

Effects of Existential Anxiety and Self-Esteem on the Perception of Others

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Previous research has demonstrated that when people are led to think about death they later exhibit more polarized judgments of ingroup and outgroup members. This reaction has been interpreted as an attempt to defend against existential anxiety by seeing oneself as a secure member of a meaning-conveying cultural group. This study examined the moderating influence of self-esteem and found that the polarization effect in response to mortality primes was most pronounced for high self-esteem individuals. An additional manipulation of meaninglessness-anxiety was unsuccessful in producing polarization, lending support to the theoretical centrality of death concerns. We discuss the relevance of these findings to terror management theory (Solomon, Greenberg, & Pyszczynski, 1991).

In general, people tend to like similar, socially desirable others and dislike others who are deviant, who are members of outgroups, or who express dissimilar attitudes (e.g., Byrne, 1971; Rokeach, 1968; Schachter, 1951; Tajfel & Turner, 1986). This principle is well studied and well supported by research. However, there remain significant questions about the conditions under which this effect is most likely to occur and the kinds of people who are most likely to show bias under various conditions. One critical question involves motivational influences: Do people show a bias toward similar, socially desirable, ingroup members as a way of bolstering their own sense of self, to validate a shared view of the world, or perhaps for some other defensive reasons?

One ambitious effort to delineate these motivational factors can be found in terror management theory (see Greenberg, Pyszczynski, & Solomon, 1986; and

Solomon, Greenberg, & Pyszczynski, 1991, for a full exposition of the model). Consistent with many analyses, this model begins with the proposition that we respond negatively to certain others because of a sense that these people threaten our worldview. That is, we learn how to make sense of the world from our culture and language, mediated through social interaction. When unsure about how to interpret or react to some stimulus, we try to establish consensus on the nature of reality by turning to others for guidance and social comparison. If a given individual transgresses social norms, or belongs to an outgroup with a different view, or in some other way maintains a perspective that threatens the consensus view, this threatens our confidence that our own consensual worldview is correct, and so we react negatively to them (see, e.g., Schachter, 1951).

Terror management theory extends this analysis by positing that the motivation to maintain a socially supported worldview is largely based in efforts to reduce intense anxieties that arise from our uniquely human cognitive capabilities. Very briefly, because of our capacity for self-awareness and our ability to think about the future, we are able to contemplate the inevitability of death. Contemplation of our own, potentially imminent, death is assumed to elicit terror, the emotional manifestation of the instinct for self-preservation. To cope with this terror, which would be debilitating to experience on an ongoing basis, we seek to establish a two-part anxiety buffer through which we embed ourselves in a consensual social reality. The function of the first element in the anxiety buffer, a cultural worldview, is to provide the promise of immortality—either literally, as is the case with many religious worldviews, or symbolically, by allowing one to locate one's existence and products (e.g., work, children) in a culture that continues into the future and therefore transcends death. As long as one is securely located in the culture, one will to some extent be buffered from death anxiety. The second element in the cultural anxiety buffer is self-esteem. Self-esteem is seen as the belief that one is a valued and approved member of the culture, and therefore that one has a secure claim on the immortality promised by the cultural worldview. Thus, if one feels oneself to be a valued member of a culture, one will be buffered against the intense anxiety arising from the awareness of mortality. Consequently, the desire for self-esteem, the desire for a consensual cultural worldview, and the tendency to reject people or information that threaten either, derive from the motivation to reduce death anxiety.

These ideas are drawn from the writings of some of the most profound psychological thinkers of our time, including Becker (1964, 1973, 1975), Rank (1936, 1941/1958), Berger and Luckmann (1967), and Freud (e.g., 1921/1965), who in turn drew on writers from philosophy and other disciplines (e.g., Heidegger, 1927/1962; Kierkegaard, 1844/1944). The main contribution of the terror management group so far has been to distill from the rich and somewhat disparate ideas of these psychoanalytic and existentially oriented thinkers a testable social-psychological model and to proceed to examine this model in a number of different contexts

using a variety of methods. In most of their studies they have used a simple priming technique to remind participants of their mortality. This *mortality salience* prime asks participants to spend a few minutes thinking about and responding to two simple open-ended statements: "Please briefly describe the emotions that the thought of your own death arouses in you" and "Jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead." Participants who complete this short questionnaire are compared with control participants who either fill out parallel questionnaires regarding mundane activities such as eating or watching television, or else do not undergo any manipulation.

The primary dependent measure of interest in most previous studies involved reactions to others who either upheld the cultural worldview or else threatened it in some way (Greenberg et al., 1990; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). The reasoning is that people who recently have been reminded of their mortality will be especially motivated to reinforce their social identity by defending their cultural worldview against possible threats from outgroup members, deviates, and those who would question the consensus. Consistent with this reasoning, over a dozen studies have shown that in the mortality salience condition, people are more likely to reject and punish those who disagree with a predominant cultural worldview (e.g., those who express anti-American views), who violate predominant cultural values (e.g., prostitutes), or who are members of outgroups (e.g., Jews, to Christians). Conversely, they tend to like and reward people who agree with the predominant worldview (e.g., those who express pro-American views), uphold cultural values (e.g., citizens who heroically assist in capturing a violent criminal), or are members of the participant's own ingroup (e.g., Christians, to Christians). Thus, mortality salience manipulations tend to elicit polarized judgments of ingroup and outgroup members.

THE MODERATING EFFECTS OF SELF-ESTEEM

Our research was designed to examine two aspects of the terror management analysis of outgroup derogation.¹ First, even though self-esteem is postulated as a key element in the defense, there is as yet no research in the literature directly investigating self-esteem's moderating influence on the mortality salience-judgment-polarization effect. The self-esteem component of the cultural anxiety-buffer was examined recently in studies using a paradigm other than the outgroup-dero-

¹ For the sake of convenience, we will use the term *outgroup derogation* to refer to derogation of outgroup members, people who disagree with the ingroup's worldview, and also people who deviate from the norms of the ingroup.

gation methodology (Greenberg, Solomon, et al., 1992). As the model would predict, participants who were given a boost in self-esteem, via bogus personality feedback, showed less anxiety on self-report and psychophysiological measures when later exposed to death-related material. These studies showed that self-esteem could moderate the conscious experience of anxiety, but the logical extension to effects on outgroup derogation has not yet been examined. Interactions of the mortality salience effect with individual-difference variables other than self-esteem have been reported in some studies, showing that highly authoritarian (Greenberg et al., 1990) and conservative (Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992) individuals are particularly likely to react to mortality salience by derogating outgroup members. We reasoned, based on the model, that level of chronic self-esteem should moderate the effect as well.

It is less clear from the model, however, exactly what the moderating effect of self-esteem should be. There are at least two predictions. First, there already is other evidence to suggest that low self-esteem individuals are, under normal conditions, more likely than high self-esteem individuals to derogate outgroup members (see Ehrlich, 1973, for a review; but see Crocker & Schwartz, 1985). From the terror management perspective, having low self-esteem reflects insecurities about one's place in the culture as well as, perhaps, about the veracity of the cultural worldview itself (Becker 1973; Solomon et al., 1991), and so low self-esteem individuals are motivated to try to bolster the worldview and their own cultural value by rejecting and disparaging those who disagree with or threaten the worldview. High self-esteem individuals, on the other hand, are securely located in a strongly held worldview and so normally do not need to react strongly to every minimal threat.

What about under mortality salience conditions, however? One could speculate that existential anxiety might lead low self-esteem individuals to polarize their judgments even more, in an attempt to shore up the worldview aspect of their already faltering anxiety buffer. High self-esteem individuals, who presumably have more anxiety-buffering resources at their disposal, still might not need to resort to derogating outgroup members (see Steele, Spencer, & Lynch, 1993, for a similar analysis of how self-esteem moderates dissonance reduction effects).

An alternative hypothesis, however, would involve exactly the opposite prediction. That is, mortality salience actually might have a greater effect on high self-esteem participants, who would feel jolted out of their usual sense of equanimity and called to defend their ingroup's consensual worldview by rejecting those who threaten it (Solomon et al., 1991). Some research (e.g., Crocker, Thompson, McGraw, & Ingerman, 1987) showed that it is high self-esteem participants who, when subjected to a threat to the self-concept, respond the most strongly by favoring the ingroup over the outgroup. These results are consistent with the general finding that, whereas high self-esteem individuals are able to marshal defenses in response to various threats, low self-esteem individuals often are not (e.g., Taylor & Brown, 1988). Thus, a case could be made for either prediction for how self-esteem would

moderate the effect of existential-anxiety primes in producing ingroup-outgroup polarization. We premeasured participants' level of self-esteem, therefore, to test between the two opposing predictions.

DEATH VERSUS MEANINGLESSNESS CONCERNS

The second issue we wished to address was the nature of the existential anxiety that is assumed to be at work in the terror management studies, and in people's personalities and social behavior more generally. The evidence from these studies is convincing that people exhibit more polarized judgments after the existential prime. It is also compelling that this effect is due to specifically *existential* concerns because the effects are not produced by comparable manipulations of alternative states such as test anxiety (Greenberg et al., in press) or self-awareness (Rosenblatt et al., 1989). In developing and testing their model, the terror management group elected to adopt Becker's (1973) assumption that death is the "basic anxiety" (p. 15) underlying their effects.

One could challenge the interpretation that the existential anxiety in question is necessarily death or annihilation anxiety. For example, even a cursory examination of the existential literature reveals that many writers disagree that all existential concerns can be reduced to a terror of death or annihilation. Many writers see anxiety about death as just one (albeit an important one) of two or more basic existential concerns (see Yalom, 1980, for an integration). Most existential writers emphasize the issue of freedom, for example, and the anxiety and potential guilt produced by having to make choices in a universe of no apparent absolutes (e.g., Fromm, 1941; Sartre, 1943/1956; Tillich, 1952). Some stress the isolation that comes from perceiving oneself as a separate object in the universe, alienated from others and the rest of reality (e.g., Buber, 1923/1958; Fromm, 1956). Many others stress the anxiety resulting from an experience of the world as absurd, senseless, or meaningless (e.g., Berger, 1967; Camus, 1955; Frankl, 1967; Laing, 1967; Tillich, 1952). As Laing (1967) put it, "We are afraid to approach the fathomless and bottomless groundlessness of everything" (p. 33). Even Becker (1973) recognized these other forms of existential anxiety and discussed them under the rubric of "fear of life" as opposed to "fear of death" (pp. 50-53).

We were interested in forms of existential anxiety other than annihilation anxiety, and especially the issue of meaninglessness and absurdity. One could, of course, interpret these concerns as derivatives or elements of death anxiety; that is, from the terror management perspective, the loss of a sensible worldview takes away the promise of immortality and brings one face to face with death. It also seems plausible, however, that the desire for a coherent, meaningful world reflects a basic epistemic need that is independent of death anxiety. As Yalom (1980) suggested, "If we were able to live forever, we would still be concerned about

meaning" (p. 11). Although the terms used by existential writers are not common currency in scientific psychological analyses, these notions bear more than just a passing resemblance to issues that have intrigued social and personality psychologists for decades. It has long been proposed, for example, that people have a "need for structure" (Kruglanski & Freund, 1983, p. 450) that leads them to try to maintain a stable, coherent worldview. If that worldview is threatened by inconsistent information, people are assumed to feel some kind of tension and discomfort, and to be motivated to restore consistency. These ideas are of course the basis of Festinger's (1957) original theory of cognitive dissonance, as well as other cognitive consistency models that preceded or followed it (e.g., Abelson et al., 1968; Lecky, 1945). The human desire for purpose and meaning also has been the topic of much social psychological research, recently reviewed by Baumeister (1991).

We do not mean to suggest that the distinction between death concerns and meaninglessness concerns is a simple one. Lifton (1976) proposed that the fear of death includes, at its core, a sense of the dissolution or disintegration of the meanings by which one structures one's life. Sartre (1943/1956) even reversed the issue, by implying that death is upsetting only because it provides such clear evidence of the absurdity of life (p. 699). To some extent this discussion may amount to hairsplitting, as most experiences of existential anxiety probably involve a confluence of concerns (Lifton, 1976; Tillich, 1952), as reflected in Tolstoy's (1882) question, "Is there any meaning in my life that the inevitable death awaiting me does not destroy?" (p. 24). It may be possible to discriminate the two concerns, however, and this would serve to refine and specify the terror management model more fully.

Indeed, we suggest that the mortality salience manipulation typically used in this research probably primes both types of concerns. It obviously primes the issue of mortality, but the questions about "what you think will happen to you as you physically die and once you are physically dead" also may draw attention to the strangeness of death and the fact that death, like other aspects of life, is a mysterious, absurd phenomenon. For this reason we designed new primes to try to disentangle issues of mortality from issues of absurdity and ambiguity.

One of the primes (the death-meaninglessness condition) was designed to mimic the typical terror management mortality salience prime by activating thoughts of death while raising issues of absurdity and meaninglessness as well. A second (the death condition) was also to prime death, but play down its strangeness and instead portray death as a straightforward, natural phenomenon. Finally, the third prime (the meaninglessness condition) was intended to raise issues of absurdity and meaninglessness, with no explicit mention of death. As with the self-esteem hypotheses, we wished to test between two rival predictions: If death is the primary concern driving the terror management effects, both of the death salience conditions should show priming effects, whereas the meaninglessness condition should not. If, on the other hand, absurdity and meaninglessness are the existential concerns

producing the effects, then priming should occur in the meaninglessness and death-meaninglessness conditions, but not in the death condition in which death is presented as a sensible, understandable event.

In designing the primes, we considered patterning them on the typical mortality salience prime and asking people, for example, to "tell us what seems meaningless or ambiguous about life." We suspected, however, that this might be difficult for participants and so ultimately would be ineffective. As many existential writers (e.g., Camus, 1947/1948; Sartre, 1938/1959) have demonstrated, one extremely effective method of accessing these concerns is through narrative passages and the phenomenological reports of others. We decided, therefore, to create primes that involved reading about another person's thoughts regarding death and meaninglessness.

OVERVIEW

In the study, participants first filled out a self-esteem premeasure that allowed us to identify high and low self-esteem individuals. There were then four conditions to the experiment, designed to prime different aspects of death and absurdity. In the death-meaninglessness condition, participants read a short passage about death that emphasized the strangeness of ceasing to exist. In the death condition, they read a passage about death in which it was portrayed as a very sensible, understandable part of life. In the meaninglessness condition, the passage emphasized the absurdity of life, without including any mention of death. In the control condition, participants did not read any written passage. Then, all participants read descriptions of stimulus persons who might be perceived as either upholding or threatening the cultural worldview. The primary dependent measures assessed the polarization of their judgments of these ingroup and outgroup members.

METHOD

Participants

Eighty-eight introductory psychology students from the University of Winnipeg participated in the study voluntarily for course credit. Data from 2 participants were discarded due to a failure to follow instructions, leaving 39 male and 47 female participants in the final sample. Their ages ranged from 18 to 52 years ($M = 21.22$).

Procedure

Participants were run in sessions of 1 to 4 participants. They were told the experiment involved forming first impressions. They were each given a packet of materials and allowed to work at their own pace. The experimenter was blind to the condition each participant was in and, because all instructions were included in the

packet, there was no further contact between participant and experimenter until the completion of the study. At that time they were debriefed individually, and the study was explained fully to them.

Materials

The first component of the packet of materials was Watson, Clark, and Tellegen's (1988) Positive and Negative Affect Schedule (PANAS). This measure asks participants to indicate on 5-point scales their present mood across 10 positive affect items (e.g., happy, enthusiastic) and 10 negative affect items (e.g., distressed, upset), and yields separate total scores for positive and negative affects. Next, participants completed the Rosenberg (1965) self-esteem scale, the measure used in previous terror management research (e.g., Greenberg, Solomon, et al., 1992) to assess individuals' level of self-esteem.

These premeasures were followed by the experimental manipulation. Participants either received one of the salience manipulations or, if they were in the control condition, simply proceeded to the next set of materials. There were three salience manipulations, each consisting of a paragraph supposedly written by another student (see Appendix for the complete text of the salience manipulations). The paragraph was accompanied by the following instructions:

When we read what someone has written, or listen to them speak, certain things they say may seem particularly well expressed, or may stick in our minds better than other statements.

The paragraph below was written by another student to describe a certain thought, issue, or life experience.

1) Read the paragraph, and consider carefully the ideas expressed. As you read over the paragraph, try to notice any thoughts in it that catch your attention or seem to fit with any thoughts or feelings you have had.

2) After you have read the paragraph once, look it over again to identify a few ideas that are expressed particularly well or that stick in your mind. In the space provided below it, write down the thoughts or ideas from the paragraph that most caught your attention.

In the death-meaninglessness condition, the paragraph was based largely on ideas taken from Becker's (1973) *The Denial of Death*, in which he discussed the questions and conflicts raised by a consideration of one's own mortality (e.g., part of the passage read, "I try to imagine the situation of my own death and I wonder what it means to die. You live your life, then your body decays and you become nothing"). This manipulation was designed to capture the thoughts and feelings that may be primed by the mortality salience manipulation used in terror management research. In the death condition, the paragraph was written to try to play down the confusing aspects of death and instead depict death as a systematic, orderly process that is a

natural part of life (e.g., "We are beings with limited life spans who go through a cycle of life and death. At the final moment of death a structured process of ending the life of the individual takes place"). Finally, in the meaninglessness condition, the paragraph was based on ideas from the works of a number of existentially oriented writers (e.g., Camus, 1955; Fromm, 1962; Kierkegaard, 1844/1944; Tillich, 1952; Yalom, 1980) that stress the ambiguity and potential meaninglessness of life, without any direct allusion to death (e.g., "I try to find some sense and meaning in reality to answer why I'm here but I just come up blank").

These three paragraphs were rated by 12 undergraduate pilot participants (6 women and 6 men, mean age = 19.92 years) on 5-point scales for the extent to which they brought up the two general categories of existential concerns. For the issue of meaninglessness, the means were as follows: death condition, $M = 1.83$; death-meaninglessness condition, $M = 3.25$; meaninglessness condition, $M = 4.50$; $F(2, 22) = 35.39, p < .001$. For the issue of death, the means were: death condition, $M = 4.75$; death-meaninglessness condition, $M = 4.42$; meaninglessness condition, $M = 1.42$; $F(2, 22) = 91.00, p < .001$. These ratings confirm that the manipulation paragraphs were generally successful in raising the desired concerns, particularly the concern of meaning in the meaninglessness condition and the concern of death in the two death conditions.

The next element in the questionnaire was a postmanipulation assessment of mood, again using the PANAS (Watson et al., 1988). Previous research with mortality salience manipulations typically has not shown effects on self-reported mood when measured after the manipulation, and it seemed advisable to assess this for our novel manipulations as well. Participants were informed that it was necessary to have a measure of their mood at each stage of the study.

Participants then were asked to read some short descriptions of different people and to give their first impressions of them. The next several pages consisted of a series of short characterizations, each followed by the six-item Interpersonal Judgment Scale (Byrne, 1971) used in previous terror management research to assess liking and evaluations of a target person on various dimensions (the person's apparent morality, intelligence, knowledge of current events, likability, and likability as a potential coworker; each rated on a 9-point scale ranging from 1 (*below average*) to 9 (*above average*)).

Six target persons were described, representing one positive and one negative person in each of three domains. The three domains were selected by adapting the reasoning of previous research to the context and concerns of our particular student sample. Some terror management studies (e.g., Greenberg et al., 1990) have shown that mortality salience leads people to make more polarized judgments of ingroup and outgroup members, such as persons speaking in favor of or against the American system of government. These particular target persons obviously would have been inappropriate for our Canadian participants. Our ingroup person was instead someone who spoke in favor of Canada pulling together and working out

its sometimes entrenched political problems. Our outgroup person was (ironically perhaps) a visitor from the United States who complained about the high prices in Canada and proclaimed that if Canada would only adopt some American political and economic ideas it might be much better off.

In a second domain, the two target persons were defined with reference to their attitudes about the University of Winnipeg, an issue that was especially relevant in light of a recent, highly publicized magazine article about the quality of Canadian universities, which ranked the University of Winnipeg below the larger institutions across the country. Both target persons were students at the university, but whereas one sang its praises as a small, intimate place to learn, the other declared the teaching staff inadequate and expressed agreement with the magazine article's criticisms.

Finally, Rosenblatt et al. (1989) found that people reacted more positively to a social hero (a woman who turned in a mugger) and more negatively to a moral transgressor (a prostitute) after a mortality salience manipulation. Our social hero was a person who saved the life of a child who had fallen through a patch of thin ice into freezing water. Our social transgressor was a person who had pushed someone down a flight of stairs during a fracas at a party and was under a restraining order. The six characterizations were randomly ordered, and the order was reversed for half the sample. For all six target persons, the names and pronouns used corresponded to the same sex as the participant.

RESULTS

Liking Ratings

For each participant, a liking score was computed for each target person by summing the six questions from the Interpersonal Judgment Scale. Participants were identified as low or high self-esteem on the basis of their premeasured scores on the Rosenberg (1965) self-esteem scale, following a median-split procedure.

Conceptually, the design of the study was a 2×2 factorial in which the presence versus absence of death concerns was crossed with the presence versus absence of meaninglessness concerns. Therefore, the liking scores for the six target persons were analyzed with a repeated measures ANOVA, with death concerns (presence vs. absence), meaninglessness concerns (presence vs. absence), and self-esteem (low vs. high) as between-subjects factors, and domain and valence of target as within-subjects factors.² Not surprisingly, there was a highly significant main effect

²Preliminary analyses including sex as a factor yielded a significant effect for sex, with men giving significantly lower liking ratings overall than women. There was also an interaction effect indicating that women gave particularly negative ratings of the aggressive target person. Sex did not interact significantly with the effects of the experimental conditions, however, so it is not discussed further.

for valence of target, $F(1, 78) = 243.86, p < .001$, confirming that participants liked the positive targets, $M = 40.33$, better than the negative targets, $M = 27.85$. There also was an effect for domain, $F(2, 156) = 7.98, p < .001$. These effects are best interpreted in light of a significant domain by valence of target interaction, $F(2, 156) = 15.71, p < .001$ (see Table 1). As shown in Table 1, although participants discriminated between positive and negative targets in all domains, they reported the most polarized judgments in the social-moral domain (i.e., the hero vs. the villain), followed by the national domain (the pro-Canadian vs. the critical American visitor), with the least polarization in the domain of university allegiance (pro- vs. anti-University of Winnipeg). These differences may represent different degrees of ego relevance for the three domains, or they may be simply a function of how strongly the positive and negative characters were depicted. More important, the domain factor did not interact significantly with any other factors, so subsequent analyses could be examined collapsing across domains.

There were no main effects or interactions for the death and meaninglessness factors, either alone or in interaction with valence of target, $F_s < 1.5$. This indicates that, contrary to previous research, the various salience manipulations employed in this study did not produce an increase in overall polarization when compared with the control condition.

When the moderating effects of self-esteem were examined, however, a more interesting pattern was revealed. There still were no effects involving the meaninglessness factor, refuting the hypothesis that concerns about meaning are at the core of the outgroup-derogation effect observed in previous research. There was, however, a significant three-way interaction between self-esteem, death concerns, and valence of target, $F(1, 78) = 7.70, p < .01$ (means are displayed in Table 2), supporting the centrality of mortality salience, moderated by self-esteem. Comparisons within level of self-esteem showed that the death manipulations led high self-esteem participants to give more polarized ratings of the positive and negative targets, $F(1, 82) = 4.79, p < .05$, replicating the basic mortality salience effect. For

TABLE 1
Liking Ratings for Positive and Negative Target Persons by Domain

Target	Domain		
	Social-Moral	National Identity	University Allegiance
Positive	41.42	41.94	37.62
SD	6.04	6.30	6.64
Negative	24.77	29.41	29.36
SD	7.99	8.21	9.30
Polarization	16.65	12.53	8.26

Note. Higher numbers indicate greater liking.

TABLE 2
Liking Ratings for Positive and Negative Target Persons
by Self-Esteem and Absence Versus Presence of Death Concerns

	Death Concerns			
	Absent		Present	
	Low	High	Low	High
Self-esteem <i>n</i>	21	24	23	18
Target				
Positive	40.59	40.36	39.20	41.41
<i>SD</i>	4.84	5.16	5.60	4.23
Negative	25.70	30.44	28.00	26.69
<i>SD</i>	4.16	6.74	5.87	5.03
Polarization	14.89	9.92	11.20	14.72

Note. Higher numbers indicate greater liking.

those with low self-esteem, however, this effect was nearly reversed, as mortality salience actually led to marginally lower levels of polarization, $F(1, 82) = 2.80$, $p = .098$.³

The most direct way to assess the effects of the individual manipulations is to examine the impact of self-esteem in the control condition (where neither death nor meaningfulness concerns were primed), and then examine the interacting influence of the manipulations. In the control condition (see Table 3), low self-esteem individuals tended to give lower target ratings overall, $F(1, 22) = 6.32$, $p < .05$, replicating earlier findings (Crocker & Schwartz, 1985). More relevant to this analysis, low self-esteem participants displayed a significantly greater degree of polarization between positive and negative targets (e.g., Ehrlich, 1973), as reflected in the self-esteem by valence interaction, $F(1, 22) = 4.52$, $p < .05$.

³There was no interaction between the domain factor and the self-esteem by death concerns by valence effect, so it is not entirely appropriate to analyze the domains separately. Exploratory analyses revealed, however, that although the pattern of means in all domains was consistent with the overall findings (i.e., mortality salience led high self-esteem participants to make more polarized judgments and low self-esteem participants to make slightly less polarized judgments), the interaction effect was significant ($p < .01$) only in the domain of national identity, that is, the comparison between the pro-Canadian target person and the American visitor who was critical of aspects of Canada. This may reflect the double-barreled impact of an outgroup member who is explicitly critical of the ingroup. Alternatively, it may be that ratings in the other domains were constrained by floor and ceiling effects, as indicated by the overall Domain \times Valence interaction: The domain of university allegiance may not have been ego-involving enough to provoke a reaction, and the social-moral domain might have elicited a strong reaction in all participants. We do not wish to press this issue given the lack of a significant interaction, but future research should be sensitive to differences between domains of ingroup-outgroup comparisons.

TABLE 3
Liking Ratings for Positive and Negative Target Persons
by Self-Esteem and Experimental Condition

	Control		Meaninglessness		Death		Death/ Meaninglessness	
	Low	High	Low	High	Low	High	Low	High
Self-esteem <i>n</i>	13	11	8	13	12	6	11	12
Target								
Positive	40.54	41.15	40.67	39.69	40.17	42.61	38.15	40.81
<i>SD</i>	5.20	5.15	4.55	5.28	3.20	2.78	7.43	4.79
Negative	26.10	32.67	25.04	28.56	27.42	26.94	28.64	26.56
<i>SD</i>	3.92	5.23	4.72	7.48	4.76	4.78	7.08	5.35
Polarization	14.44	8.48	15.63	11.13	12.75	15.67	9.51	14.25

Note. Higher numbers indicate greater liking.

To determine the specific effects of the three salience manipulations, each of the experimental conditions, in turn, was compared with the control condition. Examining the death-meaninglessness condition, which was designed to parallel the usual mortality salience manipulation, the critical Self-esteem \times Condition \times Valence interaction was significant, $F(1, 43) = 6.92$, $p < .05$, in line with the overall analysis revealing the interaction between self-esteem and death concerns. One experimental question, then, was whether this effect would remain in the death condition, in which mortality was made salient but meaningfulness concerns were played down. When this condition was compared with the control group, the critical interaction remained significant, $F(1, 38) = 4.38$, $p < .05$. Finally, as suggested by the overall analysis, the meaningfulness condition did not differ significantly from the control condition, $F < 1$.⁴

Self-esteem, then, moderated the impact of mortality salience on outgroup derogation. High self-esteem individuals showed the typical terror management effect, reporting more polarized judgments after death primes; low self-esteem individuals showed, if anything, a trend in the opposite direction. Comparisons of the different priming conditions clearly supported the hypothesis that the issue of death was critical to these priming effects: The death-meaninglessness and death

⁴Although they are to some extent redundant with the control-group comparisons reported in the text, one also can examine contrasts between experimental conditions. When comparing the death-meaninglessness condition to the meaningfulness condition, the critical Self-esteem \times Condition \times Valence interaction was nearly significant, $F(1, 40) = 3.56$, $p = .067$, reflecting the impact of death concerns. When comparing the death and death-meaninglessness conditions, this effect was nonsignificant, $F < 1$.

conditions showed similar effects, but the meaninglessness manipulation did not prove at all impactful.⁵

Separate Analyses of Positive and Negative Targets

Because each participant was presented with three positive and three negative target persons, the most appropriate analysis is one that includes all variables, comparing positive and negative targets by including valence as a within-subjects factor. Having already examined the data in this way, it is instructive to look more closely at whether the effects primarily represented differences in how outgroup members are evaluated (e.g., Rosenblatt et al., 1989, Study 1) or how ingroup members are evaluated (e.g., Brewer, 1979; Crocker et al., 1987; Rosenblatt et al., 1989, Study 3). In the control condition, the self-esteem effect primarily represented a greater degree of derogation of outgroup members by low self-esteem individuals, compared to high self-esteem individuals, $F(1, 22) = 12.32, p < .01$, rather than differences in liking for ingroup members, $F < 1$ (see Table 3). The influence of outgroup derogation extended to the higher order interactions as well. Specifically, the critical interaction between self-esteem and death concerns was significant for the negative targets, $F(1, 78) = 6.37, p < .05$, but not for the positive targets, $F < 1.5$ (see Table 2). Thus, the polarization of judgments seems primarily to represent outgroup derogation, rather than ingroup favoritism.⁶

Mood Ratings

Previous terror management studies typically have found no effects of mortality salience primes on mood ratings, supporting the hypothesis that judgment-polarization effects are not simply due to high levels of general arousal or negative affect. In this study, scores were calculated for each participant to represent positive mood and negative mood both before and after the manipulation. These scores were

⁵One could argue that the experimental conditions might be better analyzed as a single factor with four levels, rather than as two factors with two levels each. Conducting the analysis this way does not alter the findings meaningfully: The critical interaction between Experimental Conditions, Self-esteem, and Valence of Target remains significant ($p < .05$), and the focused contrasts of each experimental condition with the Control condition are unchanged.

⁶When considering positive and negative targets separately (collapsing across domains), one can analyze the data using multiple regression techniques, which preserve the full range of self-esteem scores rather than categorizing people as low or high self-esteem. Consistent with the ANOVAs, regression analyses yielded a significant ($p < .05$) Death \times Self-esteem interaction for the negative targets but not for the positive targets.

analyzed in a fashion similar to the liking scores. There were no significant effects either before or after the manipulations. More important, however, when mood ratings (pre and post) were entered as covariates in the overall analysis of liking scores, the critical three-way interaction between self-esteem, death concerns, and valence of target remained significant at $p < .01$.

Assessment of Manipulation Paragraphs

The effectiveness of the manipulations in priming the intended thoughts, which was supported by pilot participants' ratings (mentioned earlier), also can be gauged by turning to the experimental participants' self-reports of which ideas from the paragraphs were the most compelling. In each condition, participants varied greatly on which statements were selected, and most statements were highlighted by at least one participant. There were some key ideas in each paragraph that seemed to stand out, however, and these generally tended to capture the experience that we were trying to induce. In the meaninglessness condition, many focused on the statements "I don't know what it means to live this life" and "I try to find some sense and meaning in reality to answer why I'm here but I just come up blank." In the death-meaninglessness condition, the ideas that stood out were, "I wonder what it means to die" and the comment about "these bones which are going to turn to dirt." In the death condition, which presented death as a straightforward event, many cited the idea that death is "a definite part of a larger cycle." In addition, many participants included impressionistic comments in their response to the manipulation, and others offered comments during debriefing. Some, particularly in the meaninglessness and death-meaninglessness conditions, felt that the person writing the paragraph was morbid, depressed, or confused. Others reported identifying strongly with the writer and felt the person was "intelligent" and "philosophical." Finally, there was some indication that, as was evident from the analysis of the liking measures, the death prime probably made many of the same issues salient as did the death-meaninglessness prime. One participant in particular reported that the death prime left her with a "weird and mysterious feeling because I don't normally try thinking about death."

DISCUSSION

Self-esteem clearly played an important role in people's reactions to ingroup and outgroup members, and to existential-anxiety primes. Under normal conditions (i.e., in the control group), low self-esteem individuals were more polarized than were high self-esteem individuals in their judgments of others, most notably giving lower ratings of outgroup members. From a terror management perspective, high

self-esteem individuals are well buffered from existential concerns, presumably possessing a stable cultural worldview and a sense that they are a valued member of that culture. This two-pillared defense allows them to function with relative equanimity and to express tolerance of people with differing views. Low self-esteem individuals, however, must continuously seek to shore up their tenuous social identity, both by defending the worldview against threats and by derogating people who could be seen as inferior in some way.

We sought to test between two predictions for how mortality salience would affect people of different levels of self-esteem. After a mortality salience prime, would low self-esteem individuals become even more polarized in their judgments, whereas high self-esteem individuals continued to exhibit tolerance, or would the threat of mortality salience cause high self-esteem individuals to mobilize their defenses and derogate outgroup members? The results clearly favored the latter hypothesis. Under conditions of mortality salience, when the inevitability of death had been brought to mind, high self-esteem individuals were seen to defend their worldview against those who might dispute it. They showed the tendency, observed in many previous terror management studies, to make more polarized judgments of others after the mortality salience manipulations.

The alternative prediction was based on the notion that high self-esteem individuals might be adequately buffered from the threat of mortality salience, allowing them to maintain their equanimity and acceptance of outgroup members. The results did not support this hypothesis. Rather, in the terms of Greenberg et al. (1986; also Solomon et al., 1991), high self-esteem individuals in the mortality salience conditions moved from a position of "general maintenance" of their cultural anxiety-buffer, to one of actively defending it. This finding fits well with other research showing that under many different conditions of threat, high self-esteem individuals are particularly able, and likely, to marshal defenses of various kinds (e.g., Crocker et al., 1987; Taylor & Brown, 1988). From the perspective of terror management theory, it is exactly this ability to defend against the anxiety of mortality-awareness that produces the sanguineness of high self-esteem.

Although the interaction effect was mostly attributable to the increased polarization exhibited by high self-esteem individuals, there was also a marginal tendency ($p < .10$) for low self-esteem individuals in the death conditions to report actually somewhat less polarized and more evenhanded judgments than their control condition counterparts. Although we would not wish to make too much of this weak effect until it can be replicated, it does raise the interesting question of whether mortality salience might lead low self-esteem individuals to turn their attention to coping strategies other than proclaiming the superiority of their ingroup, such as approval-seeking, conformity, and so on (e.g., Yalom, 1980).

The prediction for how self-esteem would moderate the mortality salience effect could not be clearly derived from previous terror management theory or research, and so this aspect of the study did not serve as any sort of test of the validity of the

model (except, perhaps, in showing that self-esteem was indeed a significant moderator variable). Of the other findings in this study, some were consistent with previous research, whereas others were not. Supportive of the model was the finding that death concerns were a key element in producing the outgroup-derogation effect. Priming effects were observed in both death conditions, but not in the meaninglessness condition. It could be argued that the meaninglessness prime was simply ineffective in raising the desired issues. This interpretation is a logical possibility, of course, but it is not supported by the ratings of the manipulation-check pilot participants, which confirmed the arousal of ambiguity and meaninglessness issues. Rather, we suggest that the lack of impact of the meaninglessness prime is informative, especially when viewed in light of the robustness of the mortality salience effect. Pointing out to people the potential meaninglessness of existence did not affect their tendency to derogate outgroup members, but, as other studies have shown, simply reminding people of their own inevitable death had a powerful impact on their reactions to others. It seems that any number of stimuli that focus attention on death, whether through graphic video presentations (Greenberg, Solomon, et al., 1992), death-anxiety questionnaires (Rosenblatt et al., 1989), the standard two-question mortality salience manipulation (e.g., Greenberg et al., 1990), or the strategy employed in this study involving reading the death-related thoughts of another person, can serve to tap into some common source of anxiety and motivation.

This is not to say, however, that the anxiety necessarily is long-lasting or overwhelming. As some of our participants' comments indicated, many people do find thinking about death momentarily unsettling, giving them a "weird and mysterious feeling." This feeling probably does not stay with them long, however, as indicated by the absence of mood effects in this study and the fact that increases in anxiety or negative affect are seldom reported when mood is assessed just minutes after mortality salience manipulations (e.g., Rosenblatt et al., 1989). As Camus (1955) wrote, "To the man lost in the world and its diversions this anxiety is a brief, fleeting fear" (p. 28). Rather, people resort to defenses of various kinds, presumably depending on what resources are available to them. This study suggests that individuals with high self-esteem, who feel securely located in a cultural group, are particularly likely to turn to the derogation of outgroup members when threatened by mortality awareness.

The finding that only high self-esteem individuals showed the outgroup-derogation effect in response to mortality salience primes is inconsistent with previous research, which has shown strong main effects of the manipulation. We suspect that the large main effects typically observed using the standard two-question salience manipulation may reflect the relatively high impact of that prime. It is not implausible, for example, that stating one's own beliefs about death would be more unsettling than reading about someone else's thoughts, as in this study. The subtlety of our manipulations, then, may have facilitated the observation of the interaction

with self-esteem because many kinds of individual-difference effects are known to be especially pronounced when situational influences are weak (e.g., Monson, Hesley, & Chernick, 1982).

As McGuire (1983) argued, research progress often involves identifying the moderators and boundary conditions of established phenomena. Our finding that self-esteem moderated the priming effect, along with previous individual-difference findings of a similar nature with respect to authoritarianism and attitudes toward tolerance, suggests that there is yet much to learn about the effects of salient existential anxieties. Future studies in this area could profitably examine other existential concerns as well as other types of responses people have to these concerns. We have touched on other existential issues such as meaning, purpose, absurdity, isolation, freedom, and so on (see Yalom, 1980). Also important are the many types of coping mechanisms, other than reinforcement of one's social identity, that people may use to deal with these concerns—for example, forming romantic attachments (Yalom, 1989), turning to religious beliefs (e.g., Berger, 1967), or seeking distraction by focusing on the details of day-to-day existence (e.g., Baumeister, 1990). Research along these lines would help to map out the ways in which people embed themselves in a cultural worldview and use self-esteem and other defensive structures to help them cope with and avoid dealing with the existential terrors of their existence.

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Death—Meaninglessness

I try to imagine the situation of my own death and I wonder what it means to die. You live your life then your body decays and you become nothing. You stop breathing, your heart stops beating, and you just lay there stiff and cold while 'you' wait for the maggots to find the carcass. I can't reconcile this fact of my own death with the other fact that I am alive. I'm no longer in my body, consciousness is over and my moment in time is gone forever. It is as if everything that I've become is indivisible from these bones which are going to turn to dirt. I try to imagine that final moment when I become dead and I just come up blank. How can a person describe what it's like for all of me to end and to lie in that final moment when it all slips away.

Death

All mortal beings must one day face the reality of their own death. To live and exist in the world goes hand-in-hand with an ultimate meeting with the grim reaper, the final end of one's life. At the point of death, the main indicator that one has stopped living is the failure of the heart to continue beating. Following this the major bodily systems shut down; the blood stops flowing, respiration ceases and the brain stops functioning. For all animals and plants the fact of our own death is built into our genetic makeup. We are beings with limited life spans who go through a cycle of life and death. At the final moment of death a structured process of ending the life of the individual takes place. The gradual winding down of bodily functions is the flip side of our birth, when the body slowly begins to develop. Individual death is an event which is a definite part of a larger cycle. Mortal beings live then die, this fact is clear.

Meaninglessness

I don't know what it means to live this life. Things seem so isolated and distant from me when I just sit down and consider what this world all means. And every time I try to make sense of what's going on here I find things not quite the same as they were before. Each day the world is different and I just get confused and lost in all this change. The world seems to be this huge contradictory mess. Then I realize that I'm only looking at this tiny piece of reality that I deal with myself daily and that there is a whole universe of 'things' which is infinite going on out there which I can't even think of coming to terms with. I'm like a speck of sand but even the whole beach doesn't come close to showing how small I am in the universe. I try to find some sense and meaning in reality to answer why I'm here but I just come up blank.