

## Chapter 11

# An Existentialist Approach to the Social Psychology of Fairness

## *The Influence of Mortality and Uncertainty Salience on Reactions to Fair and Unfair Events*

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Sex, Drank, en Dood, deze drie, maar de meeste van deze is de dood.  
[Sex, Booze, and Death, this three, but of this three, death is the  
greatest.]

—GERARD REVE, *In Gesprek: Interviews* (1983, pp. 124–125)

**T**his quote (inspired by the Bible's 1st Corinthians, Chapter 13) highlights the key role that death plays in the work by Gerard Reve, my favorite Dutch novelist (a Dutch mixture, one could say, of Arthur Miller, Charles Bukowski, and Ernest Hemingway). The work by this author has not only given me huge literary enjoyment but also taught me a lesson or two about mankind, the most important being the fascinating role that death plays in human life and the intriguing albeit sometimes strange way with which people may deal with this issue. Other literary work that I read as an adolescent and as a student, such as the novels by Louis-Ferdinand Céline, as well as some important experiences in my private life, also convinced me of the importance of the darker side of humankind in general and death in particular. As a student I was excited about social psychology but sometimes dissatisfied with the fact that social psychology seemed to neglect these important topics. It was as if there was a discrepancy between issues that social psychologists studied and concepts that were very important in the arts and—even more important of course—in real life.

I was thrilled, therefore, when I read about the pioneering work in social psychology by Jeff Greenberg, Tom Pyszczynski, and Sheldon Solomon and their colleagues on terror management theory (e.g., Greenberg, Solomon, & Pyszczynski, 1997; Pyszczynski, Greenberg, & Solomon, 1999; Solomon, Greenberg, & Pyszczynski, 1991). Here there was this theoret-

ical framework that explicitly focused on these important issues in human existence, and, what is more, here there were several ingenious experiments that thoroughly tested several of the predictions derived from the framework's theorizing. All this I thought was very exciting. Furthermore, I could see interesting parallels with my own work on the social psychology of fairness and justice judgments. For all these reasons, I started talking about terror management with my colleagues at my department, defended the terror management framework against skeptics, and began conducting terror management studies myself. In this chapter I would like to discuss these experiments and the studies and insights that followed from it. The issues I focus on in this research program are all nicely illustrated in the following quote by Erich Fromm:

The state of anxiety, the feeling of powerlessness and insignificance, and especially the doubt concerning one's future after *death*, represent a state of mind which is practically unbearable for anybody. Almost no one stricken with this fear would be able to relax, enjoy life, and be indifferent as to what happened afterwards. One possible way to escape this unbearable state of *uncertainty* and the paralyzing feeling of one's own insignificance is the very trait which became so prominent in Calvinism: the development of a frantic activity and a striving to do something. . . . In Calvinism this meaning of effort was part of the religious doctrine. Originally it referred essentially to *moral effort*. (1942/2002, pp. 78–80, emphasis added)

This quotation illustrates the core of what I concentrate on in this chapter: death, uncertainty, and fairness concerns (and related concepts such as justice, morality, and ethics). As it turned out, combining the insights from the first terror management experiments I conducted with insights from my earlier work (e.g., Van den Bos, Lind, Vermunt, & Wilke, 1997; Van den Bos, Wilke, & Lind, 1998) and other articles (esp. Martin, 1999; McGregor, Zanna, Holmes, & Spencer, 2001) led me to propose that important (albeit perhaps not all) elements of terror management theory and at least some mortality salience effects seemed to fit into a broader framework of uncertainty management.

I would like to repeat here that I was and still am very enthusiastic about terror management theory and that I do think that the predictions that follow from the theory are accurate, insightful, and among the best in modern social psychology. Therefore, the purpose of the research program I discuss here is certainly not to falsify or attack terror management theory. Rather the idea is to take the framework very seriously and see how and to what extent we can build on and extend the theory to understand other issues previously not explored by the theory, and how we can use the experimental paradigms developed within the terror management domain to study these new issues.

The research program I review here is clearly work in progress. I think it is important, therefore, to prevent jumping to theoretical conclusions and that first the studies my colleagues and I conducted should be thoroughly discussed. After this overview, I would like to draw conclusions from the research findings that were reviewed and discuss the implications for the social psychology of terror and uncertainty management. Before I do this it is important to briefly introduce the social psychology of fairness judgments.

## FAIRNESS

For a long time scientists from various disciplines have been intrigued by fairness and related concepts, such as justice, morality, and ethics. Social psychologists have shown con-

vincingly that when people feel they have experienced fair or unfair events this may strongly affect their subsequent reactions (see, e.g., Brockner & Wiesenfeld, 1996; Folger & Cropanzano, 1998; Lind & Tyler, 1988; Tyler & Lind, 1992; Van den Bos & Lind, 2002). For instance, it has been reported that the belief that one has been fairly treated by judges, the police, organizational managers, or other social authorities enhances acceptance of legal decisions, obedience to laws, and evaluations of public policies, whereas the belief that one has been treated in an unfair way has been found to prompt antisocial behavior, recidivism among spouse abuse defendants, and the initiation of lawsuits (Lind & Van den Bos, 2002). These empirical investigations have been very important because, as a result, social psychologists know quite a lot about what the effects of fair and unfair treatment are. However, these advances may have been achieved at the expense of deeper insights into what may be thought of as one of the most fundamental topics in the psychology of social justice: why fairness matters so much to people (Van den Bos & Lind, 2002). Because fairness judgments influence so many important attitudes and behaviors, studying why fairness matters is a crucial issue for understanding how humans think, feel, and behave in their social environments. In the research program I discuss here, the psychology of why fairness is important is the primary focus of attention. Specifically, findings of experiments are presented in which it is manipulated whether people experience fair or unfair events and in which the antecedents of people's reactions to these fair and unfair events are assessed. The first set of studies that I discuss here explored whether insights and manipulations from terror management theory could successfully be used to study the social psychology of why fairness matters to people.

## MORTALITY SALIENCE AND FAIRNESS

According to terror management theory (e.g., Greenberg et al., 1997; Pyszczynski et al., 1999; Solomon et al., 1991), the fear of death is rooted in an instinct for self-preservation that humans share with other species. Although human beings share this instinct with other species, only humans are aware that death is inevitable. This combination of an instinctive drive for self-preservation with an awareness of the inevitability of death creates the potential for paralyzing terror. Terror management theory posits that this potential for terror is managed by a cultural anxiety buffer, a social psychological structure consisting of things like one's worldview and self-esteem. To the extent that this buffer provides protection against death concerns, reminding individuals of their death should increase their need for that buffer. Thus, reminders of death should increase the need for the protection provided by the buffer and therefore lead to strong negative evaluations of people whose behaviors and beliefs threaten on that worldview and lead to strong positive evaluations of those whose behaviors and beliefs uphold or provide an opportunity to reconstruct the worldview. (For more extensive introductions to terror management theory, see, e.g., Greenberg et al., 1997; Pyszczynski et al., 1999; Solomon et al., 1991.)

On the basis of terror management theory, Van den Bos and Miedema (2000) argued that participants who are asked to think about their mortality would react more negatively toward violation of norms and more positively toward things that uphold or bolster cultural norms and values. It is reasonable to assume that most people judge unfair events to be in violation with cultural norms and values and think of fair events as being in correspondence with norms and values of good behavior and conduct (Lind & Tyler, 1988). Van den Bos and Miedema, therefore, predicted that participants would show stronger reactions toward

fairness manipulations in mortality salient conditions than in mortality nonsalient conditions.

Van den Bos and Miedema (2000) describe three experiments, but here I discuss only the first. In this experiment, we used an experimental paradigm that was similar to previous fairness experiments (e.g., Van den Bos et al., 1997, 1998). In the first part of the instructions, participants were informed that they would participate in the study with another person. The participants were told that after the work round the experimenter would divide some lottery tickets between them and the other participant. After the work round, participants were told how many tasks they had completed in the work round, and—to ensure that participants compared themselves to the other participant—the participants were told that the other participant had completed an equivalent number of tasks.

After this, the participants were told that before the experimenter divided the lottery tickets between them and the other participant, they would be asked to answer some questions supposedly unrelated to the experiment, and that after they had completed these questions, the experiment would continue. Mortality salience was then manipulated. As in most previous terror management studies, the mortality salient condition was induced by having participants respond to two open-ended questions concerning their thoughts and feelings about their death: (1) "Please briefly describe the emotions that the thought of your death arouses in you" and (2) "Please write down, as specifically as you can, what you think physically will happen to you as you die." Participants in the mortality nonsalient condition were not asked to write something down; a manipulation which is in correspondence with previous terror management studies (e.g., Greenberg et al., 1990, Study 1; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989, Studies 1–5).

After all participants had completed the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), on which they reported on 20 items how they felt at the moment, participants were told that by pushing the return button on the keyboard the study would continue. Following previous terror management studies (see Greenberg et al., 1997; Solomon et al., 1991), the PANAS was included in all the studies discussed in this chapter as a filler task and to determine whether the salience manipulations engendered positive and negative affect (which they generally did not). This indicates that affective states as a result of the salience manipulations cannot explain the research findings discussed here.

The fairness manipulation was then induced. In the fair condition, the experimenter asked participants to type in their opinions about the percentage of tickets that they should receive relative to the other participant. Participants in the unfair condition were informed that they would not be asked to type such an opinion. Dependent variables and manipulation checks were then assessed. The main dependent variables were participants' positive affective reactions toward the way they were treated (i.e., how happy, content, and satisfied participants felt about the way they were treated).

As expected, a significant interaction between mortality salience and the fairness manipulation was found. In the mortality nonsalient condition, participants' affective reactions were significantly more positive following an opportunity to voice their opinion than following no such opportunity, but this fair process effect was stronger in the mortality salient condition. Findings of Experiments 2 and 3 of Van den Bos and Miedema (2000) replicated and extended these results (using other fairness manipulations and other ratings of affect). Thus, as predicted, when people have been thinking about their own mortality they react more strongly to fairness of treatment than when they have not been thinking about this subject.

Thus, in line with predictions derived from terror management theory, these research findings show that mortality salience leads people to react more negatively toward violation and more positively toward things that uphold or bolster their cultural norms and values. Moreover, this work extends previous work on terror management theory, in that it used that theoretical framework to explicitly investigate why fairness—one of the most important social norms and values (Folger, 1984; Folger & Cropanzano, 1998; Tyler & Smith, 1998)—matters to people. By showing effects of mortality salience on people's reactions to perceived procedural fairness in ways that were predicted on the basis of terror management theory, the findings provided important new insights into the antecedents of reactions to fair and unfair events: Fairness matters more when mortality has been made salient.

### UNCERTAINTY SALIENCE AND FAIRNESS

In subsequent research articles, I argued that the Van den Bos and Miedema (2000) findings fit into a line of research that shows that people pay more attention to fairness when they are uncertain about things such as authority's trustworthiness (Van den Bos et al., 1998), distributive issues (Van den Bos et al., 1997), or procedural issues (Van den Bos, 1999). For example, Van den Bos et al. (1998) argued that, because ceding authority to another person raises the possibility of exploitation and exclusion, people frequently feel uneasy about their relationship with authorities. Furthermore, these authors proposed that this implies that people want to have information about whether they can trust the authority. As a consequence, when information about whether an authority can be trusted is not available, people will rely heavily on perceived procedural fairness, yielding strong fair process effects. However, when people receive information that the authority either can or cannot be trusted, they are less in need of procedural fairness information, yielding less strong fair process effects. This suggests that when people move from uncertainty to certainty, people end up needing fairness less.

Being reminded about one's mortality will lead one to be more uncertain, of course, than not being reminded about this fundamental vulnerable aspect of one's life. In fact, results collected by Martin (1999) show that asking people to think about their mortality—in the same way as we did in—leads them to be more uncertain than not asking them to think about this subject. McGregor et al. (2001) also found that mortality salience caused uncertainty-related feelings. These are important data because they suggest that an important psychological mechanism underlying mortality salience effects may be perceived uncertainty.

This position is strengthened by the results of research (Van den Bos 2001a) showing that reminding people about their own mortality does indeed make them feel uncertain about themselves and that these feelings of uncertainty explain how people react toward subsequent events. One of the Van den Bos (2001a) experiments was based on the fact that there is good evidence that state self-esteem is an indicator of the extent to which people are uncertain about themselves (see, e.g., Heatherton & Polivy, 1991; see also Baumgardner, 1990; cf. Sedikides & Strube, 1997). Therefore, state self-esteem measures were taken as indicators of perceived uncertainty in the experiment, and it was predicted that these measures would reveal that participants' state self-esteem was lower in mortality salient, as opposed to nonsalient, conditions. Furthermore, it was hypothesized that state self-esteem would mediate the relationship between manipulations of mortality salience and fairness. The results indeed showed that reminding participants about their death lowered their levels of state self-esteem, and that state self-esteem mediated participants' reactions to subsequent varia-

tions in distributive fairness (participants received an outcome that was equal to the outcome of a comparable other participant or that was worse than the outcome of the comparison other). These findings lend further support to the hypothesis that mortality salience may lead people to become more uncertain about themselves (as indicated by lower levels of state self-esteem; see also McGregor et al., 2001) and hence react more strongly to variations in fairness.

In additional research that supports and extends this line of thought, Miedema, Van den Bos, and Vermunt (2003) recently collected data that show that people react more strongly toward variations in fairness when their self-image has been threatened (by having them think of situations in which important aspects of their selves were questioned by other people who are very important for them). The findings of these studies show that reminding people of things that threaten their ego (e.g., being judged as not intelligent) leads to stronger procedural fairness effects than does reminding people of events that do not threaten their ego (e.g., being judged as intelligent). These results are in accordance with our suggestion that fairness is more important for people when they are uncertain about important aspects of their lives. It is now time, however, to move to a review of studies that provide very direct evidence that uncertainty is a key antecedent of why fairness matters.

Van den Bos (2001b) extended the aforementioned studies by focusing explicitly on uncertainty as a factor in people's reactions to perceived fairness. The findings by Van den Bos and Miedema (2000; Van den Bos, 2001a; Miedema et al., 2003) suggest that when people are reminded of aspects of their lives that lead them to feel uncertain they will react more strongly to variations in fairness. An interesting and potentially important implication of this is that fairness matters especially to people when their uncertainties have been made salient. However, in the Van den Bos and Miedema studies the implication is just that: an implication. The studies showed that mortality salience, which was *presumed* to increase feelings of uncertainty, is a moderator of fair process effects, but the Van den Bos and Miedema research did not present direct evidence of the importance of uncertainty salience for people's reactions to perceived fairness.

Van den Bos (2001b) conducted three experiments. Each experiment provides evidence that uncertainty salience itself is an important determinant of people's reactions to perceived fairness. In this chapter I discuss only the first experiment in the series. In this experiment, the same setup was used as in Van den Bos and Miedema (2000, Experiment 1). Instead of a mortality salience manipulation, however, uncertainty salience was manipulated directly. Participants in the uncertainty salient condition were asked two questions that solicited participants' thoughts and feelings of their being uncertain: (1) "Please briefly describe the emotions that the thought of your being uncertain arouses in you," and (2) "Please write down, as specifically as you can, what you think physically will happen to you as you feel uncertain." Participants in the uncertainty nonsalient condition were asked two questions that were similar in format but did not remind participants about their uncertainties (see Van den Bos, 2001b): (1) "Please briefly describe the emotions that the thought of your watching TV arouses in you," and (2) "Please write down, as specifically as you can, what you think physically will happen to you as you watch TV." As in Van den Bos and Miedema (2000, Experiment 1), the fairness manipulation varied whether participants received or did not receive an opportunity to voice their opinions about the percentage of tickets that they should receive relative to the other participant. The main dependent variables were participants' negative affective reactions toward their treatment in the experiment (i.e., how disappointed and sad participants felt about the way they were treated).

Following the line of reasoning I reviewed earlier, participants' reactions should be influenced more strongly by perceived fairness in the uncertainty salient conditions than in the nonsalient conditions. In fact, this prediction was supported by a significant interaction between uncertainty salience (salient vs. nonsalient) and procedure (voice vs. no voice). As expected, the effect of the procedural fairness manipulation was stronger in the uncertainty salient condition than in the nonsalient condition.

Two judges coded whether the answers that participants wrote down had anything to do with death. As in the experiments by Miedema et al. (2003) and in the other uncertainty salience experiments presented in this chapter, the judges agreed that answers had nothing to do with death. Thus, as expected, death-related thoughts cannot explain the findings reported in the uncertainty salience experiments.

Findings of Experiments 2 and 3 of Van den Bos (2001b) replicated and extended these results (using other operationalizations of uncertainty salience, procedural fairness, and ratings of affect). Thus, data from three experiments show that uncertainty salience influences reactions to perceived fairness: Asking people to think about their uncertainties leads to stronger effects of perceived fairness on affective reactions to treatment. These findings reveal that fairness matters more to people when they have been focused on uncertain aspects of their lives. Thus, these findings tell us something that is very fundamental to the point I am making in this section: Fairness has particularly strong effects for people when they have been thinking about issues that are related to their uncertainties. This in turn suggests a novel answer to the question posed earlier about why fairness matters so much to people: It may well be the case that fairness is attended to and fair situations are sought out because fairness may provide protection against things people are uncertain about and/or because it makes uncertainty more tolerable. In other words, fairness is important for people because they use fairness judgments in processes of managing uncertainty (Van den Bos & Lind, 2002).

## MORTALITY AND UNCERTAINTY SALIENCE

We have seen that two theoretical frameworks focus on different antecedents of people's reactions to upholding and transgressions of cultural norms and values in general and fair and unfair treatment in particular: Terror management theory highlights the impact of mortality salience (e.g., Greenberg et al., 1997; Rosenblatt et al., 1989; Van den Bos & Miedema, 2000) whereas the uncertainty management model pays special attention to the influence of uncertainty salience (Van den Bos, 2001b; Van den Bos & Lind, 2002).

The uncertainty management model provides a novel social psychological explanation of why fairness matters to people and has been constructed especially to explain people's reactions toward variations in perceived fairness. However, the model has never been tested against good other accounts. A recent paper by Van den Bos and Miedema (2003) provides an attempt to do this. Specifically, although the uncertainty management model never has claimed uncertainty to be the sole cause of people's reactions toward fair and unfair treatment, the model does suggest that it is one of the key determinants of these reactions. It would be interesting, therefore, to investigate within one experimental setup the impact of both uncertainty and mortality salience, the latter being another, perhaps even more influential, antecedent of people's reactions toward fair and unfair experiences (cf. Van den Bos & Miedema, 2000). Related to this, on the basis of terror management theory (cf. Greenberg et al., 1997; Pyszczynski et al., 1999; Solomon et al., 1991) one

would expect especially mortality salience to cause the kinds of reactions to fair and unfair treatment reviewed earlier, and this is another reason why it is important to study within one setup the influence of mortality and uncertainty salience on people's reactions to variations in procedural fairness.

Others have speculated about the importance of uncertainty management processes to account for people's reactions to culture-related events (e.g., Martin, 1999; McGregor et al., 2001) but never explored people's reactions toward fair and unfair events and, more important, never studied the impact of both mortality and uncertainty salience within one study (Martin, 1999) or did so by operationalizing the latter by using temporal discontinuity as a self-integrity-threat induction (McGregor et al., 2001). This latter manipulation asked participants to compare events or persons from their childhood or adolescence with how these events or people would be in the year 2035 and hence was very different from the mortality salience manipulation commonly used in terror management studies (cf. Van den Bos & Miedema, 2000) and thus, methodologically speaking, did not yield a very clean comparison with the usual mortality salience manipulations.

In the paper by Van den Bos and Miedema (2003), these authors constructed a clear uncertainty salience manipulation that closely paralleled the mortality salience manipulations most often used in terror management studies. That is, following most previous terror management studies, the mortality salient condition was induced by having participants respond to the usual two open-ended questions concerning their thoughts and feelings about their death (cf. Van den Bos & Miedema, 2000): (1) "Please briefly describe the emotions that the thought of your death arouses in you," and (2) "Please write down, as specifically as you can, what you think physically will happen to you as you die." Participants in the uncertainty salient condition were asked two questions that were highly similar in format but asked participants about their thoughts and feelings of their being uncertain (cf. Van den Bos, 2001b): (1) "Please briefly describe the emotions that the thought of your being uncertain arouses in you," and (2) "Please write down, as specifically as you can, what you think physically will happen to you as you feel uncertain." By thus replacing "death" with "uncertain" in the most commonly used manipulations of mortality salience, while leaving everything else the same, the uncertainty salience manipulation was constructed such that it very closely resembled the mortality salience manipulation and that, as a result, the impact of these two manipulations on people's reactions toward fair and unfair treatment could be investigated in a way that scientifically made sense.

In Experiment 1, participants ostensibly participated in two unrelated studies. In the first study, either mortality or uncertainty was made salient (cf. Van den Bos, 2001b; Van den Bos & Miedema, 2000). After this, the second study started in which participants were asked to imagine that they applied for a job and that the selection process for this job consisted of nine parts. Participants then learned that the procedures used to make the decision entailed the use of information that was either highly accurate (all parts were graded) or not so accurate (only one part was graded). Because it is important to measure people's affective reactions to perceived fairness (Tyler & Smith, 1998; Weiss, Suckow, & Cropanzano, 1999), and following previous justice research (e.g., Folger, Rosenfield, Grove, & Corkran, 1979; Van den Bos & Spruijt, 2002; Van den Bos & Van Prooijen, 2001), main dependent variables in both experiments reported here were participants' affective reactions toward the way they were treated (cf. Van den Bos, 2001b; Van den Bos & Miedema, 2000). Specifically, because careful pilot testing revealed that mortality salience yielded the strongest effects of procedural fairness on participants' anger toward the way they were treated, and because it is important to assess anger following perceived fairness (e.g., Folger &

Cropanzano, 1998; Folger et al., 1979), main dependent variables assessed participants' anger toward treatment (cf. Van den Bos, 2001b, Experiments 2 and 3).

The reported findings show that when people have been thinking about their being uncertain *and* when they have been thinking about their own death, their ratings of anger toward treatment are significantly affected by variations in procedural fairness (viz., accurate vs. inaccurate procedures). This indicates supportive evidence for the impact of both mortality and uncertainty salience on people's reactions toward fairness of treatment, thus supporting both terror management theory and the uncertainty management model. Interestingly, the findings of the experiment further reveal a significant interaction effect between the salience manipulation (mortality vs. uncertainty) and the procedure manipulation (accurate vs. inaccurate) showing that even stronger fair process effects are to be found following uncertainty salience than following mortality salience. The results thus provide supportive evidence for uncertainty management model's reasoning that uncertainty-related thought is a key cause of people's reactions toward variations in procedural fairness and even suggest that uncertainty salience is a more important cause of people's reactions to experiences of procedural fairness than a strong other account (viz. mortality salience). Findings of the second experiment reported in Van den Bos and Miedema (2003) replicated the results of the first experiment. The second experiment used a different fairness manipulation and again showed a significant interaction effect between the salience and procedure manipulations, revealing that people reacted stronger to variations in procedural fairness under conditions of uncertainty salience as opposed to mortality salience. These findings contribute to the robustness of the results reported in the first experiment.

Thus, the findings of both experiments show that asking people to think about issues that are related to their own uncertainties or their own mortality leads their anger toward treatment ratings to be strongly affected by variations in procedural fairness. Thus, in support of both terror management theory and the uncertainty management model, evidence has been obtained that both mortality and uncertainty salience lead to strong fair process effects on people's reactions. Furthermore, in both experiments it was found that uncertainty salience has an even bigger impact on people's reactions than does mortality salience. This supports the uncertainty management model's reasoning that reminders of uncertainty are a key determinant of people's reactions toward fair and unfair experiences and even suggests that uncertainty salience is a more important cause of people's reactions to fairness of treatment than mortality salience.

It can be noted here that manipulation-check findings revealed that what participants wrote down during the salience manipulations showed that although all participants in the mortality salient condition had been thinking about death, some of the participants in the mortality salient condition had also been thinking of the same uncertainty-related issues as all participants in the uncertainty salient condition had. Uncertainty was clearly more salient in the uncertainty salient condition than in the mortality salient condition, but the fact that some uncertainty-related thought could be detected in the mortality salient condition is in line with arguments that have been put forward that an effect (but not the only effect) of manipulations of mortality salience may be the activation of uncertainty-related thought (e.g., Martin, 1999; McGregor et al., 2001; Van den Bos & Lind, 2002).

Interestingly, recently collected data (Van den Bos & Poortvliet, 2003) show that it is also when experimental paradigms (other than fairness paradigms) are used that are the same as those typically used in terror management studies that uncertainty salience can have a bigger impact on people's reactions than does mortality salience. Van den Bos and Poortvliet measured participants' reactions toward essays that either violated or bolstered

their cultural worldviews and found similar effects of the uncertainty and mortality salience manipulations as Van den Bos and Miedema (2003) did: Students from Utrecht University who were reminded about their mortality reacted more negatively toward an essay that stated very negative things about Utrecht University and the students at that university and reacted very positively toward an essay that was very positive about this university and the students. More important for the current purposes, a significant interaction effect between the salience manipulation (mortality vs. uncertainty) and the essay manipulation (positive vs. negative) was found, showing that participants in the uncertainty salient condition reacted even more strongly toward these essays. The findings of these studies indicate that the impact of uncertainty salience is not restricted to reactions toward fair and unfair events and can be found also on cultural worldview issues that have served a more prominent role in previous terror management studies and theorizing (e.g., Dechesne, Janssen, & Van Knippenberg, 2000).

It should be noted that, of course, it is always difficult to compare the impact of different manipulations (such as mortality and uncertainty salience) with each other. This said, however, in the experiments by Van den Bos and Miedema (2003) and Van den Bos and Poortvliet (2003), the uncertainty salience manipulation was constructed in such a way that it very closely paralleled the mortality salience manipulation most commonly used in terror management studies (the only thing that we did was to replace the word "death" with "uncertain"), thus making it possible to simultaneously investigate the impact of these two salience manipulations in a way that scientifically made sense. Furthermore, dependent variables were used that extensive pilot testing had shown to yield the strongest effects of mortality salience among the population of participants used. Future research—with other dependent variables, other populations of research participants, and other cultural norms and values and other concepts related to terror and uncertainty management (for suggestions, see, e.g., Greenberg et al., 1997; McGregor et al., 2001; Pyszczynski et al., 1999; Solomon et al., 1991; Van den Bos & Lind, 2002)—is needed, of course, but the findings of *the studies reviewed here* converge on the same point: The uncertainty management model highlights the role of uncertainty in people's reactions toward events that violate or bolster their cultural norms and values. Terror management theory focuses strongly on the importance of death to account for social psychological effects and states, among other things, that mortality salience is a very important antecedent of people's reactions toward transgressions and upholding of cultural norms and values (e.g., Greenberg et al., 1997; Pyszczynski et al., 1999; Solomon et al., 1991). On the basis of terror management theory one would therefore be inclined to expect mortality salience to be a prime, perhaps even the main, cause of people's reactions to things that violate or bolster their cultural worldview. After reviewing the consistent findings of the experiments reviewed in this section the conclusion seems warranted that mortality salience is important in predicting cultural worldview reactions but that uncertainty salience can be even more important, and in fact was more important in the studies reviewed here.

This does not rule out, of course, the possibility that mortality salience may well have unique effects that cannot be subsumed under the heading of an uncertainty framework, and this does not imply that there will not be circumstances in which mortality salience (as opposed to uncertainty salience) may exert stronger effects on reactions to other violations and bolstering of cultural worldviews than the issues and variables studied in the experiments reviewed here. This said, however, what I think matters most for our current insights regarding terror and uncertainty management is that the experiments reviewed here have

shown that particular effects may occur. Other studies will be needed to investigate the full implications of these studies. It is my true hope, therefore, that more studies will be conducted to explore the exciting issues of mortality and uncertainty salience.

## CONCLUSIONS AND DISCUSSION

I think that there are good conceptual reasons why uncertainty has a big impact on people's reactions toward persons and events that violate or bolster their cultural worldviews. That is, various social psychological theories have pointed at the crucial role that uncertainty plays in diverse important social psychological processes and have noted that uncertainty is an aversive state that people feel needs to be managed, at least to some extent (see, e.g., Festinger, 1954; Fiske & Taylor, 1991; Hogg & Mullin, 1999; Lopes, 1987; Sorrentino & Roney, 1986). The uncertainty management model notes that fairness judgments are particularly well suited to help in processes of uncertainty management (for details, see Lind & Van den Bos, 2002; Van den Bos & Lind, 2002), and the research findings reviewed here corroborate this prediction.

Furthermore, recently collected data (Van den Bos & Poortvliet, 2003) suggest that salience of uncertainty considerations may also have a big impact on other reactions toward violations and bolstering of cultural worldviews; reactions more commonly studied in terror management experiments than reactions toward fair and unfair events. It is noteworthy that these research findings fit into lines of thought of other, nonfairness papers that recently have explored the relationship between terror and uncertainty management processes and that have argued for the important role of uncertainty in social psychology. Martin (1999), for example, discussed research findings that indicated that individuals who had been reminded about their mortality experienced more uncertainty than did those who had not been thinking about mortality. Related to this, McGregor et al. (2001) found that mortality salience caused uncertainty-related feelings and reported that in pilot studies they found that responses in mortality salient conditions were more strongly related to uncertainty than to "fear, pain, or anything resembling annihilation terror" (p. 480). In their uncertainty management chapter, Van den Bos and Lind (2002) argued that these findings suggest that an important (albeit not the only) consequence of mortality salience manipulations may be the activation of uncertainty-related thought. In other words, an important aspect (but not the sole story) of mortality salience may be that it may be conceived of as an indirect manipulation of uncertainty salience. When developing the Van den Bos and Miedema (2003) and Van den Bos and Poortvliet (2003) experiments, my colleagues and I reasoned that if this line of logic would be true, it should imply that directly reminding people about their uncertainties would constitute a more direct manipulation of uncertainty salience and hence should have a bigger impact on reactions to fair and unfair treatment. The findings of all experiments reviewed here suggest that asking people to think about their uncertainties is indeed a more direct manipulation of uncertainty salience, and the findings of the experiments discussed here show that this manipulation indeed yielded stronger effects on people's reactions toward events that violated or bolstered their cultural worldview.

Related to this, in two out of three experiments of the Van den Bos and Miedema (2003) and Van den Bos and Poortvliet (2003) papers it was found that among participants where mortality salience triggered uncertainty-related thought, anger reactions were stronger influenced by the procedure or article manipulations, whereas for participants where

mortality salience did not activate uncertainty-related thought weaker or nonsignificant differences between the procedure or article conditions were obtained. This suggests that, at least sometimes, it may be the uncertainty component of mortality salience manipulations that may be driving people's reactions to violations and bolstering of cultural worldviews.

I hasten to note here that, in my opinion, all this should not necessarily be taken as a refutation of terror management theory, but, rather, as an attempt to incorporate at least some elements of it into a broader framework. Notable in this respect, I think, are research findings that, in correspondence with the theory's predictions, show that reminders of mortality lead to a decrease in situational self-esteem (e.g., Koole, Dechesne, & Van Knippenberg, 2002; Van den Bos, 2001a). If people with low self-esteem are more uncertain about themselves than those with high self-esteem (see, e.g., Heatherton & Polivy, 1991; see also Baumgardner, 1990; cf. Sedikides & Strube, 1997), then self-esteem measures can be taken as indicators of perceived uncertainty, which would imply that the terror and uncertainty management perspectives converge on the important role of self-related uncertainty in social psychological processes. Paradoxically, the fact that we will die some day is almost the only thing we humans can be absolutely certain about. However, this does not imply that being reminded about one's own mortality may not make people uncertain about themselves (cf. Martin, 1999; McGregor et al., 2001). I would therefore like to make a plea for broadening the scope of terror management theory to explicitly encompass the role of self-related uncertainty and would urge researchers to explore this implication of the findings reviewed here. Again, I would like to emphasize that, in my opinion, this may not imply an alternative to terror management theory but rather the incorporation of pivotal aspects of the model (such as important elements of mortality salience manipulations) in a broader framework.

It is important to emphasize here that it would not really be accurate to say that terror management theory predicts that only thoughts of death would produce increased striving to maintain aspects of the cultural anxiety buffer. What the theory does claim is that the problem of death lies at the root of the need for self-esteem and faith in one's worldview, which does not imply that no other class of aversive events would increase striving for these psychological entities. This chapter (see also Martin, 1999; McGregor et al., 2001) reveals that uncertainty may well be one of these entities and may sometimes even yield bigger effects on human reactions than reminders of mortality do.

Related to this, I would like to stress that I am not saying here that the research findings that were reviewed in this chapter imply that uncertainty concerns underlie all terror management effects. In all likelihood, I would predict that future research will show that nonexistence does have a motivational force, over and beyond the uncertainty aspects that may be related to reminders of mortality, and I am therefore not arguing that fear of the termination of life, nonexistence, and decay are just side effects of uncertainty with no motivational properties. There are no data that speak to this latter position, and personally I think that it would be unreasonable to expect that in the future there will be data that will show this.

Furthermore, I am not implying here that uncertainty accounts for all of findings that have come out of the terror management literature. The mortality salience paradigm is probably the most widely used paradigm in the terror management field (for overviews, see, e.g., Greenberg et al., 1997; Pyszczynski et al., 1999; Solomon et al., 1991), but there are definitely other approaches to testing the theory as well. For example, Mikulincer, Florian, Birnbaum, and Malishkevich (2002) showed that imagining to be separated from a relationship partner enhanced subsequent death-thought accessibility, and it may be difficult to explain these findings from an uncertainty management account. This suggests that some

elements of theory and research on terror management are unrelated to uncertainty and are specific to death-related thought. However, I do argue that there is also the possibility that sometimes and/or some aspects of mortality salience effects may be caused by uncertainty concerns, and I do think the research findings reviewed here may help us in our progress toward understanding the subtle and intriguing relationship between uncertainty and terror management effects. This may yield the conclusion that some elements of terror management theory (cf. Van den Bos & Miedema, 2003; Van den Bos & Poortvliet, 2003) may be part of a broader conceptual framework related to uncertainty management, whereas other core elements of the theory (cf. Mikulincer et al., 2002) clearly are not related to uncertainty and may be uniquely associated with the psychology of death.

I hope that these implications of this chapter will further future theorizing and new empirical work. This may yield more thorough insights into the psychology of uncertainty. For example, one could argue that we are always faced with uncertainties but that they may vary greatly in importance and level of uncertainty, and that this may affect people's reactions considerably. Furthermore, the uncertainty of whether one will enjoy the next Pokemon game is not the same as uncertainty about layoffs or death. Thus, all uncertainties are not the same and cannot be expected to have the same effects. However, the research findings reviewed here have revealed that just asking participants two questions about their being uncertain leads to very strong reactions toward events that are good or bad for one's cultural worldview.

Related to this, one may argue that uncertainty management seems like a more "proximal" motive for justice striving than terror management, in that justice bears more of a logical and semantic connection to the problem of uncertainty than it does to the problem of death. Most of the aspects of the cultural worldview and self-esteem that terror management theory views as functioning to provide protection from the fear of death have little or no logical connection to the problem of death (see Pyszczynski et al., 1999). Thus one difference between death and uncertainty, when it comes to justice and perhaps other important cultural norms and values (cf. Van den Bos & Poortvliet, 2003), might be in the extent to which justice helps solve the problem in a logical as opposed to symbolic way.

Future research is needed to further investigate the boundaries of the uncertainty management model (see, e.g., Van den Bos & Lind, 2001; Van Prooijen, Van den Bos, & Wilke, 2003), but for now the model seems to work pretty well in the fairness domain and in other domains as well (Van den Bos & Poortvliet, 2003). I hope that future researchers will be stimulated by this chapter to further explore the uncertainty and terror management implications of the findings reviewed here. As research accumulates concerning the psychology of cultural worldview reactions, as it has in this chapter and in other articles (e.g., Greenberg et al., 1997; Pyszczynski et al., 1999; Solomon et al., 1991), we begin to understand the conditions when the effects to cultural worldview violations are strong and when they are very strong, why these effects occur at all, and why they are so potent when they do occur. This knowledge in turn promises to advance our understanding of fundamental issues in the social psychology of cultural norms and values in basic social relations.

At the end of the day, though, there is at least one finding of the studies reviewed here that promises to have enduring importance: Across multiple studies, it was revealed that both mortality and uncertainty salience have strong effects on reactions to fairness of treatment, with uncertainty salience consistently having a bigger impact. I hope, therefore, that the existentialist approach to the social psychology of fairness reviewed here may stimulate social psychologists to better understand the principles of cultural norms and values.

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