Terror Management and Stereotyping: Why Do People Stereotype When Mortality Is Salient?

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Three studies examine two routes by which mortality threats may lead to stereotyping. Mortality salience may activate both a comprehension goal and an enhancement goal. Enhancement goals are likely to be more active in situations where intergroup competition or conflict is salient. If this is not the case, then a comprehension goal will predominate. In line with a why-determines-how logic, when mortality salience activates a comprehension goal, both positive and negative stereotyping occur. In contrast, the activation of an enhancement goal only increases negative stereotyping.

Keywords: *death; existentialism; stereotypes; comprehension; enhancement; goals*

Why do people stereotype? According to the extant stereotyping literature, there may be several goals underlying stereotyping processes (e.g., Kunda & Spencer, 2003). Two of the most common goals of stereotyping are (a) to comprehend the social environment (comprehension goal) and (b) to acquire, maintain, or strengthen a feeling of self-worth (enhancement goal). Stereotypes may serve a comprehension goal because they help people to interpret and give meaning to their social environment (e.g., Stapel & Koomen, 2001). For example, in situations in which cognitive resources are limited or in which the available information is ambiguous, stereotypes may help to fill in the blanks. Stereotypes may also serve enhancement goals (especially negative ones) by facilitating the maintenance or strengthening of self-worth. For example, as a result of derogating others by emphasizing the negative stereotypical characteristics of a group or a person, self-feelings may be bolstered by comparison (e.g., Fein & Spencer, 1997).

Van den Bos and Stapel (2007) recently argued and demonstrated that whether stereotyping is enhancement or comprehension driven is an important determinant of the specific stereotypes people use. That is, when stereotyping is comprehension driven, both positive stereotypes ("men are strong") and negative stereotypes ("men are aggressive") are used to interpret the social environment. When stereotyping is enhancement driven, mainly negative rather than positive stereotypes are applied.

It is interesting that the findings of recent studies of Terror Management Theory (TMT; Solomon, Greenberg, & Pyszczynski, 1991) suggest that mortality salience is another important determinant of stereotyping. A number of studies show that mortality salience leads to increased stereotyping (Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992; Ochsmann & Mathay, 1996; Schimel et al., 1999). Thus, people stereotype more when they are reminded of the fact that death is inevitable. How can this

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intriguing finding be integrated with what is known about the main goals underlying common stereotyping processes? Unfortunately, to date, it is relatively unclear what goals are cognitively activated when mortality is made salient. Important questions are the following: What goal does stereotyping fulfill when mortality is salient? Are people predominantly comprehension driven and extra motivated to comprehend their social environment when mortality is salient, or are they enhancement driven and extra motivated to boost their self-esteem? It was our aim to integrate TMT and stereotyping research by investigating the motivational processes underlying the effects of mortality salience on stereotyping. This endeavor was made especially worthwhile by the possibility that examining the goals of stereotyping effects induced by mortality salience would explain more about the goals of Terror Management effects in general.

TMT

People encounter many situations in everyday life in which they are reminded that death is inevitable. TMT posits that these reminders trigger a set of defensive mechanisms that people use to buffer the potential anxiety that existential threat may cause (see Pyszczynski, Greenberg, & Solomon, 1997). These defensive mechanisms explain how people deal with mortality threats and how these threats influence their cognitions and behavior (Solomon et al., 1991). For example, increased mortality salience is associated with social phenomena such as ingroup favoritism and outgroup derogation (e.g., Greenberg et al., 1992; Kaiser, Vick, & Major, 2004; McGregor et al., 1998; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989), conformity (Greenberg, Porteus, Simon, Pyszczynski, & Solomon, 1995; Renkema, Stapel, & Van Yperen, in press), political preferences (Jost, Banaji & Nosek, 2004; Jost, Glaser, Kruglanski, & Sulloway, 2003; Renkema & Stapel, 2007), and stereotyping (Greenberg et al., 1990; Ochsmann & Mathay, 1996; Schimel et al., 1999).

The two core defensive mechanisms through which people protect themselves from experiencing existential threat are (a) a cultural worldview, that is, a stable conception of reality that gives meaning to the social environment, and (b) self-esteem, that is, a sense of self-worth and thus the feeling of being a valuable contributor to the social environment.

Cultural Worldview

A cultural worldview may protect people from experiencing mortality-related anxiety by providing a meaningful and stable conception of reality. When mortality is salient, people are motivated to defend, affirm, and justify their cultural worldview to keep the world meaningful and predictable. A large number of TMT-inspired experiments support this hypothesis and show that mortality threat activates several behavioral and cognitive responses that aid in validating the cultural worldview (see Solomon, Greenberg, & Pyszczynski, 2004). People may reactivate and affirm their worldview and search for meaning ("I am a religious person; God exists, somewhere") because this may give them a sense of control and allow them to maintain a stable, structured, and coherent view on the world ("Everything is clear and makes sense to me"). Previous research by Landau and colleagues suggests that such a comprehension goal is activated in situations in which mortality is salient (Landau et al., 2004; Landau, Greenberg, Solomon, Pyszczynski, & Martens, 2006).

Self-Esteem

Self-esteem may also help people buffer potential existential anxiety caused by mortality threats by providing the feeling that one is a valuable member of one's culture. Mortality-salient situations, therefore, motivate people to maintain or enhance a sense of self-worth. As research on self-maintenance processes has shown, people use a large number of strategies to boost their self-esteem (e.g., Schwinghammer, Stapel, & Blanton, 2006; Tesser, 1988). Several TMT studies have shown that individuals are more likely to engage in such strategies (derogating others, negative stereotyping) when mortality threats are salient than when they are not (e.g., Arndt & Greenberg, 1999). Ample research also shows that people look for ways to boost their self-esteem directly ("I have achieved wonderful things in recent weeks. I am much better than my underperforming colleagues") and actively search for ways to enhance their self-esteem. Pyszczynski, Greenberg, Solomon, Arndt, and Schimel (2004) have published an extensive review of these and dozens of other studies in which the role of self-esteem in managing terror was examined.

The findings of previous TMT studies thus clearly show that mortality salience can evoke both a comprehension goal (make sense of the world) and an enhancement goal (increase self-worth). Our goal in this study was to disentangle these two motives and to examine if there are situations in which one is more dominant when it comes to stereotyping. What goal does stereotyping fulfill when mortality is salient? Does mortality salience increase stereotyping because it serves a comprehension goal or because it serves an enhancement goal? Although there is abundant evidence that tactics that focus on the cultural worldview and tactics aimed at increasing self-esteem can both be effective in managing

existential anxiety, a systematic analysis of when and how exactly these goals arise from mortality salience and subsequently influence mortality salience effects is still lacking. With these studies, we aim to provide such an analysis in the stereotyping domain and thus explicitly disentangle the two goals.

STEREOTYPING AND GOALS

Is it possible to differentiate between comprehension-based and enhancement-based mortality salience effects? To frame this question in terms of the current analysis, is it possible to differentiate between comprehension-based and enhancement-based stereotyping effects? According to Van den Bos and Stapel (2007), it is. These authors argued that comprehension and enhancement goals lead to different forms of stereotyping: Why people stereotype determines how they stereotype. A comprehension goal leads to both positive and negative stereotyping: Both positive and negative stereotyping may facilitate the interpretation of ambiguous information and thus make the social world more comprehensible and more predictable. This will be especially true when there is not much deindividuating information available to go on or if the target is ambiguous (see Kunda & Spencer, 2003; Pendry & Macrae, 1996). An enhancement goal, on the other hand, leads exclusively to negative stereotyping because self-esteem is boosted by negative but not by positive stereotyping (Steele, 1988). Saying that outgroup members are nice or competent ("Economists are good at math") does not necessarily make a person feel better.

To illustrate this line of reasoning, imagine that you are walking through a crowded shopping mall and you see a man cutting the line. If your goal is to comprehend the situation, you will probably apply negative and positive male stereotypes to interpret this behavior. This could mean that you will interpret his behavior as, for example, aggressive (negative) as well as assertive (positive). You may thus make sense of this ambiguous situation using both positive and negative stereotypes. However, if you have an enhancement goal you are more likely to use only negative stereotypes: You will interpret the line-cutting behavior as aggressive and impolite.

The logic that why people stereotype determines how they stereotype implies that it is possible to differentiate between comprehension and enhancement goals by looking at the valence of the stereotyping effects. If stereotyping effects are mainly negative, then they probably serve an enhancement goal. If stereotyping effects are positive as well as negative, they are more likely to serve a comprehension goal. In this research we used this why-determines-how paradigm to examine the route by which mortality threat leads to stereotyping (positive-negative stereotyping vs. negative stereotyping), and in doing so we derived the goals that mortality threat may cause in this particular setting (comprehension vs. enhancement).

Previous research by Schimel and colleagues (1999) has shown that mortality salience may increase both positive and negative stereotyping. According to the why-determines-how paradigm, this suggests the effects mortality salience has on stereotyping are driven by a comprehension goal. Based on the findings of Schimel and colleagues we argue that, when it comes to stereotyping, mortality salience predominantly elicits a comprehension goal that motivates people to make the world understandable, structured, and predictable. As explained earlier, applying positive and negative stereotypes aids in achieving this comprehension goal (see also Van den Bos & Stapel, 2007). Our hypothesis is strengthened by the fact that TMT states that people derive self-esteem from meeting or exceeding standards of value prescribed by a meaningful cultural context (Solomon et al., 2004). This suggests that people should have a sense of meaning to benefit from self-esteem. Translated in terms of our studies, this implies that meaning (comprehension) should dominate self-esteem (enhancement) if there is no direct self-esteem threat.

We do acknowledge that there are other situations in which an enhancement goal could be more dominant. Several TMT studies have shown that people may also increase only negative stereotyping to derogate others or seek other ways to boost their self esteem when mortality is salient, which implies an enhancement goal (e.g., Greenberg et al., 1992; Mikulincer & Florian, 2002, respectively). We argue that the use of (only) negative stereotypes is most likely to occur when people's self-esteem is threatened. For example, this would occur when the nature or the context of the mortality threat directly challenges people's self-esteem. In these circumstances we expected an enhancement goal to be activated because people are typically motivated to eliminate such a threat (see Tesser, 1988). A threatening outgroup, for example, is likely to endanger self-esteem and could activate the goal to maintain or enhance self-worth. Given that negative stereotyping (derogating others) may boost self-esteem, we therefore predicted that, in the case of intergroup competition or conflict, mortality awareness would only lead to negative stereotyping. Thus, when mortality salience is accompanied by ego-threatening intergroup competition or conflict (ego-threat), self-enhancement motives are likely to dominate comprehension motives.

In a series of studies, we examined whether it is possible to distinguish between comprehension- and enhancement-driven stereotyping following mortality salience. We tried to disentangle the two goals and show that there are situations in which one goal may be more dominant than the

other. The why-determines-how paradigm is especially suited to distinguish comprehension and enhancement goals because, in this paradigm, these goals can be seen as (more or less) mutually independent psychological structures that can have separate influences on stereotyping. That is, people cannot fulfill both an enhancement and a comprehension goal at the same time in this paradigm; it is either positive and negative (comprehension) or merely negative stereotyping (enhancement).

RESEARCH OVERVIEW

In these studies we explored the motivational processes underlying the effects of mortality salience on stereotyping. We differentiated between comprehension goals and enhancement goals by looking at the valence of the stereotyping effects that were the consequence of mortality salience (why-determines-how paradigm). We hypothesized that, in general, mortality salience activates a comprehension goal; this results in positive and negative stereotyping. However, we also predicted that there are settings in which a comprehension goal may be overridden by an enhancement goal. Specifically, we hypothesized that, in situations where intergroup competition or conflict is salient, mortality salience would activate an enhancement goal more than a comprehension goal. Consequently, people would use mainly negative stereotypes.

We tested these hypotheses in a series of three experiments using a variety of experimental techniques. In Study 1, our goal was to show that mortality threat (which presumably evokes a comprehension goal) leads to more positive and negative stereotyping, whereas negative feedback (which is known to activate an enhancement goal) only leads to negative stereotyping. In Study 2, we tested whether the effects of mortality salience on stereotyping disappear if the comprehension goal is fulfilled but not if an enhancement goal is fulfilled. In Study 3, we wanted to show that there are situations (i.e., when intergroup competition or conflict is salient) in which the need to comprehend will be overruled such that mortality salience effects are mainly enhancement driven.

STUDY 1

Study 1 was designed to show that, in our why-determines-how stereotyping paradigm, mortality salience increases the need to comprehend but not the need to self-enhance. In this study we tried to differentiate between comprehension goals and enhancement goals by looking at the valence of the stereotypes people use to describe an ambiguous target. We predicted that mortality salience primarily activates a comprehension goal and thus leads to both positive and negative stereotyping. To test this hypothesis we compared the effects of mortality salience on stereotyping with the effects of negative feedback on stereotyping. According to our hypothesis, mortality salience should lead to both positive and negative stereotyping, suggesting an underlying comprehension goal. Negative feedback, on the other hand, typically activates an enhancement goal (Brown, Collins, & Schmidt, 1988) and should, thus, lead to more negative than positive stereotyping (see also Fein & Spencer, 1997).

Method

Participants and Design

The participants were 62 psychology students who took part for course credit. They were randomly assigned to one of the four experimental conditions (mortality salience, television, negative feedback, positive feedback).

Procedure and Material

Upon entering the laboratory, participants were asked to fill out a booklet that contained two ostensibly unrelated studies. In the first study, mortality salience and negative and positive feedback were manipulated.

Manipulations. Mortality salience was manipulated in the first study. The participants had to answer an open-ended question concerning death (adopted from previous TMT research, e.g., Greenberg et al., 1990). In the mortality condition the participants were asked, "Please briefly describe the emotions and thoughts that the thought of your own death arouses in you." Participants in the control conditions responded to parallel questions regarding "watching television." In the positive feedback and the negative feedback conditions, participants were asked to complete a "remote associates task." The task consisted of nine items, and the participants were asked to solve the items within 3 minutes. After the participants had finished the task, they were given an answer sheet. They were asked to score the correct answers. There were two versions of the test to manipulate the feedback that the participants received as a result of scoring their own answers. In the positive feedback condition the items were easy to solve, and in the negative feedback conditions the items were hard to solve. Earlier research has shown that this manipulation is a simple way to affect (at least temporarily) people's self-evaluations (see McFarlin & Blascovich, 1984).

Dependent measures. The second study was presented as an impression formation task. The participants read a story about a man named Peter whose ambiguous behavior could be interpreted as aggressive as well as assertive (see Srull & Wyer, 1979; Stapel & Koomen, 2001). After they had read the story, the participants were asked to indicate whether Peter possessed

certain traits. Four traits were listed in total: two positive male stereotypes (assertive and confident) and two negative male stereotypes (aggressive and unfriendly). The participants had to indicate on a 9-point scale, from 1 (*not at all*) to 9 (*very much*), to what extent they thought Peter possessed these traits. Once the participants had finished the final part of the experiment they were thanked for their participation and carefully debriefed. No participants reported that they were aware of the purpose of the study or thought the "unrelated" studies were actually related.

Results and Discussion

Manipulation Check

To check whether our positive and negative feedback manipulation worked, we compared the correct answers that participants gave on the easy and difficult tests. As expected, simple effects showed that participants scored higher in the positive feedback condition ($M = 6.69$, $SD = 0.86$) than the negative feedback condition ($M = 2.35$, $SD = 1.12$), $F(1, 28) = 135.56$, $p < .001$, $\eta^2 = .83$. Next we aggregated the positive and negative stereotyping items to compute a positive and negative stereotyping scale (Cronbach's alphas = .92 and .97, respectively).

We conducted a mixed-design analysis of variance (ANOVA) with salience (mortality vs. television vs. positive feedback vs. negative feedback) as the independent variable and valence (positive vs. negative) as the repeated measure within-subjects. The results revealed the expected interaction between salience and valence, $F(3, 58) = 7.69$, $p < .001$, $\eta^2 = .29$. Next we conducted comparisons within valence to explicate this interaction.

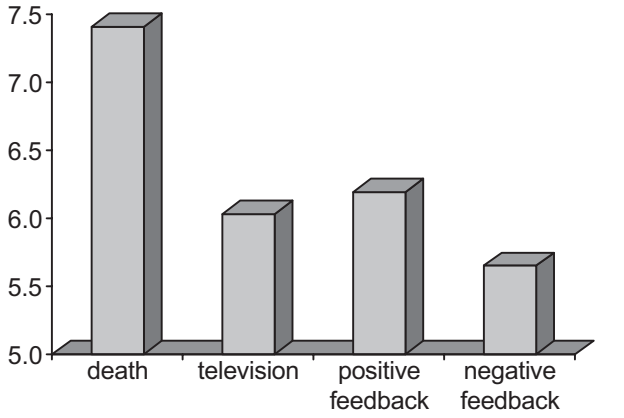

Figure 1 Mean positive stereotyping as a function of condition, Study 1.

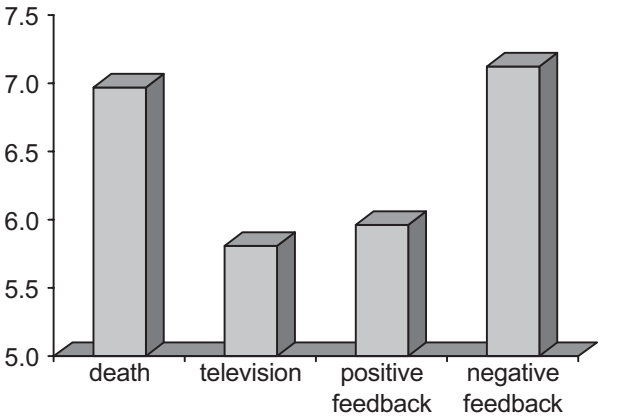

Figure 2 Mean negative stereotyping as a function of condition, Study 1.

Positive Stereotyping

An ANOVA showed that there was an effect of our manipulation, $F(3, 58) = 6.59$, $p < .001$, $\eta^2 = .24$ on the judgment of Peter's behavior. As predicted, simple contrast analyses showed that participants in the mortality salience condition used more positive stereotypes to describe Peter's ambiguous behavior ($M = 7.41$, $SD = 0.30$) than did participants in the other three conditions: television $M = 6.03$, $SD = 0.30$, $F(3, 58) = 9.18$, $p < .01$, $\eta^2 = .14$; positive feedback $M = 6.19$, $SD = 0.33$, $F(3, 58) = 6.43$, $p = .01$, $\eta^2 = .10$; negative feedback $M = 5.65$, $SD = 0.29$, $F(3, 58) = 15.56$, $p < .001$, $\eta^2 = .21$ (see Figure 1). This indicates that only mortality salience facilitated the use of positive stereotypes to interpret Peter's behavior.

Negative Stereotyping

An ANOVA showed that there was an effect of our manipulation, $F(3, 58) = 6.42$, $p < .001$, $\eta^2 = .25$, on negative stereotyping. Simple contrast analyses showed that people interpreted Peter's behavior more in terms of negative stereotypes in the mortality salient condition ($M = 6.97$, $SD = 1.12$) as compared to the positive feedback ($M = 5.96$, $SD = 0.85$), $F(3, 58) = 6.59$, $p = .01$, $\eta^2 = .10$, and the television conditions ($M = 5.81$, $SD = 1.12$), $F(3, 58) = 9.70$, $p = .003$, $\eta^2 = .14$. The same effect was found in the negative feedback condition ($M = 7.12$, $SD = 1.05$; compared to positive feedback, $F(3, 58) = 8.93$, $p = .004$, $\eta^2 = .13$, and television, $F(3, 62) = 12.74$, $p < .001$, $\eta^2 = .18$, see Figure 2). As expected, there was no difference between the mortality salience and the negative feedback condition ($F < 1$). This indicates that both mortality salience and negative feedback facilitated the use of negative stereotypes in describing Peter's ambiguous behavior.

In line with our expectations, these findings show that mortality salience increases the use of both positive and negative stereotypes in interpreting ambiguous behavior.

According our why-determines-how perspective on the structure of stereotyping effects, this suggests that mortality salience is more likely to activate a comprehension goal than an enhancement goal here. In contrast, the negative feedback induction only facilitated the use of negative stereotypes, which is consistent with the why-determines-how paradigm as well as with the findings of previous studies of enhancement-driven stereotyping effects (see, e.g., Fein & Spencer, 1997; Van de Bos & Stapel, 2007).

STUDY 2

One feature of the present why-determines-how approach to the study of mortality salience–driven stereotyping effects is that we argue that a comprehension goal rather than an enhancement goal is activated when people's mortality is salient. The findings of Study 1 show that mortality salience facilitated the use of positive and negative stereotypes in describing ambiguous behavior, which suggests that people prefer a comprehension goal over an enhancement goal when mortality is salient.

In the second study we tested another consequence of the notion that mortality salience activates a comprehension rather than an enhancement goal. Specifically, if mortality salience activates a comprehension goal (and not an enhancement goal), then the effect of mortality salience should disappear if people have the chance to fulfill this comprehension goal in another way. In contrast, fulfilling an enhancement goal should leave the effect of mortality salience on stereotyping unaffected. (For similar logic on the specificity of goal-fulfillment effects, see Förster, Liberman, & Higgins, 2005.)

Study 2 extended the effects of Study 1 by examining the effects of mortality salience on stereotyping after fulfillment of either a comprehension goal or an enhancement goal. We expected that mortality salience would lead to both positive and negative stereotyping if a self-enhancement goal was fulfilled but that this effect would disappear if a comprehension goal was fulfilled. Thus, we suggest that the effects of mortality salience on stereotyping disappear if the comprehension goal (activated by mortality salience) is fulfilled through another channel.

Method

Participants and Design

The participants were 82 psychology students who took part for course credit. They were randomly assigned to experimental conditions of a 2 (salience: mortality vs. dental pain) $\times$ 3 (goal fulfillment: comprehension vs. self-enhancement vs. control) between-participants design.

Procedure and Material

On entering the laboratory, participants were asked to fill out a booklet that contained two seemingly unrelated studies. They had to answer an open-ended question concerning death (similar to Study 1) or dental pain. The dental pain condition was used as a control condition in other TMT research (e.g., Arndt, Greenberg, Schimel, Pyszczynski, & Solomon, 2002) to control for the alternative explanation that the effects of mortality salience are because of fear. After the participants had finished the mortality salience induction, they were asked to continue with the second study.

Enhancement-goal fulfillment. The professed second study was designed to fulfill a self-enhancement goal, a comprehension goal, or no goal, and it was presented as a brief inventory of personality characteristics. In the self-enhancement–goal fulfillment condition, participants were asked to list three positive characteristics they possessed and to give an example of each of these characteristics. As Schwinghammer and her colleagues have shown (Schwinghammer et al., 2006; Schwinghammer & Stapel, 2006), this exercise increases (implicit and explicit) self-esteem. Listing positive self-characteristics puts people in a good mood and raises feelings of self-worth.

Comprehension-goal fulfillment. Participants in the comprehension-goal fulfillment condition were asked about their opinions regarding two riddles.[1] They were led to believe that the riddles were a part of a large riddle database that was under construction. The participants first read the riddle, on the following page they read the answer, and they could give their opinion on the riddle. Previous research has shown that first reading an interesting riddle and then reading the answer fulfills a comprehension goal (Van den Bos & Stapel, 2007).

Participants in the control condition were asked to work on an unrelated filler task, an easy word-unscrambling task. After participants had finished the second study they were asked to continue with the third and final part of the experiment. The final study was presented as an impression formation task. This task was similar to the one used in Study 1: The participants read a story about a man named Peter whose ambiguous behavior could be interpreted positively as well as negatively. After the participants had completed the final part of the experiment they were thanked for their participation and carefully debriefed. None of the participants showed awareness of the purpose of the study or thought the "unrelated" studies were actually related.

Dependent measures. The positive and negative items were aggregated to compute a positive and negative stereotyping scale (Cronbach's alphas = .80 and .78, respectively).

Results and Discussion

We conducted a mixed-design ANOVA with salience (mortality vs. dental pain) and goal fulfillment (com-

prehension vs. enhancement vs. control) as the independent variables and valence (positive vs. negative) as repeated measure within-subjects. As expected, we did not find any two- or three-way interactions between salience, goal attainment, and valence *F*s < 1. As expected, an ANOVA examining the two-way interaction between salience and goal fulfillment, unqualified by valence, rendered significant, $F(2, 76) = 14.47$, $p < .001$, $\eta^2 = .28$. Next we conducted comparisons within valence to test our main hypothesis.

Positive Stereotyping

An ANOVA showed that there was an effect of mortality salience, $F(1, 76) = 38.28$, $p < .001$, $\eta^2 = .34$, and a marginal effect of goal fulfillment, $F(2, 76) = 2.76$, $p < .07$, $\eta^2 = .07$. These main effects were qualified by the predicted two-way interaction between mortality salience and goal fulfillment, $F(2, 76) = 4.74$, $p < .01$, $\eta^2 = .16$. Thus, when mortality was salient, participants were less likely to use positive stereotypes to interpret Peter's ambiguous behavior when a comprehension goal was fulfilled ($M = 6.58$, $SD = 0.93$) compared to when an enhancement goal ($M = 7.81$, $SD = 0.80$), $F(1, 76) = 14.50$, $p < .001$, $\eta^2 = .16$, or no goal was fulfilled ($M = 7.73$, $SD = 0.44$), $F(1, 76) = 19.18$, $p < .001$, $\eta^2 = .20$. In the control conditions, where dental pain was salient, there were no differences (all *F*s < 1) between comprehension-goal fulfillment ($M = 6.42$, $SD = 0.67$), enhancement-goal fulfillment ($M = 6.15$, $SD = 1.13$), and the no-goal condition ($M = 6.15$, $SD = 0.81$; see Figure 3). Tests for simple contrast effects indicated that the enhancement-goal fulfillment and the control group both used significantly more negative stereotypes in the mortality salience condition than in the dental pain condition, $F(1, 76) = 26.24$, $p = .001$, $\eta^2 = .26$, and $F(1, 76) = 27.27$, $p = .001$, $\eta^2 = .26$, respectively. As expected, this difference was not found for the comprehension goal fulfillment group, $F < 1$, *ns*.

Negative Stereotyping

An ANOVA showed that there was an effect of mortality salience, $F(1, 76) = 21.63$, $p < .001$, $\eta^2 = .22$, and an effect of goal fulfillment, $F(2, 76) = 3.63$, $p = .02$, $\eta^2 = .10$. Both main effects were qualified by the predicted two-way interaction between mortality salience and goal fulfillment, $F(2, 76) = 7.44$, $p < .01$, $\eta^2 = .16$. Thus, when mortality was salient, participants were less likely to use negative stereotypes in describing the seemingly ambiguous behavior of Peter when a comprehension goal was fulfilled ($M = 5.96$, $SD = 0.88$) compared to when an enhancement goal ($M = 7.31$, $SD = 0.69$), $F(1, 76) = 14.00$, $p < .001$, $\eta^2 = .16$, or no goal was fulfilled ($M = 7.54$, $SD = 0.97$). In the dental pain conditions there were no differences (all

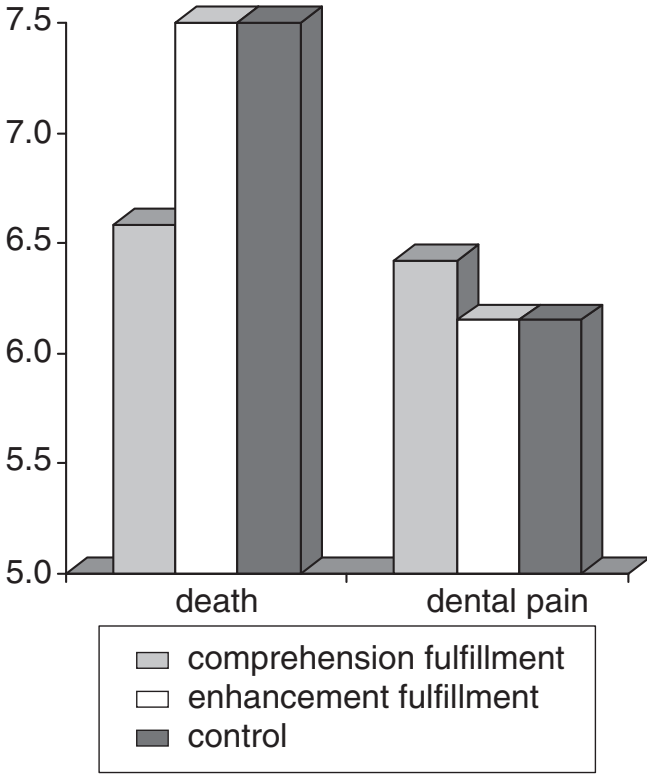

Figure 3 Mean positive stereotyping as a function of condition, Study 2.

*F*s < 1) between comprehension-goal fulfillment ($M = 6.12$, $SD = 0.85$), enhancement-goal fulfillment ($M = 5.96$, $SD = 0.88$), and the no-goal condition ($M = 5.88$, $SD = 1.13$; see Figure 4). Tests for simple contrast effects indicate that the enhancement-goal fulfillment and the control group both used significantly more positive stereotypes in the mortality salience condition than in the dental pain condition, $F(1, 76) = 13.92$, $p = .001$, $\eta^2 = .16$ and $F(1, 76) = 23.88$, $p = .001$, $\eta^2 = .24$, respectively. As expected, this difference was not found for the comprehension goal fulfillment group, $F < 1$, *ns*.

In line with our predictions, the effect of mortality salience on positive and negative stereotyping disappears when a comprehension goal is fulfilled. This supports the hypothesis that the need to comprehend that is activated by mortality is responsible for the use of both negative and positive stereotypes to interpret Peter's behavior. Fulfilling an enhancement goal did not decrease the effect of mortality salience on negative or positive stereotyping. Thus, when mortality was salient and an enhancement goal was fulfilled, participants still used more positive and negative stereotypes. Fulfilling an enhancement goal leaves the effect of mortality salience on stereotyping unaffected. This suggests that

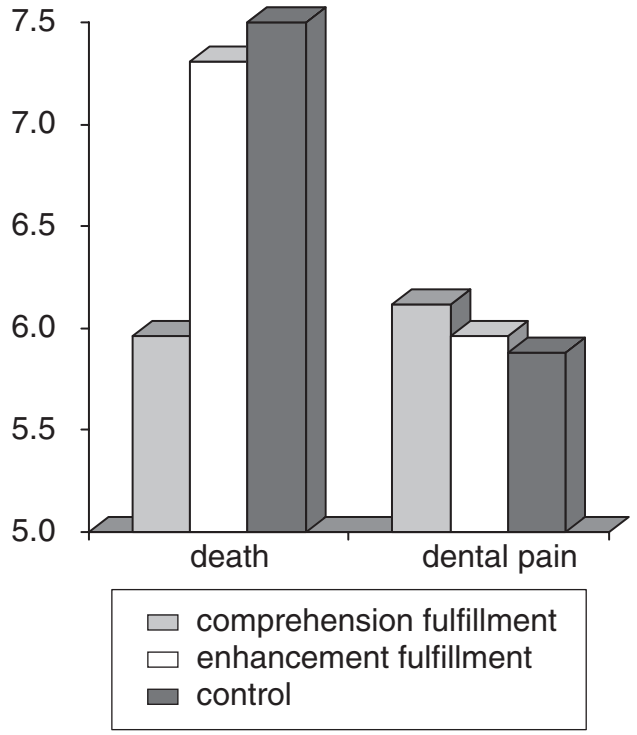

Figure 4 Mean negative stereotyping as a function of condition, Study 2.

these effects are caused by a comprehension goal rather than an enhancement goal.

STUDY 3

The findings of the first two studies suggest that, in general, mortality salience activates a comprehension goal. This implies that being reminded of the temporary nature of life motivates people to make sense of the social environment around them. A comprehension goal leads people to use more positive and negative stereotypes because these might help interpret the world around them. Although our findings suggest that, in general, mortality salience leads to a comprehension goal (in the stereotyping domain), we do not advocate the proposition that mortality salience only and always activates a comprehension goal. Rather, we argue that there are settings in which mortality salience may activate other goals that might effectively overrule the comprehension goal. In particular, we believe that if self-esteem is threatened by a rival or otherwise threatening outgroup it is likely that people will be motivated to decrease this direct threat to self-esteem. In line with this reasoning, previous research (e.g., Greenberg et al., 1992) suggests that mortality salience is likely to activate an enhancement goal if an external source threatens self-esteem even if this group is not linked directly to the existential threat.

In Study 3 we (again) tested the hypothesis that mortality salience evokes a comprehension goal. We also tested the hypothesis that an enhancement goal will overrule a comprehension goal when mortality is salient in a situation in which a competitive or threatening outgroup is present. Support for this hypothesis would be obtained if mortality salience led to both positive and negative stereotyping but only to negative stereotyping when a competitive or threatening outgroup was present.

In Study 3, the participants read either a negative or a neutral essay about their university that was written by a student from a rival university. The effects of mortality salience manipulations on participants' reactions to these articles were assessed. According to our hypothesis, and following the why-determines-how paradigm, we predicted that in the neutral essay condition mortality salience would activate a comprehension goal, leading to more positive and negative stereotyping. In the negative essay condition, however, the participants might experience a direct threat to their self-esteem. This was expected to lead only to negative stereotyping, suggesting that an enhancement goal overruled the comprehension goal.

Method

Participants and Design

The participants were 66 psychology students who took part for course credit. They were randomly assigned to experimental conditions of a 2 (salience: mortality, TV) × 2 (essay valence: negative, neutral) between-participants design.

Procedure and Material

On entering the laboratory, participants were asked to fill out a booklet containing three seemingly unrelated studies. Mortality salience was manipulated in the first study; participants were asked to answer an open-ended question concerning death or TV (similar to the manipulation we used in the first two studies).

Manipulations. The second study was introduced as a student opinion questionnaire. The participants read a short article and were told that the article was taken from a student magazine of the University of Amsterdam. In the article, a student from Amsterdam who took some facultative courses in Groningen discussed how he or she experienced studying in Groningen. For example, in the neutral essay the participants read that the student from Amsterdam had no problems working with students from Groningen; in the negative essay they read that they were

late or didn't show up at all. For our participants (all students from Groningen), the article was a clear evaluation of their ingroup (Groningen) by an outgroup member (Amsterdam). The author of the article was either neutral about studying in Groningen or rather negative. The essays were in great part adapted from the essay used by Van den Bos, Poortvliet, Maas, Miedema, and Van den Ham (2005). The participants were instructed to read the article carefully because several questions about the article would be asked at the end of the experiment.

Dependent measures. The third and final part of the experiment was introduced as a study of geographical profiles. The participants were told that the purpose of the study was to map several personality characteristics to different regions or cities. Following the introduction the participants had to indicate on a 7-point scale from 1 (*not at all*) to 7 (*very much*) to what extent people from Amsterdam possessed these characteristics. The participants were presented with nine different traits. Three positive stereotypes (open, assertive, and spontaneous) and three negative stereotypes (rude, self-satisfied, and arrogant) were used, and the three remaining traits (down-to-earth, miserly, and surly) were not stereotypical for people from Amsterdam and were used as filler items and controls. After the participants had completed the final part of the experiment, the participants were thanked and carefully debriefed. In the debriefing session participants indicated that they were not aware of the purpose of the study or any association between the different parts of the experiment.

Dependent variables. The positive and negative stereotype items were aggregated to compute a positive and negative stereotyping scale (Cronbach's alphas = .78 and .86, respectively).

Results and Discussion

We conducted a mixed-design ANOVA with salience (mortality vs. TV) and essay valence (neutral vs. negative) as the independent variables and valence (stereotyping: positive vs. negative) as repeated measure within-subjects. As expected, we found an interaction between salience and valence, $F(1, 62) = 9.52$, $p = .003$, $\eta^2 = .13$; essay valence and valence, $F(1, 62) = 14.39$, $p < .001$, $\eta^2 = .19$; and a three-way interaction between salience, essay valence, and valence, $F(1, 62) = 7.32$, $p < .01$, $\eta^2 = .11$. Next we conducted comparisons within valence to explicate these interactions.

Positive Stereotyping

An ANOVA showed that there was an effect of mortality salience, $F(1, 62) = 8.34$, $p < .01$, $\eta^2 = .12$, and an effect of essay valence, $F(1, 62) = 15.91$, $p < .001$, $\eta^2 = .20$. These main effects were qualified by the predicted two-way interaction between mortality salience and essay valence, $F(1, 62) = 34.16$, $p < .001$, $\eta^2 = .34$. When mortality was salient, participants were more likely to use positive stereotypes to describe people from Amsterdam when the essay was neutral ($M = 4.80$, $SD = 0.47$) than when the essay was negative ($M = 3.52$, $SD = 0.61$), $F(1, 62) = 43.94$, $p < .001$, $\eta^2 = .41$. In the control conditions, no difference was found between the neutral ($M = 3.67$, $SD = 0.60$) and the negative essays ($M = 3.91$, $SD = 0.39$), $F(1, 62) = 1.97$, *ns* (see Figure 5). Tests for simple main effects indicated that the negative essay group used significantly less positive stereotypes in the mortality salience condition than in the TV condition, $F(1, 62) = 14.24$, $p < .05$, $\eta^2 = .06$. As expected, in the neutral essay group this effect was turned around and even stronger. In line with the effects found in the first two studies, we found that participants used more positive stereotypes in the mortality salience condition than in the TV condition, $F(1, 62) = 39.36$, $p = .001$, $\eta^2 = .39$.

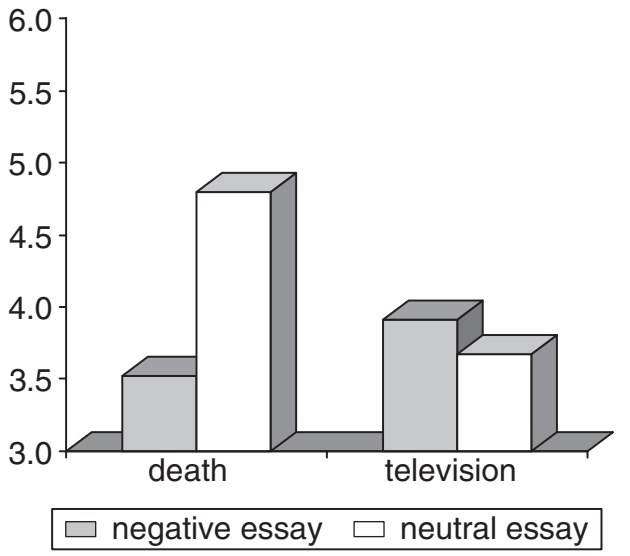

Figure 5 Mean positive stereotyping as a function of condition, Study 3.

Negative Stereotyping

An ANOVA showed that there was a main effect of mortality salience, $F(1, 62) = 33.85$, $p < .001$, $\eta^2 = .35$. Thus, people stereotype more negatively when mortality is salient. Additionally, we found a marginal main effect of essay valence $F(1, 62) = 15.91$, $p = .07$, $\eta^2 = .05$. As expected, we did not find an interaction between mortality salience and essay valence ($F < 1$).

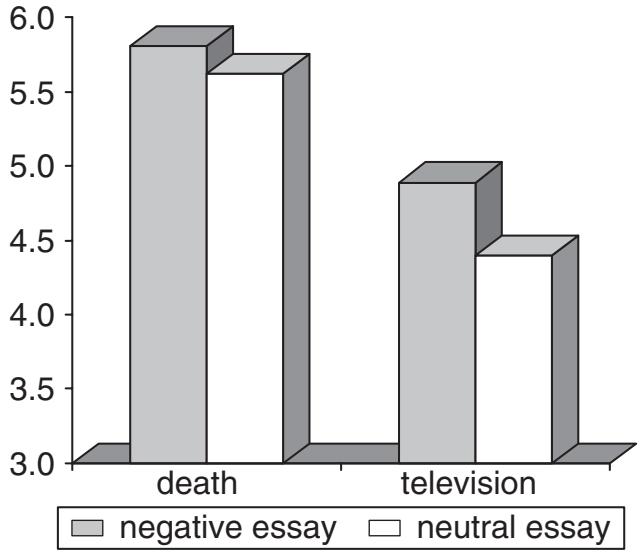

Figure 6 Mean negative stereotyping as a function of condition, Study 3.

Simple effect analyses showed that there was no difference ($F < 1$) in negative stereotyping between the negative essay ($M = 5.81$, $SD = 0.58$) and the neutral essay ($M = 5.62$, $SD = 0.42$) when mortality was salient. In contrast, there was a difference between the negative essay ($M = 4.89$, $SD = 1.07$) and the neutral essay ($M = 4.40$, $SD = 0.66$) in the control condition, $F(1, 62) = 4.04$, $p = .05$, $\eta^2 = .06$. As predicted, tests for simple main effects indicated that the negative essay and the neutral essay group used significantly more negative stereotypes in the mortality salience condition than in the TV condition, $F(1, 62) = 12.16$, $p < .05$, $\eta^2 = .16$ and $F(1, 62) = 22.68$, $p = .001$, $\eta^2 = .27$. Thus, in line with our hypothesis, the marginal main effect of essay valence can be attributed to the control condition and not to the mortality salient condition (see Figure 6). The observed effect in the control condition suggests that, in general, people use more negative stereotypes to describe a negative or threatening outgroup.

Nonstereotypical Items

There was no main effect of mortality salience, $F(1, 62) = 1.10$, *ns*; no main effect of essay valence, $F < 1$; and no interaction between mortality salience and essay valence, $F(1, 62) = 1.14$, *ns*. Tests for simple main effects revealed no significant differences in the use of nonstereotypical items between the mortality salience condition and the television condition for the neutral and the negative essay group, $F(1, 62) = 2.32$, *ns* and $F < 1$, *ns*, respectively. Because two nonstereotypical items were slightly negative (miserly and surly) and the other more positive (down to earth) we also tested the individual items for simple main effects. As expected, we found no significant differences in the use of nonstereotypical items between the mortality salience condition and the television condition for the neutral and the negative essay group: surly, Fs < 1, *ns*; miserly, $F(1, 62) = 2.08$, *ns*, and $F < 1$, *ns*; down to earth, Fs < 1, *ns*. This led us to discard the alternative explanation that people under mortality salience simply tend to use all traits that are available to describe a certain target, including those that are irrelevant to the stereotype.

Again, we found that participants used more positive and negative stereotypes when mortality was salient. It is more important that this effect was only found when intergroup conflict was absent. In a situation in which intergroup competition or conflict was salient (i.e., an outgroup member wrote a negative essay about the participant's ingroup), participants used only negative stereotypes when describing the outgroup, which suggests the activation of an enhancement goal rather than a comprehension goal. This is an important finding because, to date, both competitive and noncompetitive outgroups have been used as dependent measures in TMT studies. Moreover, competitive outgroups are sometimes intertwined with manipulations of mortality salience (e.g., terrorist attacks). These findings suggest that it is wise to differentiate between conditions with and without competitive outgroups.

GENERAL DISCUSSION

In these studies we examined the goals underlying stereotyping when people are reminded of the fact that death is inevitable. In sum, the findings show that under mortality salience, in general, people use more positive and negative stereotypes. This suggests that a comprehension goal is preferred over an enhancement goal. Being reminded of the temporary nature of life motivates people to make sense of the social environment.

The idea that mortality salience increases the need to comprehend one's environment is in accordance with the cultural worldview hypothesis that has been put forward and supported in numerous TMT studies (for a review, see Solomon et al., 2004). The cultural worldview hypothesis states that people are motivated to defend, affirm, and justify their cultural worldview to keep the world meaningful and predictable. The relationship between comprehension goals and mortality salience is also supported by research on TMT and cognitive closure. Dechesne and Wigboldus (2001), for example, showed that mortality salience enhances the need to develop and use cognitive schemas to satisfy the need for order and

predictability. Similarly, Landau and colleagues recently showed that people are more likely to strive for meaning under mortality salience (Landau et al., 2004; Landau et al., 2006). These studies suggest that people have the need to comprehend their surroundings and in these studies we showed that using both positive and negative stereotypes can fulfill the comprehension goal that mortality salience may induce. There are situations, however, in which people use mostly negative, and not positive, stereotypes and in which an enhancement goal may dominate a comprehension goal. We found that this is the case when a competitive or threatening outgroup is present and people thus have to deal with a direct threat to their self-esteem. It should be noted that this effect might not be limited to competitive outgroups. It may also apply to other situations in which self-esteem is threatened. Numerous TMT studies have shown that self-esteem has an important function in buffering existential threat (for a review, see Pyszczynski et al., 2004). Thus, it is likely that an enhancement goal will be more prevalent than a comprehension goal in situations wherein self-esteem is directly threatened.

Implications

An important contribution of this series of studies is that they are among the first in which two basic goals underlying the effects of mortality salience in general and on stereotyping in particular were operationalized and measured. The results presented indicate that the context and the social environment are very important in this regard. We distinguished two types of mortality salience that both have unique effects on how people interpret their social surroundings. On one hand, there is the general existential threat that death is inevitable, which motivates people to comprehend their environment. On the other hand, there is a more specific type of mortality salience that involves rival or threatening others, which activates the need to self-enhance. This implies that people are likely to respond differently to reminders of terrorist threats or other threatening outgroups than to reminders about their mortality in a neutral context in which self-esteem in not directly threatened. In many TMT studies, however, these types of mortality threat were used interchangeably as a mortality salience induction or as the dependent variable. The findings of this research suggest, however, that these different types of mortality reminders may activate different goals. Therefore, we think that it is vital to distinguish conceptually between mortality salience based on an abstract existential threat and mortality salience based on a more specific, outgroup-related threat. For example, using the terrorist attacks of 9/11 as a mortality salience manipulation has been shown to increase outgroup derogation (e.g., Kaiser et al., 2004; Pyszczynski, Solomon, & Greenberg, 2003). However, the question raised in this research is whether these effects are driven by the threatening intergroup setting or mortality salience per se or by the fact that there is a direct threat to one's self-esteem. In the extant literature, several researchers have theorized that the impact of terrorist threats, such as the events of 9/11, should be very similar to the effects of a mortality salience manipulation (Dechesne & Kruglanski, 2004; Pyszczynski et al., 2003). However, terrorist threats are likely to activate mortality salience within a specific intergroup context. The findings of this research (see Study 3) indicate that this type of mortality salience might activate an enhancement goal rather than the comprehension goal that is activated by nonintergroup mortality salience. This concern and its implications for TMT and research on the psychology of terrorism (Kruglanski & Fishman, 2006) need to be addressed in future research.

Conclusion

We believe that this research provides an important contribution to the existing literature on the effects of mortality salience on the interpretation of the social environment. We showed that, when it comes to stereotyping, mortality salience may activate both a comprehension goal and an enhancement goal. We argued and demonstrated that a comprehension goal enhances both positive and negative stereotyping and that an enhancement goal increases mainly negative stereotyping. Which of the two goals is more dominant is likely to depend on the context. These findings indicate that an enhancement goal is more likely to be dominant when there is a specific threat to self-esteem, for example, in settings in which intergroup competition or conflict is salient. If the mortality concerns are more abstract, such as when pondering the temporary nature of life, people are more likely to pursue a comprehension goal.

NOTE

1. The riddles used in this experiment can be found at http://lennartrenkema.com/work.

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