

Terror Management Theory: From Genesis to Revelations

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Humans live by existential illusions. These fictions about existence help us cope with the Big Five existential concerns: death, identity, meaning, social connections, and freedom (Pyszczynski, Greenberg, Koole, & Solomon, 2010). They allow us to feel like we are significant and enduring beings in a meaningful world, even though science tells us we are just material organisms with a brief lifespan in an indifferent universe and members of a species that sooner or later will likely become extinct. Death is inevitable. Our identities and meanings are cultural constructions that don't amount to a hill of beans in the context of billions of years of time and the vast enormity of space. Our most cherished relationships are inherently limited; we can never know the inner life of another person or reliably expect someone else to put our interests above their own. We strive for freedom while we are all imprisoned by our cultural upbringing and largely dependent on following others' rules for survival. If we have too much freedom, it causes us anxiety and stress and we often don't know what to do with it.

Theory and research on these topics, dubbed experimental existential psychology (XXP; Greenberg, Koole, & Pyszczynski, 2004; Pyszczynski et al., 2010), will be covered in many of the chapters in this volume. In the present chapter, I will focus on my least favorite existential problem, which also happens to be the one that generated the first large-scale program of XXP research: Death. Terror management theory (TMT) has directly focused on how people cope with this problem and has generated a wide range of novel hypotheses and research findings.

Origin and Roots of TMT

When we first introduced TMT to academic psychologists, it seemed to most of them to come completely out of nowhere, or even worse, from a taboo place judged by the proponents of

the cognitive revolution to be an embarrassing legacy of fraudulent pseudo-science. So before launching into the theory, I will briefly sketch its genesis. As social psychology graduate students at the University of Kansas from 1978-1981, Sheldon Solomon, Tom Pyszczynski, and I found ourselves amused but dissatisfied with the prevailing view of humans as dispassionate, albeit imperfect, information processors. It simply didn't ring true to our own experiences in our families and peer groups, or from our knowledge of history or the understanding of humans we had developed from our favorite novelists, poets, philosophers, and filmmakers.

We began discussing two well-established propensities that seemed to us central aspects of human social behavior: the inability of people from different cultures to peacefully co-exist and the proneness for people to go to great lengths to protect their self-esteem. It occurred to us that we needed to understand why people were so defensive of their cultural beliefs, ingroups, and positive self-image. But surveying the existing literature in social psychology left us with no answer to questions about the motives behind these propensities, or more generally, to why people behave the way they do in their daily lives. Indeed, we saw no clues as to what people are trying to accomplish in their daily lives or how the basic motivations underlying their actions lead to the intergroup biases and egotism so well-documented in social psychology experiments. So we became determined to seek answers outside our own discipline.

After a few years of searching, we stumbled upon an interdisciplinary Pulitzer-Prize-winning book by cultural anthropologist Ernest Becker. That book, *The Denial of Death* (Becker, 1974), in conjunction with Becker's earlier *The Birth and Death of Meaning* (Becker, 1962/1971) and later *Escape from Evil* (Becker, 1975), provided the answers we were looking for and became the primary basis of TMT. They also revealed a rich tradition of existential psychoanalytic thought which Becker built upon, a tradition that could be traced proximally to

figures such as Sigmund Freud, Otto Rank, Gregory Zilboorg, Harry Stack Sullivan, and Robert Jay Lifton, and distally back to the ancient historian Thucydides, and a long-standing thread of thought in philosophy most fully articulated by Kierkegaard. Our elaboration of TMT owes much to these figures, along with Becker, our training in social psychology, and to some sociologists Becker drew from as well, most notably George Herbert Mead and Erving Goffman.

TMT: The Basic Theory and Hypotheses and Key Elaborations

The theory begins with the simple idea that all humans are biologically predisposed to want to continue living and at the same time are smart enough to realize that they are going to die, and that it could happen at virtually any time for a wide variety of reasons. Given this existential predicament, how do we humans function without perpetually being anxious? According to TMT, we do so by viewing ourselves as enduring beings living in a permanent, meaningful world full of symbols instead of the characterization with which I began this chapter: as mere material animals in an indifferent universe fated only to cease existing upon death.

From birth on we are socialized into a worldview provided by our culture that tells us we are significant beings in a meaningful world. We have souls and possible afterlives and we are part of lasting entities like nations and family lines. We have identities that will live on past our physical deaths in our achievements and the seemingly permanent marks we have made on the world--children, memorials, artistic creations, and accomplishments in business, science, and so forth. Thus, we function with our deepest anxiety under wraps as long as we believe we are enduring, significant contributors to a meaningful, permanent world. When we are not simply seeking survival or pleasurable experiences, we spend much of our time buttressing our claims of significance and legacy within the symbolic reality we psychologically inhabit. When this view of ourselves and the world is threatened, we experience anxiety and defend against such threats

by reasserting our own value and that of the groups with which we identify, and strengthening our faith in the meaningful world in which we believe.

TMT has generated a wide range of hypotheses that have been supported by over 400 studies conducted in over 15 countries. The website tmt.missouri.edu provides a periodically updated list of all TMT-related publications. Obviously I won't be reviewing all of this work in this brief chapter, nor is that needed, because broad and focused reviews have been provided in a variety of recent chapters such as Greenberg, Landau, and Arndt (in press) and Greenberg, Solomon, and Arndt (2008), and will be expanded upon in a forthcoming book, *The Worm at the Core* (Solomon, Greenberg, & Pyszczynski, in press). Here, I will concisely summarize the basic findings, note other chapters that will cover aspects of the TMT literature, and then focus in on some recent developments and conclude with a brief overview of the contributions of TMT work so far.

Many TMT studies converge on three primary points that support the theory. The first is known as the mortality salience (MS) hypothesis. If worldviews and self-worth protect people from anxiety regarding mortality, then reminders of your mortal nature should instigate efforts to bolster the value of yourself and your groups (self-esteem striving), and faith in an orderly, stable view of the social world and one's self (for reviews, see Greenberg et al., 2008, and Greenberg, Landau, & Arndt, in press). For example, regarding self-esteem striving, after mortality is made salient, people who base their self-worth on driving ability drive more boldly. One common consequence of the need to bolster faith in one's worldview is to derogate and lash out at people and ideas that call the validity of your beliefs into question (worldview defense). Thus, people who identify with a certain nation become more negative in their reactions to someone who criticizes that nation.

A fundamental terror management function of worldviews is to provide an orderly, structured, and sensible view of reality and oneself that allows for the possibility of being a significant contributor to a meaningful existence. Thus, MS should motivate people to want their cognitions to fit together, for people and events to be consistent, for the world to be just, for art to be meaningful, and for the self to seem to be an enduring entity, linked from past to present to future. A wide range of fairly recent studies have supported these notions, especially for people relatively high in need for structure in their lives (see Greenberg et al., in press).

The methods used to test these effects of mortality salience, or what should more precisely be referred to as heightened death-thought accessibility, warrants brief consideration. The first and most commonly used MS induction involves asking participants to respond to two prompts. First they are asked to describe the emotions that thinking about their own death arouses in them. Second they are asked what they think will happen to them as they are dying and once they are dead. Interestingly, so far content analyses have not found any evidence that what the individual specifically writes in response to these death-focused prompts affects their reactions to the induction, although there are certainly individual difference variables yet to be examined. The control condition for this induction has consisted of either writing about a neutral topic, or more commonly, an unpleasant, potentially anxiety-provoking topic not directly connected to death. Controls have included thinking of dental pain, intense pain, unpredictable bouts of severe pain, an upcoming exam, failure, public speaking, general anxieties, worries after college, feelings of uncertainty, temporal discontinuity, meaninglessness, unexpected events, expectancy violations, social exclusion, and being paralyzed. In the vast majority of studies, mortality salience has shown different effects than the salience of these other potentially aversive topics.

In addition, many other methods of increasing the salience or accessibility of death-related thoughts have been employed (e.g., gory accident footage, proximity to a funeral home, word search puzzles with death words imbedded, writing one sentence about death, subliminal death primes, health or risk warnings, images or reminders of terrorism or destruction), and these other methods have yielded converging support for TMT derived hypotheses. For example, one set of studies found that subliminal priming with the word “dead” increased derogation of an anti-American author relative to subliminally priming with the word “pain” or “fail.”

The second hypothesis supported by substantial evidence is that stably high or temporarily raised self-esteem and bolstered faith in one’s worldview allow people to function with minimal anxiety and defensiveness. The first set of studies demonstrated this by showing that if self-esteem was boosted by false feedback, people were able to endure normally anxiety-provoking images of death and threats of electric shock with no self-reported or physiological signs of increased anxiety. Additional evidence has shown that affirming important values eliminates worldview defense after MS and that, following MS, the opportunity to display pro-American bias reduced the accessibility of death-related thoughts back to baseline levels. Arndt (this volume) covers this line of work in detail.

The third central hypothesis is that threats to terror management resources will increase the accessibility of death-related thought. Studies have shown that threats to one’s self-worth, threats to the belief we humans are more than just animals, threats to cherished beliefs such as the righteousness of one’s nation, and threats to cherished close relationships all bring thoughts of death closer to mind. In one interesting example, Landau et al. (2004) found that learning that the victim of a brutal knife attack was a really good person led to higher death-thought accessibility if the victim was portrayed in a positive rather than a negative way. Landau et al.

argued that this was because something bad happening to a good person threatens belief in a just world. Hirschberger (2006) provided more evidence supporting this idea. He found that among Israeli participants, MS increased blaming of innocent victims, and reading about unjust events elicited increased death-thought accessibility, particularly when the victims of the unjust events incurred severe injuries and had no responsibility for their injuries – conditions under which the threat to a just and benevolent order is greatest (Lerner, 1980). There are now over ninety studies that have measured the accessibility of death-related thought, a literature recently reviewed by Hayes, Schimel, Arndt, and Faucher (2010).

TMT research also led to a dual-defense model which posits that people respond to reminders of death with two distinct sets of defenses. The seminal set of studies that inspired this refinement was reported by Greenberg et al. (1994); the model was fully articulated in Pyszczynski et al. (1999) and elaborated in Arndt, Cook, and Routledge (2004). The first set of proximal defenses is designed to remove death-related thoughts from consciousness and consists of efforts to distract oneself from such thoughts and convince oneself that death is far off, e.g., “I am healthy and will start exercising more regularly.” When death-related thought is not in focal attention but is hovering on the fringes of consciousness, people engage distal symbolic defenses to shore up their sense of significance and faith in their meaningful view of the world. Thus, the processes activated by conscious death thought flows from proximal to distal defenses.

Mikulincer, Florian, and Hirschberger (2003; also see Hart, Shaver, & Goldenberg, 2008) suggested another possible refinement of the theory, that there may be a third independent component of terror management besides faith in one’s worldview and self-worth: secure attachment provided by close relationships. However, I am not convinced that the theory needs revision to accommodate a special role for close relationships. Although these researchers have

gathered substantial evidence consistent with this tripartite view, it is also clear that close relationships buttress faith in one's worldview and bolster one's self-esteem (see, e.g., Kosloff, Greenberg, & Sullivan, 2010). Furthermore, theoretically, the anxiety-buffering function of faith in the worldview and self-worth develop in childhood out of the security-providing function of the parents' love and protection (see, e.g., Becker, 1962/1971; Solomon, Greenberg, & Pyszczynski, in press). It is therefore unclear to me why, if such attachments were sufficient for terror management, faith in a symbolic worldview and one's sense of value within that worldview would be so sorely needed -- the love of one's parents and close others would be sufficient.

TMT posits that such love is not enough because as children develop, they become aware of the limitations of parents and other individuals for protection from the ultimate threat of mortality. So the basis of protection has to broaden to more potent modes of death transcendence such as spiritual beliefs, great accomplishments, and identification with lasting entities such as the nation, science, or nature. Does this mean that close relationships have no anxiety-buffering function besides as a basis for worldview and self-worth validation? No, loved one's can be of value as proximal defenses by increasing a sense of safety, and may also buffer anxiety through relatively primitive connection between physical and emotional closeness and felt security. However, I would view these latter effects not as a symbolic mode of handling the problem of death, but as something that reduces anxiety the way popular pharmacological interventions such as valium and xanax, and even more widely used recreational drugs such as alcohol and opiates, and perhaps mindfulness (Niemic et al., 2010) and meditative states, do. I suppose one could argue either that any form of blocking or reducing anxiety is terror management, in which case drug use and hugging loved ones should be included, or that the term should be reserved for

symbolic bases of feeling that one will transcend mortality in some way; it may just be a matter of personal preference or perceived scientific clarity or utility.

Some Recent Directions in TMT Research

The TMT literature includes five large, well-developed, and somewhat interrelated research programs that will be covered in other chapters in this book. First, Tom Pyszczynski will review over twenty years of TMT research pertinent to nationalism, prejudice, intergroup conflict, and politics. Jamie Arndt will cover the TMT literature on self-esteem and the fascinating implications of this literature for how people cope proximally and distally with health threats. Jamie Goldenberg will describe an innovative research program she has spearheaded that focuses on the implications of TMT for how people relate to their own and others' bodies and bodily activities. Finally, in their chapter on close relationships, Mikulincer will discuss an impressive body of evidence regarding the role of close relationships in terror management. So in the remainder of this chapter I will focus instead on providing brief updates regarding just a subset of recent developments in terror management research.

Brain process associated with terror management. A social neuroscience approach to terror management is still in its early stages. Ideally, I would suggest that terror management involves high-level thoughts produced by the prefrontal cortex that generate a path toward amygdala activation, which sparks other high-level thoughts buttressing faith in one's worldview and a sense of personal significance, which then de-activates the potentiation of processes in the amygdala that generate fear/dread/terror. Unfortunately, the four studies to date on the parts of the brain activated by death-related thought don't pertain to such a sequence of processes. However, they do inform us about certain aspects of how brain processes contribute to the effects of MS.

In the first fMRI study, Quirin et al. (in press) showed that answering questions about death was associated with increased activation of the right amygdala, left rostral anterior cingulate cortex, and right caudate nucleus. The first two structures seem to play a role in anxiety responses, whereas the caudate nucleus may be involved in stereotypic thinking and love-oriented emotions. Henry, Bartholow, and Arndt (2010) measured event-related potentials as (white) participants viewed pictures of black or white faces after being reminded of death (vs. control). This study found that MS increased amplitude of the N2 component of the ERP to pictures of angry white faces and latency of the P3 component. These findings suggest that when faced with reminders of death, people may be especially sensitive to threats to the ingroup.

A recent study of Americans by my colleagues and me using EEG showed that MS shifted people toward greater activation of the right prefrontal cortex. In addition, this study showed that for people prone to eyeblink startle responses, extent of right hemispheric shift was associated with larger eyeblink responses to anti-American images, but not other negative types of images. This study suggests that MS activates the hemisphere of the brain associated with anxiety and withdrawal motivation, a finding that contrasts with research suggesting a left-hemisphere shift in response to concerns with uncertainty (McGregor et al., 2010). This may make sense in that uncertainty may motivate approach oriented pro-active responses, whereas MS activates defensive ones.

In a fourth pertinent study, we examined whether MS-induced self-esteem striving behavior is implemented via neurocognitive performance monitoring systems. During a task framed as diagnostic of self-esteem-relevant attributes, participants received subliminal death or control primes while response-locked event-related brain potentials were recorded. Results showed that death-primed (vs. control) participants exhibited heightened neural reactivity to self-

esteem-relevant performance miscues, as indexed by larger amplitude of the Error Related Negativity (ERN). Larger ERN due to MS predicted intensified behavioral efforts to improve self-esteem-relevant task performance; and in the MS condition, such behavioral compensation correlated with attenuations in death-thought accessibility. Pending further investigation, these preliminary forays into the neurological correlates of terror management processes suggest that unique defensive and anxiety-related brain processes are instigated by death-related thought.

Managing terror through assimilation to one's worldview. TMT theorists proposed that people historically have generally used four strategies to defuse the psychological threat to one's own worldview posed by those who espouse alternative worldviews: derogation, assimilation, accommodation, and annihilation. Many studies have supported the first and last of these defenses by showing that MS increases negativity toward people who implicitly or explicitly challenge the validity of one's own culture's worldview (see Solomon et al., in press).

Research has also shown that MS can contribute to aggression and even a desire to annihilate such different others. McGregor et al. (1998) showed that MS increased allocation of painfully hot salsa to critics of the participants' political views. Pyszczynski et al. (2006) showed that MS intensified support for lethal violence directed at Americans by Iranians and at potentially threatening groups by conservative Americans. Hayes et al. (2008) showed that, after MS, reading about Muslims being killed reduced death thought accessibility in Canadians.

The two other proposed defenses against worldview threat have not garnered much experimental attention. Accommodation involves incorporating aspects of alternative worldviews into one's own in a manner that does not threaten core values of one's own worldview. Research is just beginning on this defense. However, Kosloff, Cesario, and Martens (2011) have made some recent inroads in the study of assimilation. Assimilation involves

attempting to convert people with alternative worldviews to abandon their views and adopt one's own. Missionary activity and efforts to spread ideologies such as secular democratic capitalism and communism are real-life examples.

In their first study, Kosloff et al. had Christians and non-Christians think about mortality or a control topic and then had them read about either a successful or an unsuccessful conversion of a Hindu person to Christianity. MS generally increased death-thought accessibility in the non-Christians. It also increased death-thought accessibility in Christians who read about the failed conversion. However, the death-thought accessibility of Christians who read about the successful conversion was as low as that of participants in the non-MS control condition.

In a second study, after a MS manipulation, Christians engaged in an advice-giving task after they read a couple of passages supposedly written by another student, one of which revealed the target's attitudes toward religion and spirituality. One condition conveyed that the target was a staunch atheist, whereas the other portrayed the target as an atheist open to alternatives. The Christian participants then wrote advice to that person believing that the advice would be returned to the target and the effect of it on the target would be tracked over the next semester. After giving advice, participants privately rated their attitudes about the target. Content analysis of the advice given found that MS increased advising the target to consider giving belief in God a try but only if the target seemed open to persuasion. The liking measure showed that MS led to more liking of the potentially receptive target and less liking of the non-receptive target.

A third study showed that after an MS induction, pro-evolution participants exposed to a target who was a strong advocate of creationism showed high death thought accessibility, but if such participants were given an opportunity to communicate their preference for evolution to the

creationist, their death-thought accessibility was as low as in a non-MS condition. This suggests that assimilation efforts may reduce death-related concerns. Furthermore, in the MS condition, the evolutionists made especially strong efforts to convince the creationist target to abandon his own beliefs and adopt their own. This line of work reveals one motivation for persuading others and has the potential to broaden our understanding of important forms of terror management.

Terror management and the allure of stardom. The notion that one could attain symbolic immortality, in a sense having one's identity live forever, dates back at least to the ancient Greeks. Thus one way to cope with concerns about mortality seems to be to seek fame and reinforce the possibility of symbolic immortality through fame. In the age of Youtube, mass media celebrity-watching like TMZ, reality television, and a de-emphasis in many cultures on traditional religious modes of immortality striving, it seems likely this form of terror management is becoming more and more popular. Thousands of young women move to LA every year seeking acting fame. Many other folks around the world try for fame via singing or enduring horrendous challenges for shows like American Idol and Survivor. Other people, perhaps less convinced of their own capacity to become famous, seek to connect themselves to the famous.

The most unfortunate version of this fame seeking may manifest as committing heinous acts. Time and time again individuals feeling humiliated and insignificant have killed to become immortal. John David Chapman admitted that this was one of his motives for assassinating John Lennon. Choi, the Virginia Tech killer, provided perhaps the most compelling example of this horrid form of fame-seeking. After killing two people on the campus, he left the campus to mail a video to NBC in which he proclaimed he was like Jesus and would be immortalized for standing up for the meek by committing the largest-scale school shooting in history. Then he

returned to the campus to complete his mission.

Consistent with a terror management analysis of fame-seeking in its many forms, Greenberg et al. (2010) found that MS, relative to the salience of intense pain, temporal discontinuity, general uncertainty, and meaninglessness, led to a post-delay increased self-reported desire for fame, interest in having a star named for oneself, and liking for an abstract painting if it was attributed to Johnny Depp.

More recently McCabe, Arndt, Vail, and Goldenberg (2011) provided additional evidence of the role of mortality concerns in the allure of celebrity. In one study, they found that directly after MS and a delay, people preferred bottled water if advocated by Jennifer Aniston rather than a doctor. However, highlighting the contrast between distal and proximal defense, if the judgment was gathered directly after an MS induction, the doctor-endorsed water was preferred. This fits a substantial body of prior research (see Arndt's chapter in this volume) showing that proximal defenses are guided by pragmatic health concerns, whereas distal defenses are guided by symbolic concerns with self-worth ("I like the same water as Jen").

Additional planned research by McCabe and colleagues will further explore related phenomena such as the potential terror management value of negative fame (notoriety), responses to celebrities who have fallen from grace, and reactions to those who advocate alternative worldviews. They also hope to explore internet behavior directed toward gossiping and connecting to celebrities.

Terror management and supernatural fantasy. In addition to gravitating toward real-life superstars, people also seem to be drawn to deities and fictional superheroes, a phenomenon dating back as long as recorded history and, in the case of superheroes, at least to Hercules. The impulse may be the same, to try to feel larger than life – so special as to be exempt from the

normal limitations of mortal life. You can do this either by connecting to those who seem larger than life or fantasizing being so yourself. Celebrity is one way to feel this, and we've seen how MS draws people to that. Wealth is another way, and research shows that MS does increase the desire for wealth and status (see Solomon et al., in press).

Defying the laws of nature may be another way. Many of the most popular movies and best-selling books of all time involve characters with special powers, whether the "Force" utilized by Luke Skywalker; the amazing powers of Superman and Spiderman, the X-Men, Harry Potter, and the vampire and werewolves of Twilight; or the technology-aided superfeats of Iron Man. Interestingly most admired superheroes have the power of flight in one form or other. In addition, fantasies of human flight are extremely common across cultures and are often linked to attainment of immortality. This led Cohen et al. (2010) to posit that fantasies of flight may serve a special terror management function by giving people a sense that they can transcend the human physical limitation due to gravity, and if that, why not mortality as well, like an immortal state of a disembodied soul ascending to heaven? In their first study, MS led participants to express greater desire to fly. A second study replicated this effect and showed that it did not extend to other supernatural feats such as walking through walls or reading minds. This suggests that flight fantasies may have a unique role in ameliorating concerns with mortality.

Consistent with this possibility, two subsequent studies showed that after MS, participants who engaged in flight fantasy did not subsequently show the typical increased worldview defense found in a non-flying fantasy condition. A final study showed that flight fantasy, but not other pleasurable or empowering fantasies, decreased death thought accessibility after MS, and this effect was uniquely mediated by a feeling of freedom from bodily limits. These findings help to explain the popularity of flight fantasies and raise the possibility that other

forms of fantasy may also mitigate the need for terror management defenses.

Terror management, anxiety disorders, and dissociation in response to trauma. Many psychological difficulties are either directly or indirectly linked to death. Phobias typically involve things like spiders, germs, and heights – real potential threats of death. Social phobia involves the fear of being ridiculed by others, which constitutes threat to anxiety-buffering self-esteem. Thus Strachan et al. (2007) suggested that anxiety disorders sometimes result from a focalization of fear of mortality onto smaller more manageable potential threats of either death or to constructs like self-worth which protect people from their fear of mortality. In support of this idea, Strachan et al. (2007) demonstrated that MS decreases self-controlled exposure to images of spiders among spider phobics, increases time washing one's hands among persons high in obsessive-compulsiveness, and increases social avoidance among persons high in social phobia.

Other psychological difficulties result directly from traumas, and most traumatic experiences involve the threat of death, as well as threats to people's anxiety-buffering worldview. A common disorder resulting from trauma is post-traumatic stress disorder, and one response to trauma that seems to predict subsequent development of PTSD is dissociation in response to the trauma. In support of a role for mortality concerns in dissociative responses to trauma, Kosloff et al. (2006) found that MS increased retrospective reports of dissociation and anxiety sensitivity in response to the 9/11 terrorist attacks among New Yorkers. In a recent follow-up study, my colleagues and I found that MS also increased dissociation, anxiety sensitivity, and the accessibility of death-related thought in direct response to an impactful video of the events of 9/11.

In a complementary research assessing Iranian earthquake survivors, Abdollahi et al. (in press) found that following an earthquake in Iran, high dissociators failed to exhibit normal

defensive responses to MS such as worldview defense, but later were prone to developing PTSD. Similar findings have also been obtained in four studies of the Ivory Coast civil war survivors and Polish soldiers returning from Iraq. This work suggests that people who dissociate from traumas don't engage in normal terror management in response to subsequent reminders of mortality, but instead develop PTSD. Those who don't dissociate in response to trauma seem to respond to death reminders with normal forms of terror management defense.

Given that dissociation to trauma seems to have long-term negative consequences, how could this response be reduced? One possibility is that strengthening a terror management resource like faith in one's worldview might reduce the need to dissociate when faced with emotionally disturbing experiences. Charismatic political figures seem to serve this function, and MS has been shown to increase preference for such individuals as long as the worldview they espouse is consistent with one's own (see Greenberg et al., in press). So in a recent study conducted before the 2008 American Presidential election, we tested whether watching an inspiring speech by a worldview-consistent political candidate would reduce or eliminate dissociation in response to the 9/11 video. Specifically, Obama supporters, McCain supporters, and undecided voters watched inspiring excerpts of a speech by either Obama or McCain. After watching the video, the participants rated how inspiring the video was, and then watched the 9/11 film and completed a measure of dissociation. Obama supporters and undecideds were inspired by the Obama speech and dissociated least if they watched that speech prior the disturbing video. McCain supporters were most inspired by the McCain speech and dissociated least if they watched that speech before the video. In addition, the more inspired the participant was by the speech she or he watched, the less the person subsequently dissociated in response to the 9/11 video. Consistent with this finding, a prior study (Simon et al., 1998) showed that after MS, an opportunity to

defend the American worldview increased perceived meaning in life in a sample of depressed Americans.

Taken together this work suggests that mortality concerns contribute to symptoms associated with various psychological disorders, and that strengthening terror management resources can ameliorate these symptoms. This suggests that, in line with the theorizing of Becker, further research into the role of mortality concerns in psychological disorders and in approaches to treatment may be in order.

Terror management in the elderly. Traumas bring people close to death, but so does the natural process of aging. Molly Maxfield has recently spearheaded research examining how elderly people respond to MS. Old people are probabilistically closer to death, and more likely to have experienced death threatening illness and the death of members of their social network. This suggests a number of plausible questions regarding how they might react differently to MS than young and middle-aged adults. Is mortality so salient to them that our inductions would have no effect? Is it such an imminent issue for them that they would respond even more strongly? Is there a process by which as people get older they more effectively come to terms with their mortality and hence react less defensively?

We don't have definitive answers to these questions as yet, but using American samples, we have found some interesting ways in which elderly people respond differently to MS than younger samples. First, they seem to respond more strongly to incidental exposure to death-related words than to the classic MS induction, suggesting that perhaps they are so used to blatant reminders of death that they are more likely to be affected by more subtle reminders. In three studies, we found that in a control condition elderly samples were harsher toward moral transgressors than young adults, and just as harsh as young adults toward a critic of the U.S.

(Maxfield et al., 2007). However, in these three studies we found that MS had opposite effects for elderly and young adult samples. As usual, MS led the young adults to be more negative toward moral transgressors and critics of their culture. However, MS actually led elderly folks to become more lenient toward moral transgressors and more tolerant of a critic of the U.S.

Our samples in these initial studies tended to be very healthy, high functioning older adults; people who had seen and endured a lot but were still doing very well. Therefore, we thought that this startling contrast may have been found because when confronted with their mortality, well-functioning elderly people are able to achieve a broader perspective on life and a more benevolent perspective on imperfections and differences among us humans. This led us to hypothesize that the MS-leniency effect would be found in elderly people who exhibit effective executive functioning, whereas the usual MS-punitive effect would be more likely among older adults relatively poor in executive functioning.

So in a follow-up study we first tested a broadly recruited elderly sample and a college student sample on executive functioning using a combination of three well-established cognitive tasks. Participants then were led to think of their own mortality and asked how much a set of hypothetical moral transgressors should be punished. MS led the young adults to be more punitive regardless of their level of executive functioning. However, as predicted, the MS responses of the older adults depended on their executive functioning. Those functioning well became more lenient after MS. However, those elderly people low in executive functioning became more punitive after MS, mirroring the general effect for the young adults. These findings suggest the hopeful notion that as people get older they get more benevolent in response to reminders of their mortality, as long as they are functioning at a high level cognitively. Of course, more research is needed to fully understand why and how this happens.

More constructive forms of terror management? The research on elderly responses to MS raises the possibility that the potential terror of death can be managed in more benign ways than most terror management research implies. A number of other recent lines of research explore ways besides graceful aging that might lead to such constructive approaches. First, evidence suggests that people low in personal need for structure and in authoritarianism may embrace worldviews that encourage more open, tolerant ways of coping with mortality. For example, Vess et al. (2009) showed that low-PNS participants under MS exhibited increased interest in documentaries presenting novel perspectives on culturally relevant topics, and Weise et al. (in press) found that MS led low authoritarians to evaluate an immigrant more favorably. Evidence also suggests that creative thinking and deeper, more elaborate contemplation of death may encourage more constructive and open-minded reactions to reminders of death (see, e.g., Cozzolino, 2006; Greenberg et al., in press; Janoff-Bulman & Yopyk, 2004). Currently, my colleagues and I are exploring how different ways of consciously construing one's own death may affect the extent to which death-related thoughts contribute to defensive vs. growth-oriented responses. For example, could viewing death as an integral part of life lead to more openness and tolerance than viewing death as the opposite of life?

Terror Management and other Psychological Motives

I am going to touch on this topic only very briefly, because it has been covered extensively elsewhere (e.g., Pyszczynski et al., 2006; Pyszczynski et al., 2010) and is also discussed by Solomon (this volume). TMT was originally developed to explain basic psychological propensities for self-esteem and negative reactions to different others. It also helps explain a variety of other human propensities ranging from aggression, conformity and obedience to political leanings and religiosity to prosocial behavior and romantic love. However,

from its earliest presentations, we have acknowledged that terror management is not the only psychological motive and that it is rarely if ever the only concern affecting a particular thought or action. It's not that the majority of aspects of human behavior can be fully explained as terror management but that terror management plays a role in many if not most aspects of human behavior. Similarly, not all psychological threats can be reduced to the problem of death. Although issues of uncertain beliefs and meaning, identity and social relationships often arouse terror management concerns, they can be troubling for other reasons as well. Just as those concerns cannot be reduced solely to serving terror management, the concern with mortality cannot be reduced to some broader, vague concern like uncertainty and meaning. Death is a unique threat because so many of our biological systems are oriented toward averting it, and yet it is the only inevitable future event; further, death is the ultimate threat to all human desires as the potential end of control, social connections, meaning, competence, growth, cognition -- you name it. The need for denial of death cannot be denied.

The Contributions of TMT

At the risk of immodesty, I'll conclude with a brief consideration of the ways in which TMT has contributed to scientific knowledge so far. But before launching into a positive perspective on this, I should briefly note two ways in which the impact has been disappointing. I had hoped that TMT work would have opened psychology up to embracing and building upon the rich heritage of psychodynamic thinking. I'm not sure that has happened; in fact, a faculty member in my own department brainwashes most of our psychology majors with the ludicrous opinion that Freud and his theories are "unscientific." Second, I had hoped that TMT, with over 400 studies supporting it, and new support appearing routinely in our top journals to this day, would bring the threat of mortality and other existential concerns into social psychology, and

would be considered a valuable part of the knowledge base of the field, worth imparting to undergraduate students in social psychology courses. However, a perusal of the most popular English language social psychology textbooks finds that mortality and other existential concerns are barely considered, and that the theory and research program are either described inadequately in a brief paragraph, or hardly mentioned at all.

Turning to my more optimistic view of the contribution to psychological science, in a sense the major contribution has been to systematize the analysis of human motivation developed by Becker and his intellectual predecessors and to provide ways to assess it empirically, ways that have strongly supported the analysis and refined it. The theory was the first to ask what psychological function self-esteem serves and provided the first, and to my mind, only compelling explanation for why people are so driven to establish and defend their sense of self-worth and honor. The theory clarifies that self-esteem buffers anxiety and is dependent on meeting the standards of value prescribed by the worldview to which one subscribes.

The theory also established a basic psychological function of culture, to provide a meaningful view of reality that offers the possibility of transcending death through both literal and symbolic bases of immortality. Furthermore, the theory provides a central explanation of prejudice and why cultures have such a difficult time peacefully co-existing. Because each culture's worldview is so central to its members' psychological security, the mere existence of people who subscribe to alternative worldviews is psychologically threatening and must be defended against. Thus, the theory explains why people are so prone to derogating, trying to convert, and even attacking people with beliefs different from their own.

When Sheldon, Tom, and I were first confronted with ideas we systematized into TMT over twenty-five years ago, we were convinced we were on to something true and important.

But since that time, we have been perpetually surprised by how generative the theory has been in terms of the range of testable hypotheses and areas of application it has inspired. Aside from the topics touched on in this chapter, the theory has generated research pertinent to such areas as stereotyping, legal and medical decision-making, risk-taking, consumer behavior, communication, language use, journalism, literary and film criticism, politics, human ambivalence regarding sex, animal-human relations, environmentalism, reactions to the handicapped, parenting, close relationships, health-relevant behaviors, creativity, anxiety disorders, depression, attitudes toward women, the functions of art, and robotics.

Most generally, I think that TMT and its associated research programs have helped the science of psychology mature. Our very first presentation of TMT back in 1984, titled “The Psychopathology of Social Psychology,” started with the brash observation that social psychology had become an acultural, ahistorical, atheoretical and virtually autistic field focused narrowly on explaining laboratory findings by splitting hairs as finely as possible rather than on explaining human social behavior as it occurs out in the world. In retrospect, this was probably not the best way to persuade our social psychology audiences of the value of the subsequent theory we laid out for them. However, I do believe that our efforts, in conjunction with other coincident developments, have helped the field broaden its conceptual scope in four important ways.

First, TMT helped pry open the door for a return to broad theoretical thinking, something that was shunned in academic psychology as part of the backlash against psychoanalysis. Second, it has contributed to evidence showing that the basic motivations that drive human behavior lie outside of consciousness. Third, TMT has increased understanding of the central role of cultural worldviews in psychological functioning. This helps to explain, among many

other things, why it is so hard to forcefully convert other cultures to one's own worldview – for example, to change “hearts and minds” in places like Iraq and Afghanistan. Fourth, the work has injected existential thought into psychology. This provided a major impetus to the development of the subdiscipline within psychology known as experimental existential psychology that is central to this edited volume. Issues like death, identity, freedom, meaning systems, political ideology, and religion, once considered outside the bounds of scientific inquiry in mainstream psychology, are now of central interest to scientists throughout the world, as we shall see over the course of this volume.

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