

# Terror Management Theory

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## ABSTRACT

Terror management theory was developed to explain the motivational underpinnings of phenomena such as self-esteem defense and prejudice. The theory is rooted in a long tradition of thought regarding human awareness of death and its role in psychological functioning. The theory posits that to manage the potential for terror engendered by the awareness of mortality, humans sustain faith in worldviews which provide a sense that they are significant beings in an enduring, meaningful world rather than mere material animals fated only to obliteration upon death. The theory is supported by a wide range of studies showing that self-esteem and worldviews provide protection against anxiety and death-related cognition, reminders of mortality instigate worldview bolstering and self-esteem striving, and threats to the worldview and self-esteem increase the accessibility of death-related thought. The research has also led to a dual defense model of responses to conscious and unconscious death thoughts. We then focus on two of many topics informed by the theory: attitudes and behavior regarding physical health, and political preferences and intergroup conflict. We then consider factors that mitigate destructive forms of terror management. Finally, we briefly summarize the contribution of terror management work so far and where it's heading.

## TERROR MANAGEMENT THEORY

Terror management theory was born out of a fundamental dissatisfaction with the field of social psychology circa 1980 shared by three graduate students at the University of Kansas: Sheldon Solomon, Tom Pyszczynski, and the senior author of this chapter. Firmly in the grip of social cognition, the field portrayed people as dispassionate information processors guided by schemas and heuristics, operating in a historical, cultural, motivational, and affective vacuum. Raised in working class families characterized by joy and anger, sibling rivalry and love, passion and sarcasm, in neighborhoods centered around churches and synagogues, bars and ballparks, full of people driven by regional, ethnic, and occupational pride and conflict, social psychology at the time struck us as describing some affectless androids the three of us had never met.

In viewing people as highly motivated creatures driven by their needs to protect their self-esteem and assert the superiority of

their own group over other groups, we were like young salmon swimming upstream against the cognitive revolution. We focused our research on how motivation influenced people's perceptions of themselves and others, particularly in the context of defending self-esteem. We contributed to research on self-serving biases and self-handicapping, which showed that people bias their cognitions to protect their self-esteem. But we completed our graduate studies believing that we had no idea what drove people toward their prides and prejudices.

Spread around the country by the whims of the difficult job market (some things never change), the three of us began searching outside the discipline's journals for answers. I recall getting a call from Sheldon, back in 1982, in which he proclaimed that he had found a guy with the answers. It was a deceased cultural anthropologist named Ernest Becker, and the answers were in his book, *The Denial of Death*, which had won the 1973 Pulitzer Prize for general nonfiction. I quickly read the book. I found it frightening, brutal, and revelatory. Building on a wide array of sources, and taking an existential psychoanalytic perspective, the book seemed to explain all the human trends we had observed growing up and which were so well documented by social psychological research: conformity, obedience, self-serving biases, aggression, and prejudice. It explained everything from the rise of Nazism in Germany to the complexities of sex.

Sheldon, Tom, and I began discussing the book's many insights, as well as those provided by his earlier book, *The Birth and Death of Meaning* (1971), and his last book, *Escape from Evil* (1975). We began using Becker's ideas to teach social psychology in a more integrated way, as if the creature being discussed when we covered self-esteem was the same one we discussed when we covered social influence, aggression, prejudice, and close relationships. We were invited by Roy Baumeister to participate in a symposium entitled "Public and Private Self" at the October 1984 Society of Experimental Social

Psychology (SESP) conference in Snowbird, Utah, and to contribute a chapter to an associated edited volume. We decided at SESP to introduce the core of Becker's analysis to our colleagues in social psychology, though Tom couldn't make it. On a snowy morn in front of an unlit fireplace in our room at the Snowbird Ski Lodge, Sheldon and I rather excitedly hacked out a simple summary of the theory, which we there dubbed "terror management theory" (TMT).

The symposium room was moderately full as Sheldon started his presentation, but as he began discussing Marx, Kierkegaard, Freud, and Otto Rank, a good half of the audience jostled their way out of the room. From the back of the room, I spotted a few remaining dignitaries such as John Darley, Ned Jones, who was visibly shaking his head throughout the talk, and our graduate school advisor and one fan, Jack Brehm. At talk's end, instead of the high fives we had envisioned, we received stunned silence, shock, and dismay. I was comforted at least that the practice of stoning had gone out of fashion.

Undeterred by the chilly initial reception, we forged ahead with the chapter, which became the first written presentation of TMT (Greenberg et al., 1986). Simultaneously, we worked on a paper more fully presenting the theory and explaining its potential value as a broad explanatory framework. We were hoping such a paper would be well received at *American Psychologist*, a publication which clamors for broad, integrative ideas. The paper was rejected unceremoniously with two reviews; one a single paragraph, the other a single sentence: "I have no doubt that this paper would be of no interest to any psychologist, living or dead."

Socialized into our profession very well, we did not accept these concise but argument-free bases for rejection. After a year or so of back and forth, editor Leonard Eron explained that the ideas may have had some validity but would not gain currency until backed by empirical research. Actually, up to that moment, we had not thought of TMT as something to study empirically. But it struck

us – duh – that this was precisely what we had been trained to do – to derive testable hypotheses from theories, and then test them.

We believe that TMT explains some fundamental things about human beings and their social behavior. But TMT was not like your standard variety social psychological theory. Most theories in social psychology are mini-theories focused on a specific set of processes pertinent to a particular topic within the field: stereotype threat (prejudice); the elaboration likelihood model (persuasion); the culture of honor (aggression); self-verification theory (self). TMT is about the role of the unconscious fear of death in just about everything we humans do. But soon we were able to derive hypotheses from this broad existential psychodynamic theory and strategies for testing them in collaboration with our graduate students.

Realizing resistance was going to be strong, we put together six studies, a larger set than was customary at that time, before submitting to the *Journal of Personality and Social Psychology*. The paper was accepted (Rosenblatt et al., 1989); the reviews were along the lines of, “This can’t be right, I don’t like it, but I can’t explain their findings, so take it.” We thought at the time, “Fair enough.”

Since then, the empirical support for TMT has blossomed into a literature consisting of over 400 studies and counting, conducted in 16 countries. This body of work, which has included numerous theoretical expansions and refinements, has benefited greatly from the second (and now third) generation of TMT researchers, former students of the original trio including the junior author of this chapter. In the last decade, researchers from independent labs throughout the world have also made valuable contributions to this continually expanding literature. We believe that the growth of this area of study reflects the generative value of a broad theory that integrates widely varied human endeavors by exploring deeply rooted forces that drives humans to behave the way they do. Indeed,

the junior author of this chapter became enthralled as an undergraduate at Skidmore College with the broad existential perspective TMT offered and the promise of subjecting such ideas to empirical scrutiny. In due course, we will provide a brief overview of the literature that has developed over the past 20 years with an emphasis on recent directions pertinent to contemporary concerns. But first we should step back to acknowledge the rather extensive roots of the theory.

### THE DISTAL AND PROXIMAL ROOTS OF TMT

Although met with surprise and skepticism when introduced to social psychologists in the 1980s, a decent case can be made that TMT is an ancient theory that can be traced back to one of the first narrative texts from around 3000 BC, the Sumerian Epic of Gilgamesh. A central theme of this story, which influenced the major religions that later emerged out of the Middle East, is the main character’s deep concerns about death and his consequent search for immortality. Gilgamesh, devastated by the death of his friend Enkidu, realizes that he too will die. He roamed the desert, lamenting: “How can I rest, how can I be at peace? Despair is in my heart. What my brother is now, that shall I be when I am dead ... I am afraid of death...” He then embarked on a journey to find immortality.

From that early time on, the notion that we humans fear death and urgently desire to deny or transcend it in some way has been a prominent theme in literature, religious writings, and philosophy. Indeed, Schopenhauer declared death the muse of philosophy; we couldn’t even begin to review its role in philosophical thought here. But we should note that the first person to put the basic points of TMT together seems to have been the famed Greek historian Thucydides.

Around 400 BC, Thucydides was focused on understanding the vicious intergroup

conflicts that plagued Ancient Greece. He proposed that the fear of inevitable death drove people to seek immortality in three ways: through heroic, noble actions restoring justice, which qualified them for a divinely awarded afterlife; through memories of their heroic deeds; and through identification with death transcending group identifications. As Ahrens Dorf (2000: 591) put it: “Thucydides contends that they will seek to escape by somehow overcoming their mortal condition, by living on after their death – either through their city, or through their glory, or in an afterlife – and by winning the gods’ favor through the vehement affirmation of their own nobility or piety, or justice.” Thucydides also noted that the increasing salience of mortality once conflicts begin intensifies the desire to heroically vanquish the enemy.

Jumping forward about 2000 years to the modern English literary tradition, poets from Shakespeare to Wordsworth, Keats, and Shelley, to Dickinson and Emerson, among hundreds of others, have acknowledged the role of the fear of death and desire to escape it in the human psyche. Similarly, novelists such as Swift, Dickens, Dostoevsky, and Tolstoy down to twentieth-century writers such as James Baldwin, Don Delillo, James Joyce, Phillip Roth, Milan Kundera, and Kurt Vonnegut have explored how the fear of death drives various forms of human behavior. Here, Baldwin concisely captures the gist of TMT:

Life is tragic simply because the earth turns and the sun inexorably rises and sets, and one day, for each of us, the sun will go down for the last, last time. Perhaps the whole root of our trouble, the human trouble, is that we will sacrifice all the beauty of our lives, will imprison ourselves in totems, taboos, crosses, blood sacrifices, steeples, mosques, races, armies, flags, nations, in order to deny the fact of death, which is the only fact we have (James Baldwin, *The Fire Next Time*, 1963).

Awareness of the role of death in the human psyche has not been limited to the great philosophers, poets, and novelists, but can also be found extensively in visual art (e.g., Van Gogh, Klimt), music (e.g., Schubert and

Mahler), and film (e.g., Woody Allen and Ingmar Bergman). And it is not limited to representatives of “high culture;” indeed, it seems increasingly prevalent in contemporary pop culture also. As we’ve been writing this chapter in early 2009, two films, David Fincher’s Fitzgerald-inspired *The Curious Case of Benjamin Button*, and Frank Miller’s comic-book-inspired *The Spirit*, as well as the second 2009 episode of the sitcom *Scrubs* have focused squarely on the psychological problem of mortality. Recognition of this problem in so many of the products of Western culture makes it all the more interesting that in the 1980s social psychology texts made no mention of death and TMT was treated by most people in the field as outlandish and irrelevant to understanding human social behavior.

As noted earlier, TMT was formalized out of three of Becker’s books, *The Birth and Death of Meaning*, *The Denial of Death*, and *Escape from Evil*. These books combine insights from anthropology, evolutionary biology, philosophy, psychoanalysis, and sociology. We urge anyone interested in understanding human behavior to read them.

Around the time Becker was putting his synthesis together, evolutionary philosopher Susanne Langer and psychoanalytic historian Robert Jay Lifton were coming to the same view, and a bit later in 1980, so did existential psychotherapist Irvin Yalom. The primary influences on Becker’s analysis were Kierkegaard, William James, Freud, Gregory Zilboorg, Erving Goffman, Norman Brown, and especially Otto Rank. Within psychology, Rank, Freud’s disciple and an impressive interdisciplinary scholar back in the 1930s, first granted the fear of death and the urge toward immortality a central role in human culture and social behavior. By systematizing these existential psychodynamic ideas into a coherent explanatory framework, TMT integrates much of what we know about human behavior and provides a fertile basis of generating a wealth of testable hypotheses. The TMT research in turn has inspired useful expansions and refinements of the theory.

## THE BASICS OF TMT

TMT starts with two simple observations. The first is that humans are animals with many systems designed to keep them alive, including a fight-or-flight response to impending threats to their continued existence. The second is that the cognitive abilities of humans have led to the awareness that death is inevitable and could come at any time due to a host of potential causes. The theory posits that this knowledge, in an animal built to avert death, creates an ever-present potential for intense anxiety, or terror, which must be managed continuously. The terror is managed by sustaining faith in a view of the world and oneself that denies the precarious and transient nature of one's own existence.

Cultural worldviews have been shaped to serve this function from ancient times to now. Presumably there was a point in time when the cerebral cortex of our species became sufficiently developed to provide self-awareness and the ability to think in terms of past, present, and future. These largely adaptive cognitive capacities also led to the awareness of mortality. Although fear in response to imminent threat is often adaptive, constant anxiety regarding the fragility of continued existence and its inevitable end would not be.

At this point, our ancestors constructed and gravitated toward shared conceptions of reality that most effectively quelled the potential fear that knowledge of our vulnerability and mortality engendered. These cultural worldviews imbue external reality with order, stability, meaning, and purpose, and offer ways in which people can believe they will endure beyond death either literally through an everlasting soul, symbolically through a death transcending identity, or for most worldviews, in both ways.

At the most basic level, all cultural worldviews allow people to live out their lives largely within a conception of reality in which they view themselves as symbolic or spiritual beings who exist in a meaningful world, rather than as mere transient animals

fated only to obliteration upon death. Indeed, the content of consciousness is structured by the cultural worldview in which a given individual is raised. We think in terms of names, dates, months, days of the week, hours, minutes, social roles, and categories. But these are ultimately elaborate window dressing that lends artificial and largely arbitrary structure to an ongoing subjective experience of unique sensations and perceptions that begins at birth and ends at death. Questions like "Who are you?" "Where are you?" "What time is it?" can only be answered with reference to culturally created constructs.

How do people become imbedded in a cultural worldview that provides them with their fundamental psychological security? Developmentally, the human newborn is the most helpless and dependent of all living creatures. It is also a highly distressed creature because, as Rank (1932/1989) noted, it was conceived and developed attached to its mother and was suddenly, violently separated from its warm home, the womb, at birth. From exposure to the first words that flow out of their parents' mouths, the infant begins to be socialized into the prevailing cultural worldview. In early childhood, the only basis of psychological security for these helpless creatures is the care and love of the parents. The parents provide knowledge, comfort, nutrition, and protection.

As the parents begin to require particular actions from the child to sustain their love and approval, the child learns that when she does the right things, all is good in the world but when she does the wrong things, all hell could break loose. To sustain the psychological security of the parental love, the child internalizes the parental values of good and bad, and tries to live up to the good, despite the infringement on the child's natural desires and urges this entails. For the good little five-year-old sitting on mom's lap, all is right in the world. For the bad five-year-old who just punctured one of dad's new stereo speakers with a flying action figure, the world has just become a scary place. In this way, the child comes to associate being good and valued

with feeling secure, and being bad and worthless with dread. Self-esteem, that feeling of being valuable, thus comes to serve an anxiety-buffering function.

The plot thickens as the child's cognitive development leads her to realize that the things she fears – the dark, monsters, ghosts, big dogs – threaten her very existence and that the parents are limited and can't always protect them from everything. Concomitant with these dawning realizations, the child's basis of security gradually shifts to larger more powerful sources, deities, presidents, and the culture in general. This transference process is facilitated by the fact that the parents have been inculcating the child into the larger worldview, including the parent's own bases of psychological security, throughout the child's upbringing.

So over childhood, psychological security becomes predicated on being a good Christian, American, and so forth, on being valuable within the context of the individual's internalized version of the cultural worldview. This sense of enduring significance is not only linked implicitly with safety and security but explicitly with the literal immortality of heaven and the symbolic immortality of being part of death-transcending entities such as the family line and the nation, and lasting cultural achievements in science, politics, and the arts. In these ways, the significant person in a society can feel like he or she is an eternal part of an enduring reality.

### **Summary of TMT and its basic implications**

In sum, the simple formula for effective terror management is faith in a meaning providing cultural worldview and the belief that one is a valuable contributor to that meaningful world (the TMT conceptualization of self-esteem). We initially derived two basic implications from the theory (Solomon et al., 1991). First, self-esteem and the worldview upon which it is predicated serve a critical anxiety-buffering function. So people strive

for and defend self-esteem in the service of psychological security and these efforts depend on the specific cultural worldview to which the individual subscribes. Second, because these constructs are ultimately fragile social constructions, people will react negatively to anyone or anything that undermines faith in their worldview or their self-worth. We believe that this provides a very basic insight into prejudice and intergroup conflict. People who criticize one's own worldview, or simply adhere to a worldview very different from one's own, call into question the validity of one's own basis of psychological security.

TMT therefore posited that such different people are inherently threatening and are reacted to with four defenses. The first, most widespread, is derogation. If these others are ignorant or evil, then their alternative beliefs can be dismissed. The second is assimilation. If these people are wrong, then I can help them see the light, which will make me all the more certain my worldview is the right one. Missionary activity provides a vivid example of this strategy. The third is accommodation, which involves incorporating appealing aspects of the alternative worldview into one's own. In this way, one can preserve faith in the central components of one's own worldview. Rock and rap music initially expressing anger and challenging mainstream American culture lose their threatening nature when converted to muzak or used to sell fast food burgers. Finally there is annihilation. If one's worldview is right and the others' is wrong, then one's own should prevail.

### **The core tests of hypotheses derived from TMT**

TMT is consistent with a wide range of evidence from anthropology, archeology, and history, but our challenge was to deduce predictions that put the theory to the test. The central TMT hypotheses are based on its account of the psychological function of cultural worldviews and self-esteem. If these structures provide

protection against death-related fears, then: (a) reminding people of their mortality should increase bolstering of the worldview and striving for self-worth; (b) bolstering these structures should reduce anxiety in response to threat and defensive reactions to reminders of death; and (c) threatening the structures should arouse anxiety and bring death-related concerns closer to consciousness.

Hundreds of studies have supported these hypotheses. First, let's consider hypothesis (a). Reminding people of their mortality (mortality salience or MS) increases positive reactions to people who validate aspects of participant's worldviews and negative reactions to people who challenge aspects of their worldview or espouse a different one (see Greenberg et al., 2008 for a review). For example, MS leads to negative evaluations of Jews by Christians, of a critic of the US by Americans, and of foreign products by Germans. MS even leads to increased aggression against a critic of one's preferred political orientation, whether liberal or conservative. On the other hand, MS increases positive reactions to heroes and celebrities, one's national soccer team, and members of one's own religious group, and leads to more donations to valued charities. MS also increases striving for self-worth (see Greenberg et al., 2008). In people who value such things, MS increases bold driving, displays of physical strength, proenvironmental intentions, focus on one's appearance, interest in self-esteem enhancing dating partners, and ratings of the importance of and desire for fame and wealth.

A substantial number of studies have also supported hypothesis (b). Bolstering self-esteem reduces anxiety in response to threat (Greenberg et al., 1992b) and defensive reactions and death-thought accessibility following reminders of mortality (Harmon-Jones et al., 1997). Similarly, bolstering or defending one's worldview also reduces defensive reactions and death-thought accessibility following reminders of mortality (e.g., Arndt et al., 1997).

Recent research has also supported Hypothesis (c). Reminders that humans are

animals, criticism of participants' worldviews, and threats to participants' self-esteem all increase the accessibility of death-related thoughts and not the accessibility of other negative thoughts (e.g., Friedman and Rholes, 2007; Schimel et al., 2007).

This body of research has operationalized reminding people of their mortality in a variety of ways and has extensively compared reminders of mortality with reminders of other negative thoughts (see Greenberg et al., 2008). People have been reminded of death via two simple questionnaire items, writing one sentence about death, fear of death scales, proximity to cemeteries and funeral homes, and subliminal death primes. Thinking about mortality has been compared to thinking about being paralyzed, failing, feeling uncertain, general anxieties, giving a speech in public, intense pain, dental pain, disease, unpredictable, intense bouts of pain, life being meaningless, being socially excluded, upcoming exams, unexpected events, and worries after college.

Although some studies have found similar effects of other aversive thoughts in circumscribed contexts (e.g., McGregor et al., 2001; van den Bos, 2001) the vast majority have found quite different effects for reminders of mortality. TMT theorists (e.g., Greenberg et al., 2008) have argued that this is because death is the only inevitable future event, it is what human biological systems, including the fight or flight system, are most focused on avoiding, and it threatens to undermine all human desires, whether for belonging, cognition, control, or growth. One possibility is that when these other threats lead to defenses similar to those instigated by MS, they may undermine structures that serve terror management, thereby bringing thoughts of death closer to focal awareness. For example, Landau et al. (2004a) found that threatening individuals' belief in a just world led to elevated death-thought accessibility. These other aversive experiences may also, under some conditions, be threatening in their own right. Given the clear evidence that thoughts of mortality so often arouse different responses

than these other aversive cognitions, an important direction for future inquiry research is understanding when psychological defenses are serving terror management and when they are serving other concerns.

### ***A theoretical refinement: the dual process model***

After the Rosenblatt et al. (1989) paper was published, a German psychologist, Randolph Ochsman, reported having difficulty replicating MS effects. In contrast to two brief items, Ochsman was reminding people of death by leading them through an extensive guided imagery exercise of imagining their own death and interment. This discrepancy led to an important insight into the processes instigated by MS. Realizing that the initial terror management studies invariably included some kind of intervening experience between the MS manipulation and assessment of the dependent measures (e.g., mood scales, experimenter instructions) we posited that terror management defenses do not occur when death is prominent in consciousness but rather when death is highly accessible but no longer in focal attention.

Studies (see Pyszczynski et al., 1999 for a review) initially supported this idea by showing, for example, that MS only leads to worldview defense if there is a non-death-related task between the MS induction and the dependent measure. They also showed that immediately after an MS induction, the accessibility of death-related thought is low. After a delay, in contrast, death-related thought is no longer in focal attention but becomes high in accessibility. Given people's reluctance to consciously dwell on their own mortality, we hypothesized that, confronted with such thoughts, people initially suppress them. A series of studies supported this reasoning, finding for example that MS led to immediate increases in death-thought accessibility if participants were placed under high cognitive load. Another series of studies further clarified that role of consciousness in MS-induced worldview defenses by

showing that worldview defenses emerge in response to unconscious thoughts of death (e.g., when people are exposed to subliminal reminders of mortality).

A dual process model of terror management emerged from this line of research. Explicit thoughts of death instigate direct proximal defenses to remove death-related thoughts from current focal attention. Such "pseudorational" mechanisms make death seem like a far-off problem, thereby allowing the individual to stop thinking about it. However, after thoughts of death have been removed from focal attention, death-thought accessibility increases, heightening the potential to experience death-related anxiety. This in turn instigates symbolic distal defenses such as bolstering one's worldview or self-worth. These terror management defenses then bring death thought accessibility down to baseline levels.

### ***Summary***

TMT was originally developed to explain two facts of human experience, namely that people have difficulty getting along with those who are different and that people have a trenchant need to feel good about themselves. Research shows that both these propensities are strands in the fabric by which people insulate themselves from deeply rooted fears of mortality. Further, studies have supported a dual process model of the defenses instigated by reminders of mortality. Based on this foundation, the theory has guided investigation of a variety of aspects of human experience, many more so than were envisioned on that snowy day in Utah.

### **THE GRAVE MATTERS: APPLYING TMT TO CONTEMPORARY HUMAN CONCERNS**

TMT is relevant to a wide range of domains of human behavior. Although we have been accused on occasion of trying to explain



everything with TMT, our position is not that everything stems from the need for terror management, but that most, if not all, significant domains of human behavior are influenced by terror management concerns. Indeed, the theory has provided insights into a wide range of phenomena, including human ambivalence about sex (e.g., Goldenberg et al., 2000), reactions to the handicapped (e.g., Hirschberger, 2006), the operation of stereotypes (e.g., Schimel et al., 1999), academic performance (Landau et al., 2009), altruism (e.g., Jonas et al., 2002), parenthood (e.g., Wisman and Goldenberg, 2005), attachment and close relationships (e.g., Mikulincer et al., 2003), stigmatization (e.g., Salzman, 2001), reactions to nature (e.g., Koole and van den Berg, 2005), attitudes toward women (e.g., Landau et al., 2006a), religion (Greenberg et al., in press), art (e.g., Landau et al., 2006b), film (Sullivan et al., 2010), and even human–android relations (see e.g., MacDorman, 2005).

The theory has also generated some useful insights, following Kurt Lewin, into affairs of particular practical significance, including legal affairs (Arndt et al., 2005a), consumer behavior (Arndt et al., 2004), and mental health (Arndt et al., 2005b). Given space limitations, we will focus on two heavily researched applications of TMT. The first concerns the decisions that people make with regard to the health, and the second concerns the political sphere and our seemingly escalating proclivities for intergroup violence. We will then conclude by considering factors that mitigate the more harmful defensive responses provoked by concerns about mortality.

### ***Understanding the role of awareness of death in everyday health decisions***

It seems rather obvious that death does not bode well for an individual's health. Despite this fact, theory and research had largely ignored the deeper psychological significance

of concerns about mortality for understanding the decisions people make regarding their physical health. This is surprising given that many health campaigns remind individuals that noncompliance with health recommendations can hasten their demise. What are the possible consequences of such reminders? Goldenberg and Arndt (2008) recently extended TMT with a terror management health model (TMHM) to address such questions.

The TMHM starts with the idea that health-relevant scenarios have varying potential to activate death-related cognition, and then builds from the proximal and distal terror management defenses previously described. When a health situation leads people to explicitly think about death, or thoughts of death are otherwise in focal attention, health decisions are influenced by a proximal motivation to jettison the threatening cognitions from focal attention. For example, an individual may take proactive (e.g., exercise more) or avoidant (e.g., deny perceived risk) steps to render death less of an immediate concern. When thoughts of death are activated implicitly (i.e., outside of focal attention), health-relevant decisions are driven more by a desire to affirm the symbolic value of the self; for example, by pursuing the standards upon which an individual's self-esteem is based, investing in worldview beliefs, or distancing oneself from the creatureliness of the body. Responses to both conscious and unconscious death-related thought can be beneficial or harmful to health, but responses to unconscious death thoughts will be moderated by the individual's worldview and bases of self-worth, whereas responses to conscious death thoughts will be moderated by the perceived efficacy of efforts directed toward reducing the threat of death (see Goldenberg and Arndt, 2008, for a review of the supportive research).

In one study illustrating this basic distinction, participants were reminded of their mortality (or not) and then immediately thereafter or after a delay answered questions

about their intentions to tan. Immediately after thinking about death, participants reported lower intentions to suntan, suggesting efforts to reduce vulnerability and protect health. However, after a delay (when thoughts of death were accessible but not conscious) participants increased their intentions to suntan, suggesting an effort to bolster esteem by enhancing attractiveness as defined in contemporary society. Thus, conscious thoughts of death led to a health over beauty decision, but unconscious thoughts of death led to a beauty over health decision.

In drawing attention to these distinctions, TMHM helps explain a number of consequences of fear appeals, such as a so-called "boomerang" effect whereby fear appeals (which often highlight the threat of death) can have consequences antithetical to those intended. Whereas the initial response to a fear appeal may reflect efforts to protect one's physical self (which then remove death from consciousness), the delayed effect of unconscious thoughts of death may instigate self-esteem striving that entails more risky behavior.

The TMHM focuses on three general propositions. The first is that people's health decisions will reflect efforts to remove conscious thoughts of death from focal attention. Accordingly, research has found that when confronted with explicit thoughts of death, people react by trying to avoid the threat or by trying to reduce its likelihood with health promoting behaviors (such as increasing exercise). Of course, the critical question is when and for whom a threat avoidance or health promoting response is most likely to emerge. When an individual perceives a health response as effective, maintains optimism, approaches health situations with active coping strategies, or construes vulnerability as low, they respond to conscious thoughts of death with health-oriented rather than threat-avoidance strategies, particularly in death-related health domains (e.g., screenings for breast and skin cancer).

The second direction of research has explored how the unconscious resonance of

death-related cognition promotes maintaining, not one's health, but a sense of meaning and self-esteem. For example, thoughts of death outside of focal attention increase both health-defeating (e.g., intentions to suntan) and health-facilitating (e.g., exercising) outcomes depending on situational and dispositional self-esteem contingencies (see Goldenberg and Arndt, 2008). As this suggests, MS can lead to seemingly counterintuitive risky effects on health-relevant outcomes, both for self and others. In one study, after being reminded of mortality, Christian medical students were more likely to adopt a cautious triage approach to Christian patients complaining of chest pain but adopted a more cavalier approach to Muslim patients reporting identical symptoms (Arndt et al., 2009). This suggests that even people who are more routinely exposed to issues concerning death may still be vulnerable to terror management effects. But why would individuals make such decisions? Such responses help to bolster the symbolic buffers that offer protection from deeply rooted existential fear. Consistent with this analysis, Vess et al. (2009) found that not only did religious fundamentalists respond to reminders of death by endorsing faith-based over medical-based treatments for illness (both for themselves and others), but doing so helped to satiate their need for meaning in life.

This does not imply, however, that unconscious thoughts of death necessarily increase health risk behavior. If individuals derive self-esteem from behaviors conducive to health, they display health-facilitating outcomes across different health domains when death thought accessibility is high. Moreover, in a number of areas (e.g., exercise, smoking cessation, tanning, breast cancer screening), when self-esteem contingencies are experimentally altered in health-conducive ways, people respond to increased death thought accessibility with more protective intentions and behavior. For example, shifting normative appearance standards toward pale skin led actual beachgoers, when distracted from

activated thoughts of death, to request higher SPF sun lotions when offered compensatory samples, especially among those who derive self-esteem from extrinsically defined standards (e.g., Arndt et al., 2009). Indeed, following MS, showing those who smoke to fit in with others a commercial about how smoking reduces one's popularity leads to increased smoking cessation intentions.

The third direction of TMHM research builds from Goldenberg and colleagues' (2000) work on how reminders of our physical, creaturely nature intensify terror management concerns. Confrontations with the physical body threaten the illusion of symbolic significance, and thus our psychological security. Research has shown both reminders of death and of the creaturely aspects of the body influence health-related attitudes and behavior. For example, they increase negative reactions to breastfeeding and pregnant women, increase perceptions of discomfort regarding mammograms, and reduce the thoroughness of breast self-exams. In sum, TMHM research has shown that the awareness of mortality plays a significant role in attitudes and behavior pertinent to cancer detection and prevention as well as to more general healthful living.

### **TMT, politics, and intergroup conflict**

The awareness of mortality also contributes to intergroup strife, in two primary ways. First, as Becker (1971) noted, the mere presence of groups with worldviews very different from one's own threatens individuals' terror-assuaging faith in their worldview. We have reviewed research showing that reminders of mortality lead to derogation and even aggression against those who criticize the participant's worldview or simply subscribe to a different one.

However, in a chapter called "the Nexus of Unfreedom" from *The Denial of Death*, Becker (1973) elucidated an even more destructive consequence of the fear of death.

He argued that the most blood has been spilled not by those with evil motives but by those who are serving the great leader, God, and country. Our mortality requires us to find something bigger than ourselves for our salvation. When that individual or institution designates some other group as evil or that group is perceived as a threat to the terror-assuaging leader, deity, or entity, violent attempts to eradicate that evil threat commonly result.

In his final book, Becker (1975) also noted that no matter what our worldview is, residual death anxiety will exist and people will seek controllable sources of that anxiety to mask its true cause – scapegoats. So the greatest sense of death transcendence is provided by participating in a heroic triumph over evil. In other words, concerns about mortality will draw people toward worldviews and leaders who provide them most compellingly with a sense that they are part of something great and have a mission to heroically triumph over those who are evil; rigid worldviews and charismatic leaders that clearly delineate who is good and who is evil will do this best. Becker used this analysis to explain something that otherwise seems inexplicable: the rise of Nazism in Germany culminating in the Holocaust (as well as other similar historical phenomena). Indeed, much of the course of human history seems to have been guided by efforts to heroically triumph over evil in the service of the death-transcending ideologies and leaders in which people have invested.

TMT research has supported these ideas in a number of ways. Reminders of mortality draw people toward charismatic leaders and ideologies that sell a simple vision of the greatness of the ingroup and the need to rid the world of evildoers. Using descriptions of hypothetical gubernatorial candidates, Cohen et al. (2004) found that MS increased the appeal of a candidate with a charismatic style; that is, one who exuded self-confidence and emphasized the greatness of the state and nation. As the 2004 American presidential election approached, Americans were faced

with a choice that would allow a unique test of the TMT analysis of attraction to leaders. One was George W. Bush, a folksy, at-ease incumbent president who emphasized the greatness of America and the need to rid the world of evildoers, such as the "Axis of Evil." The other was John Kerry, a Democratic challenger with a stiff speaking style who had a complex, sometimes hard to decipher view of issues and who was portrayed by the Republican spin machine as a waffling flip-flopper. Landau et al. (2004b) posited that MS, as well as reminders of terrorism by virtue of activating fears of death, would increase the appeal of Bush and reduce the appeal over Kerry. And in a series of studies prior to the 2004 election, that's exactly what they found. Subsequently, with the help of a Bin Laden tape released days before the election, Bush won re-election even though he had invaded a country and embroiled the US in a protracted war based on false claims.

The Cohen study suggests that the Bush effect resulted from Bush's charismatic style and simple good-versus-evil worldview. However, Bush could have also had an advantage for terror management purposes as the current leader of the nation. In addition, Jost and colleagues (2003) have suggested that conservative rightwing ideologies may serve terror management better than liberal or leftwing ones. However, in the Landau et al. (2004b) studies, despite increasing the preference for Bush, MS did not increase participants' self-reported political conservatism. In addition, a recent study by Kosloff et al. (2010) building on Cohen et al. found that MS leads people to prefer a charismatic hypothetical leader only if that leader also espouses policies that match the individual's pre-existing political orientation, whether conservative or liberal.

So MS seems to move people toward those who espouse more straightforward good-versus-evil ideologies as long as those ideologies fit with the individual's pre-existing worldview. Based on these findings, Pyszczynski et al. (2006) wondered if MS would also increase the appeal of engaging in

violence against those designated by one's culture as evil. In their first study, they exposed Iranian college students to MS or a control topic, and then asked them to react to a fellow student who espoused either suicide bombing against Americans or peaceful approaches to addressing issues with the US. In the control condition, the Iranian students preferred the peaceful fellow student. However, after MS, they preferred the supporter of suicide bombing, and expressed increased interest in joining the cause themselves.

Lest we're tempted to confine such reactions to Iranians, Routledge and Arndt (2008) similarly found that British students after MS reported an increased willingness to die for mother England. Further, people don't just show a proclivity to blow themselves up after MS, but even more so to simply blow up the enemy. Indeed, in a second study, Pyszczynski et al. (2006) manipulated MS and asked conservative and liberal Americans how much they supported extreme military actions, including the use of nuclear weapons, against perceived threats to the US in the Middle East and elsewhere. Compared with the control condition, MS increased conservative participants' advocacy of such violent measures. Similarly, MS increased violent reactions among Israelis upset with the then upcoming 2005 pullout from the Gaza Strip and the northern West Bank (Hirschberger and Ein-Dor, 2006). Finally, supporting the terror management value of death to the designated evil other, Hayes et al. (2008) showed that after threatening Christians' worldviews, informing them that 117 Muslims died in a plane crash actually reduced the accessibility of death-related thought and worldview defense.

Taken together, the TMT literature suggests that the threat of mortality increases negativity toward different others and fuels support for simple "we are good, they are evil" worldviews and desires to rid the world of those designated as evil. Thus, research supports the role of terror management needs in intergroup conflict around the world.

## WHERE DO WE GO FROM HERE? INSIGHTS INTO BETTER WAYS TO MANAGE TERROR

Given the often destructive means that people use to manage the fear of mortality, how can we reduce such effects? Fortunately, a number of lines of research have addressed this question and suggest ways such responses can be reduced or even reversed. According to Becker, the key is to identify secure, enduring worldviews that provide widely accessible avenues for self-worth to their constituents, but do so in a way that minimizes the costs both to those inside and outside the culture. These insights inspired two broad approaches to mitigating harmful terror management that have been examined empirically.

### *Fortifying the shield: psychological buffers against thoughts of mortality*

The earliest statements of TMT posited that, because self-esteem serves to buffer anxiety, boosting self-esteem or having high dispositional self-esteem should render people less vulnerability to the consequences of awareness of mortality. Harmon-Jones et al. (1997) and others have supported the specific hypothesis that bolstering an individual's self-worth would enable the person to contemplate mortality without experiencing subsequent increases in death thought accessibility and associated defensive responses. As long as the threat that other people pose does not undermine their own feelings of self-worth (Arndt and Greenberg, 1999), self-esteem is capable of offering people psychological protection against responding defensively to reminders of death.

People can also derive existential protection through their attachments with close others. Rank (1941/1958) originally proposed that interpersonal relationships have become an especially important security blanket as dominant religious doctrines have lost some of their luster. In accord with this insight,

Mikulincer and others have shown that people who have secure attachments to close others when reminded of death are less likely to respond defensively and advocate violence (e.g., Mikulincer et al., 2003; Weise et al., 2008).

While both relational attachment and self-esteem (and other buffers we don't have the space to touch on here) reduce consequences of MS, these critical bases of psychological security are often hard to sustain over the lifespan. When they falter, problems with anxiety, depression, and substance abuse are likely. Thus, the more durable the bases of self-worth and attachments, the less destructive an individual's efforts at terror management are likely to be.

### *Worldviews espousing tolerance, compassion, and open-mindedness*

Another tack for mitigating harmful forms of terror management focuses not on fortifying the existential shield, but on funneling the routes that responses take in more constructive directions. This can be achieved by appealing to worldviews that espouse tolerance and open-mindedness. If an individual values tolerance and MS motivates effort to live up to important values, then MS should increase tolerance. Accordingly, Greenberg and colleagues (1992a) showed that when tolerance was primed or dispositionally important, participants did not respond to MS with increased derogation of those who threatened their beliefs. Such findings of course are hopeful, as people can socialize their children into valuing acceptance of others.

Many components of culture contain such prescriptions, though the message often gets lost. For instance, could religiously advocated compassion encourage more peaceful coexistence with those who are different? To find out, Rothschild et al. (2009) investigated how priming compassionate religious values might redirect the effects of MS on support for violent worldview defense among religious fundamentalists. In these studies, using

both American samples as well as a Shia population in Iran, participants were reminded of death or a control topic, and then were presented with either compassionate or neutral religious scripture, or compassionate or neutral secular adages, followed by a measure of support for extreme military responses (against those who challenge the US or toward the US in the case of the Shia). Religious fundamentalists in the control condition were supportive of violent worldview defense regardless of type of teaching. However, fundamentalists reminded of death and exposed to compassionate religious teachings demonstrated a significant decrease in their support for violence. Presumably the death reminder motivated an increased need to live up to compassionate values when they were linked to the worldview.

Can tolerance and compassion be accentuated without explicit priming? One possibility involves people reconceptualizing ingroup identifications to recognize our common humanity with people the world over. For example, Motyl and colleagues (submitted) reminded American participants of their death or a control topic, and then exposed them to pictures of common non-American families from diverse regions of the world, stereotypically American families, or a group of unrelated people. In the neutral and American families conditions, MS elicited an increase in anti-Arab prejudice; however, when reminded of the common humanity shared by all people, MS significantly reduced anti-Arab prejudice. In a second study, Americans were reminded either of death or a control topic, and then presented with brief stories of common childhood experiences ostensibly written by either Americans or people from diverse areas of the world. When presented with American childhood experiences, MS increased hostile prejudice against immigrants; however, when those same childhood experiences were attributed to a foreign author, this negative effect was eliminated.

Encouraging people to consider our shared humanity is a promising avenue to reducing destructive effects, particularly given the

increasing globalization of the world. Such goals may also be facilitated by more generally stimulating open-minded and flexible thinking. By virtue of its utilization of open-minded thinking, creative action may be one way to encourage more acceptance of different others.

The initial research examining creativity and terror management (see Greenberg et al., 2008, for a review) built from the theorizing of Otto Rank (e.g., 1932). Creative engagement, by separating the individual from conventional thinking, threatens the person's valued place within the security-providing worldview. Therefore, when reminded of mortality, creative action can lead to feelings of guilt (an emotion that reflects a desire for social reparation). But fortified with an enhanced sense of such social connection, people can engage in creativity after being reminded of death without experiencing guilt, and can then reap the more positive psychological effects of such activity. Accordingly, after being reminded of death, people are more creative if the product is directed toward communal benefit, but less creative if the product is directed toward individual gain.

This work also suggests that as people are faced with managing existential fears, creativity has the potential to facilitate more optimal engagement with life (Routledge and Arndt, 2009). One study found that socially validated creativity inspires a more open-minded orientation which reduces people's tendency to manage terror by derogating those with conflicting beliefs. Another set of studies showed that priming the cultural value of creativity after MS can even increase willingness to expose oneself to ideas that run counter to prevailing cultural beliefs. This and other research suggests that people can manage the awareness of death in ways that actually embrace the rich diversity of perspectives that the world offers, the possibility of authentic self-transcendence, and intrinsic goal pursuit (see, for example, Lykins et al., 2007).

Finally, individual differences in need for structure may play a role in how people cope

with their mortality concerns. Vess, Routledge et al. (2009) showed in a series of studies that while those high in need for structure prefer more rigid routes to epistemic knowledge (as in the work of Landau et al., 2004a, 2006a), those low in need for structure may utilize more explorative forms of discovery and integrative processing to extract meaning and significance in their life. Thus, again, much of the potential for reducing destructive forms of terror management seems to go back to the content of the worldview to which an individual subscribes. When one's worldview prescribes prosocial behavior, flexible thinking, or tolerance and compassion, constructive responses to the human existential predicament are likely.

### LONG DAY'S JOURNEY INTO NIGHT

TMT has brought the problem of death into social psychology, and we hope that you agree that has been a valuable (albeit not pleasant to think about) contribution. The threat of death lurks behind most, if not all, the things people care about: health, economic wellbeing, the environment, terrorism, war, close relationships, aging, and spirituality. TMT work has helped clarify how the awareness of mortality contributes to attitudes and behavior regarding these topics and many more as well. In our defiance of our mortality, we all urgently defend our cherished beliefs and strive hard to make the greatest mark on the world we can. TMT research has shown that these urgings contribute to the most noble and ignoble forms of human behavior.

TMT work has also raised many questions currently being considered. How do defenses aroused by conscious and unconscious concerns relate to each other? What does TMT work imply about the basic nature of the unconscious? What brain regions contribute to the awareness of mortality and the defenses it instigates? What are the effects of sustained heightened mortality salience over

time; for example, for professionals such as oncologists and morticians? One study showed that workers who perform death ceremonies in India had stronger pro-India bias than other workers, independent of an MS induction, whereas the other workers were as strongly pro-India as the death ceremony workers only if they were first induced to consider their mortality (Fernandez et al., 2010). But much more research on this issue is needed. Are there particular components of cultural worldviews that are particularly important for terror management? Are there certain beliefs and values that are common to all worldviews because of the way evolutionary has shaped our basic motivations, ways of thinking, and emotions (e.g., empathy, desire for justice)? Are there other motivations besides terror management which contribute to the desires to preserve faith in a meaningful world and one's own significance?

We also like to think that TMT has contributed to a general broadening of the field, a greater awareness of the important roles of culture, of unconscious motivations and processes, of emotions, and of core human concerns in social behavior. One aspect of this has been the emergence of the subfield within social psychology known as experimental existential psychology (XXP; Greenberg et al., 2004; Pyszczynski et al., 2010). This subfield focuses on the impact on thought, feeling, and behavior of five major existential concerns: death, meaning, identity, isolation, and freedom. We are hopeful that XXP will continue to progress toward a comprehensive understanding of these core facets of the human condition and their roles in the social phenomena that matter to us most; such a prospect gives us a sense of fundamental satisfaction.

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