about their death than their low-PNS counterparts. Although plausible, this explanation would lead one to hypothesize that PNS would moderate MS effects on self-enhancement as well as self-structuring, and yet in three of the four available tests of this hypothesis we found that MS increased self-enhancement equally among high- and low-PNS participants. We further assessed this explanation by testing whether PNS correlates with the length of participants' responses to the open-ended questions about death (and control topics). We analyzed three separate data sets (collected over a 2 year span; *Ns* ranged from 63 to 139) for which we had computer-coded responses to the same open-ended questions about death used in the current studies as well as responses to parallel questions about shelving books, social exclusion, and uncertain bouts of intense physical pain. Contrary to the possibility that high-PNS participants are simply more absorbed in writing about death, we found no significant correlations between PNS and the length of participants' responses to any of the open-ended questions (*rs* ranged from .09 to .13, *ps* > .44).

Alternative explanations for self-structuring measures

The current studies utilized converging operationalizations of self-structure, which we understand as the manner in which elements of the self-concept are defined and conceptually related to one another (a definition that overlaps considerably with prior work, e.g., Allport, 1955; Campbell et al., 2003; Showers & Zeigler-Hill, 2003). As discussed throughout this article, we took multiple efforts to conceptually and empirically distinguish self-structuring tendencies from tendencies toward self-enhancement. It remains possible, however, that these diverse dependent mea-

asures share something else in common other than self-structure. For example, seeking self-structure may be confounded with generally high levels of self-focused attention. Contrary to this possibility, though, we found no evidence that MS, PNS, or their interaction influenced the use of first person pronouns, a validated measure of self-focused attention (Exner, 1973; Pennebaker et al., 2003), in open-ended accounts of one's life (Study 1) and daily experience (Study 4).

Self-structure's significance in the context of TMT

As mentioned, multiple studies show that high, but not low, PNS individuals seek and defend clear knowledge structures in response to mortality reminders (Dechesne, Janssen, & van Knippenberg, 2000; Landau, Goldenberg, et al., 2006; Landau, Johns, et al., 2004; Schimel et al., 1999). From a terror management perspective, high-PNS individuals protect themselves against mortality awareness by investing in simple, consistent, and unambiguous interpretations of reality that help sustain their perception that they live in an ordered world in which people and nature can be related to with confidence, and in which they can reliably establish a sense of lasting significance. Low-PNS individuals, in contrast, are more tolerant of ambiguity and novelty, and in some cases actively seek out novel experiences and interpretations of the world as a means of lending life meaning (Vess et al., *in press*). While prior research has tested this analysis in the context of people's conceptions of other people, groups, and events in the external social world, the present research examines whether high-PNS individuals are similarly motivated to seek out structured conceptions of themselves – their own characteristics and experiences – as a basis of terror-assuaging meaning.

This raises the question: will MS lead people to reinforce any valued aspect of the self? We would indeed expect MS to increase people's tendencies to affirm any valued source of meaning and personal value. It is important to note, however, that MS does not simply exaggerate any personal preference. For example, in the first set of studies supporting TMT, Rosenblatt et al. (1989, Study 4) demonstrated that while MS did affect the worldview-relevant decision to punish a moral transgressor, it did not affect evaluations of mundane positive and negative events. Indeed, in a substantial number of studies, MS has been shown to both create preferences not evinced in control conditions (e.g., Greenberg, Kosloff, Solomon, Cohen, & Landau, *in press*; Jonas, Fritzsche, & Greenberg, 2005; Landau, Goldenberg, et al., 2006) and actually reverse personal preferences observed in control conditions when doing so bolsters beliefs that offer protection from death-related cognition (e.g., Arndt, Greenberg, Schimel, Pyszczynski, & Solomon, 2002; Cohen, Solomon, Maxfield, Pyszczynski, & Greenberg, 2004; Goldenberg, Pyszczynski, McCoy, Greenberg, & Solomon, 1999; Greenberg, Schimel, Martens, Pyszczynski, & Solomon, 2001; Greenberg et al., 1990; Landau, Solomon, et al., 2004; Schimel et al., 1999). For example, Schimel et al. (1999, Study 3) found that while control-primed White participants showed a significant preference for a stereotype-disconfirming Black target, MS-primed White participants went against this normative preference to affirm cultural stereotypes. Thus, MS clearly does not simply amplify people's pre-existing personal preferences.

Furthermore, in the present studies, MS is changing the way the individual views something very basic—the structure of the self. Self-structure is a global characteristic of the self-concept, rather than an isolated aspect such as one's valuing of the Grateful Dead over Pink Floyd. Various influential perspectives on the self posit that the self-concept is composed of a structural dimension and an evaluative dimension (see further discussion in Campbell et al., 2003; Showers & Zeigler-Hill, 2003). While a host of TMT studies have already investigated the relation between death awareness and evaluation of the self, the present studies represent

the first systematic look at the terror management function of seeking clear definition and integrative coherence in the structure of the self-concept.

Also, a large body of evidence suggests that integrative coherence and unity in the self-concept carries positive physical and mental health consequences. For example, reconstructing ongoing experience in more causally coherent ways – what mortality salient high-PNS participants did in Study 4 – promotes psychological and even physical well-being (Pennebaker et al., 2003). Other lines of evidence show that a clearly defined and integrated self-concept is associated with global emotional adjustment, including less neuroticism and higher self-esteem (Campbell et al., 2003; Donahue et al., 1993). From a TMT perspective, these findings suggest that for individuals disposed to prefer structured knowledge, seeking integrative coherence in their personality and experiences over time helps in the management of mortality concerns in ways that may carry significant repercussions for health and well-being. In short, although we would expect MS to increase affirmation of more specific valued self-aspects, we believe our focus on self-structure makes a uniquely important contribution to our understanding of the self. Self-concept structure is a global characteristic of the self that influences how people conceptualize and act upon a wide range of more specific self-aspects, and the manner in which people structure their self-concept has repercussions for well-being and overall functioning.

Conclusions

The present research shows that the management of mortality concerns plays a significant role in the structuring of self-knowledge in well-defined, contextually unified, and temporally coherent ways among those chronically disposed to structured knowledge. Diverse strategies for self-concept structuring are apparently united by a common distal motive: defending against threatening mortality concerns in individuals largely dependent on epistemic structure. Thus, in addition to serving multiple practical and psychological functions, self-concept structure and a well-integrated identity can, for some, provide a significant resource in the face of knowledge of the transience of mortal existence.

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