Tales from Existential Oceans: Terror Management Theory and How the Awareness of Our Mortality Affects Us All

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Abstract

Terror management theory is a social psychological theory that draws from existential, psychodynamic, and evolutionary perspectives to understand the often potent influence that deeply rooted concerns about mortality can have on our sense of self and social behavior. The present article presents a brief introduction to the theory, comments on critiques and alternative explanations, and highlights where the theory came from, where it has been, and a few places that it might be going. Research is reviewed that uses this analysis to understand conscious and unconscious processes of psychological defense, the role of relationships and basic structuring of reality for managing existential distress, the integration of these ideas with motives for creativity and psychological growth, as well as a number of applied directions that help to make sense of pressing social problems.

> Whatever became of the moment when one first knew about death? There must have been one, a moment, in childhood when it first occurred to you that you don't go on for ever. It must have been shattering – stamped into one's memory. And yet I can't remember it. It never occurred to me at all. What does one make of that? We must be born with an intuition of mortality. Before we know the words for it, before we know that there are words, out we come, bloodied and squalling with the knowledge that for all the compasses in the world, there's only one direction, and time is its only measure.
>   – Tom Stoppard (1967) *Rosencrantz and Guildenstern Are Dead* pp. 71–72.

So what does the human awareness of mortality have to do with our sense of who we are? It seems reasonable that some rather unsettling psychological consequences stem from the awareness that our ultimate future is one of fertilizer and yet we navigate through much of life ungrounded by this reality. To introduce ourselves to the answer that will be the focus of this article, let us go back in time a couple of decades. As a new assistant professor at Skidmore College in 1980, Sheldon Solomon came across the work of cultural anthropologist Ernest Becker. Enticed by the titles [*The Birth and*

Death of Meaning (1971), *The Denial of Death* (1973), *Escape from Evil* (1975)],
he sat down to glimpse through the first and, after emerging from the
engrossed consumption that followed, shared the books with his colleagues
Jeff Greenberg and Tom Pyszczynski. Thus was born the social psychological
recognition of Becker's work and what would soon become terror man-
agement theory (TMT; Greenberg, Solomon, & Pyszczynski, 1986): The
idea that much of our basic identity and motivation function to assuage
deeply rooted anxieties emanating from the awareness that, ultimately, no
matter how you slice it, we are doomed to the grave.

The first efforts to publish a synopsis of Becker's ideas about the centrality
of the human awareness of mortality in the ongoing social affairs of
everyday life were, to say the least, rebuffed. The first review of a TMT
offering contained a single sentence, 'I am absolutely certain that these
ideas will be of no use to any psychologist, alive or dead.' Although the 'alive
or dead' clause was a nice touch, the primary substantive concern behind
this reaction was the lack of empirical evidence to support the ideas.
Twenty plus years later, the theory has inspired over 350 separate studies
conducted in at least a dozen countries, and in contrast to that initial
commentary, the theory seems to have been quite useful to the living.
The theory has been applied to a broad range of phenomena within
psychology and beyond, with relevant analyses in, among other fields,
political science, anthropology, nursing, literature, film critique, and even
cybernetics. This is not to say the theory has not generated a fair amount
of contention and alternative explanations. Indeed, it is perhaps this gen-
erativity that is one of its great strengths. On a broad level, what terror
management work has seemed to do is legitimize the existential realm,
once maligned as beyond the scope of scientific scrutiny, as a viable avenue
of empirical psychological inquiry (Koole, Greenberg, & Pyszczynski,
2006). In this article, we try to briefly convey a general sense of what
TMT is, some specific places it has recently been, and where it might be
going. We note, however, that this is by no means an exhaustive overview,
as such would be far beyond the scope of a brief article.

A Premier of Basic TMT

To start, we provide a brief overview of the theory and the initial research
that it generated. Becker's (e.g., 1971) efforts to synthesize a potpourri of
intellectual thought (e.g., Freud, Rank, Kierkegaard, Heidegger, Darwin,
& Mead) led him to surmise that, to understand why humans behave the
ways they do, one must understand how humans are both similar to and
distinct from other animals. As such, Becker proposed that much of
human behavior can be attributed to the uniquely human existential
predicament in which our species finds itself.

From this perspective, the existential dilemma is conceptualized as the
conflict between our biological proclivity to survive and our cognitive

capabilities to be aware that death is inevitable. The human ability for symbolic, temporal, and self-referenced thought comes with the price of knowing that death is stalking us all and can catch-up to us at any time. Such knowledge has the potential to arouse overwhelming feelings of terror [in Becker's (1973) terms, *annihilation anxiety*], and thus, the core proposition of TMT is that people need to manage this anxiety. To do so, individuals utilize a two-pronged anxiety buffer consisting of faith in a shared cultural conception of reality (worldview) and self-esteem. Cultural worldviews imbue life with meaning by providing explanations for our existence, standards for appropriate behavior, and the potential to transcend physical death via a sense of symbolic (e.g., contributing to a nation or family) or literal (e.g., religious) immortality. Furthermore, when individuals feel that they are meeting the specific standards of value espoused by their culture, they are provided with a sense of self-esteem that functions to buffer anxiety which, in many cases, is tethered to deeply rooted existential fears.

Because of their theoretical centrality, cultural worldviews and self-esteem were the initial focus of TMT research (see e.g., Greenberg, Solomon, & Pyszczynski, 1997; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004, for reviews). In accord with the first ('mortality salience') hypothesis, a considerable amount of research has shown across a variety of contexts that activating people's awareness of mortality [mortality salience (MS)] leads people to more vehemently defend their cultural beliefs (i.e., worldview defense) and to more vigorously try to meet the standards, or contingencies, that enable them to feel good about themselves (i.e., self-esteem striving). For example, in many studies, American participants in the MS condition are initially asked to respond to two brief questions about the prospect of death. In contrast, control participants are asked to respond to parallel questions concerning a different aversive topic (e.g., pain, social exclusion, and failing). Subsequently, participants in the MS condition (relative to controls) express stronger liking for someone who said the United States is great and particularly strong disliking for a person who voiced a negative opinion of the United States. This general pattern of results has been replicated in myriad studies over the years and a recent meta-analysis by Jost and colleagues (2003) reported that MS effects generally yield fairly large effect sizes (average Cohen's $d = 1.2$). Of course, as with much laboratory research, the goal of these studies is to test theoretical generalizations, and it is the theoretical ideas that are then hoped to generalize to explain real world events (see, e.g., Mook, 1983). Thus, the effect size of a typical MS induction, while large, should be interpreted with caution.

The terror management function of self-esteem and cultural worldviews has been further supported by examinations of a second ('anxiety–buffer') hypothesis. This work has shown, for example, that high levels of self-esteem, both dispositionally high and situationally enhanced, enable people to face a variety of threats (e.g., receiving a painful electric shock and watching a video depicting gruesome scenes of death) with less anxiety. In addition,

this research has also demonstrated that both high levels of self-esteem and the affirmation of self-relevant beliefs attenuate the need to respond defensively (e.g., worldview defense) to reminders of mortality.

As these examples hopefully convey, the theory was initially directed toward explicating the broad questions of why it is that, in maintaining a sense of self, folks seem to have such a pervasive need to feel good about themselves and why people across the world and history have such difficulty co-existing peacefully with those who are different. In addition, research has established the importance of cultural worldviews and self-esteem in protecting people from existential fears about mortality. Subsequently, the theory has been applied to understanding an array of social psychological phenomena and demonstrating the broader role that death-related cognitions play in human motivation.

Criticisms and Alternatives

Over the years, a number of criticisms of TMT have been lodged and have ranged from concerns about conceptual precision to alternative explanations for empirical effects. We only briefly comment on such critiques here, as a number of other papers respond to such concerns with considerable depth (see, e.g., Pyszczynski, Greenberg, Solomon, & Maxfield, 2006). One example of issues that have been raised, though, is to question the adaptive value of controlling anxiety about death (e.g., Leary, 2004). This is an important point because certainly some anxiety over impending threats is necessary to facilitate protective and adaptive responses. Indeed, in the face of an oncoming Mack truck (i.e., an immediate threat to life), it would certainly benefit us to expediently extricate ourselves from becoming a pancake. We believe that it is important to note though that TMT has only recently directed attention to the conscious fear of death. Rather, the theory has traditionally been concerned with the psychological ramifications of the unconscious reverberations of the awareness of inevitable – but not so much imminent – mortality. Woody Allen (1976) wrote, 'Its not that I'm afraid to die, I just don't want to be there when it happens' (p. 106). TMT, in a nutshell, seeks to explain how we symbolically try to avoid 'being there' when it happens.

Another important issue is whether the effects observed in TMT research (typically the focus is on worldview defense) are driven by what death represents (e.g., uncertainty: McGregor, Zanna, Holmes, & Spencer, 2001; van den Bos & Miedema, 2000; meaninglessness: Heine, Proulx, & Vohs, 2006; a threat to adaptive collations: Navarrete & Fessler, 2005) and not death per se. Death is certainly a multifaceted stimulus, and it is important to understand the different psychological concerns that it can provoke. But is death a problem because it, for example, arouses concerns about uncertainty or threatens our connections to others? These are difficult questions, but they can perhaps be informed by a few different points.

First, death can be seen as all of these and much more (i.e., it is the only threat that is inevitable), which is part of what may render it psychologically unique and thus difficult to reduce to any one. Second, it is important to note that control conditions quite relevant to, if not going to the heart of such topics as uncertainty, meaninglessness, and social exclusion have been used in a variety of TMT experiments. Thus, although there are some interesting demonstrations of terror management-type effects as a result of having participants contemplate other aversive topics, it is necessary to consider studies where reminders of death and such alternative topics have engendered different effects. Third, MS has been manipulated in a variety of ways (e.g., open-ended questions about death, proximity to a funeral home, and subliminal death primes), thus lending some measure of convergent validity. Fourth, research has examined how these processes interface with the extent to which folks are non-consciously thinking about death (i.e., death thought accessibility). Threats to the protective structures posited to keep concerns with mortality at bay increase death thought accessibility (e.g., Mikulincer, Florian, Birnbaum, & Malishkevich, 2002; Schimel, Hayes, Williams, & Jahrig, 2007), the patterns (e.g., Greenberg et al., 1994), and moderators (e.g., Simon et al., 1997b) of worldview defense and self-esteem striving after MS treatments strongly correspond to patterns and moderators of death thought accessibility and successful engagement of worldview and self-esteem defenses after MS reduce death thought accessibility (e.g., Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997). Thus, although more work is certainly needed, there seems to be convergent evidence pointing to a critical role of death-related cognition in producing the effects elicited by MS treatments.

Finally, in addition to considering the overall conceptual power and explanatory breadth of a given analysis, it is useful to step outside empirical social psychology and consider the anthropological and historical record. In so doing, we learn of the vital place that death-related ritual assumes in virtually all known cultures (see, e.g., Goldschmidt, 1990). With all this in mind, however, the exchange of alternatives and critiques is essential for the growth of any theoretical enterprise and, more importantly, understanding of the phenomena of interest. Indeed, TMT has developed considerably in light of the issues raised by various scholars. For example, one recurring critique concerned the apparent inconsistencies of TMT with risk-taking behavior. If people are motivated to avoid death, how then does the theory explain risky actions where individuals court their own demise? These critiques led to the development of novel hypotheses and explanatory mechanisms (e.g., some people use risky behavior as a means toward self-esteem enhancement) that were then tested and verified in subsequent research (e.g., on risky driving: Taubman Ben-Ari, Florian, & Mikulincer, 1999). In addition, what many of these varying perspectives have brought to the table is the recognition of the vital importance of other existential themes (e.g., uncertainty: McGregor et al., 2001; meaning:

Heine et al., 2006) in how people navigate through life, conceptual colors that were previously neglected if not absent from the social psychological palette.

Some Recent Trajectories of Terror Management Research

One way to think about TMT is as a lens through which to understand the functional significance of different domains of human social behavior. In this light, the theory has been applied to understanding how our existential distress relates to a number of traditional domains of social psychological inquiry, such as aggression (e.g., H. McGregor et al., 1998), self-awareness processes (e.g., Arndt et al., 1998), social influence and persuasion (See & Petty, 2006), conformity and distinctiveness (e.g., Simon et al., 1997a), attitude behavior consistency (e.g., Friedman & Arndt, 2005), and altruism (e.g., Jonas et al., 2002). In this next section, we offer a few examples of how researchers have used this lens to understand the cognitive architecture underlying the processing of thoughts about death, the basic ways in which our identity construction interfaces with managing existential concerns, and how these ideas can be applied to pressing social issues.

Honing the lens: The cognitive architecture of terror management

As TMT research progressed, there emerged important insights into some of the possible cognitive dynamics behind peoples' management of the awareness of death (for reviews, see Arndt, Cook, & Routledge, 2004; Pyszczynski, Greenberg, & Solomon, 1999). This analysis suggests that because of the developmental process through which people learn to associate a heightened sense of symbolic value with the mitigation of existential distress, knowledge of mortality becomes a central construct in people's mental networks of self-relevant beliefs, and as alluded to above, can be activated in a variety of ways. This activation is then thought to motivate two different systems of defense depending on the consciousness of cognitions pertaining to one's mortality. First, *proximal defenses* are engaged to reduce the self-relevant threat of conscious thoughts of death. People, it seems, employ a variety of often pseudo-rational means to avoid thinking about their vulnerability to mortality (e.g., denial of vulnerability: Greenberg, Arndt, Simon, Pyszczynski, & Solomon, 2000). Our favorite way to capture this was coined by Chaplin (2000) and refers to a 'not me, not now' kind of response. These effects speak to the very active role that the mind can take in managing conscious death-related concerns, an activity that in turn can have the very potent consequence of depleting our overall self-regulatory resources (Gailliot, Schmeichel, & Baumeister, 2006). However, such responses only reflect the tip of the defensive iceberg.

Once proximal defenses are relaxed, there is a delayed increase in the accessibility of death-related thought outside of conscious awareness (Arndt et al., 1997). As an example of how this might be measured in research, although people may not report thinking about death at such times, they may still be more likely to complete a word fragment like COFF _ _ with *coffin* rather than *coffee.* This suggests the thought of death is active and influencing perceptions even if we are not aware of it. These unconscious intimations of mortality, in turn, spread to activate inter-connected (worldview and self-esteem relevant) constructs that provide meaning and value for that individual (Arndt, Greenberg, & Cook, 2002). In other words, unconsciously thinking of death seems to lead to uncon-sciously thinking of things that make life meaningful. It seems to be the mind's way of marshalling resources for the upcoming need for *distal* (or symbolic) psychological defenses that bolster faith in cultural beliefs and a sense of self-significance. Engagement of these defenses has been found to serve at least two critical functions: reducing both the accessibility of death-related fears (e.g., Arndt et al., 1997) and the potential for anxiety engendered by the thought of death (Greenberg et al., 2003).

Although these processes may have important implications for under-standing a range of motivated cognitive operations (e.g., differential consequences of conscious and unconscious thoughts: Wegner & Smart, 1997; cf. Bargh & Chartrand, 1999), further research is needed to arrive at a more comprehensive understanding of the psychological, and even neurological, architecture behind the management of existential insecurity. With the continuing advances and appeal of social neuroscience methods, it is now possible to examine the cognitive and biological processes that are engaged when people are confronted with their awareness of death. For example, recent studies are using the electrophysiological technique of event-related potentials to explore the capacity of reminders of death to render people especially sensitive to violations of social expectancies that help to make our interactions with people more meaningful and predictable (Henry, Bartholow, & Arndt, forthcoming). Research using brain imaging techniques is probably not too far away in helping to identify brain regions that are implicated in the processing of existential dynamics.

Expanding the lens: A few new directions of terror management research

We turn now to some implications of these existential dynamics for understanding domains of motivation.

Love and death: Broadening the terror management system. In the last few years, research has broached the topic of how interpersonal relationships can serve existential functions and fortify our intrapersonal sense of self. Working from the perspective of Bowlby's (1969) attachment theory,

Mikulincer, Florian, and Hirschberger (2003) proposed that close relationships help people cope with the awareness of the inevitability of death. Close relationships provide an important reservoir of cultural meaning and self-esteem, facilitate evolutionary adaptation and offer means to regulate distress as people obtain comfort and security from their attachment to others. Mikulincer and colleagues' research has, in turn, focused on the capacity of close peer and romantic relationships to serve terror management goals, finding, for example, that the awareness of death increases efforts to initiate social interaction (Taubman Ben-Ari, Findler, & Mikulincer, 2002) and a desire for romantic intimacy and commitment (Florian, Mikulincer, & Hirschberger, 2002). Notably, much of this research finds it is primarily those with a secure attachment style that show such reliance on peer and romantic relationships, as such individuals have a history of experiencing less anxiety in the context of close interpersonal interactions.

More recently, Cox et al. (forthcoming) show how one's more rudimentary attachment to one's parents, presumably the base upon which later attachments are built, continue to provide protection against mortality concerns into young adulthood. For example, simply thinking about a parent can reduce death thought accessibility and defensive responses to reminders of death. Furthermore, when dealing with mortality concerns, individuals like more and seek closer contact with novel others who remind them of their parents, supporting Freud's (1912, 1958) classic notion of transference. Finally, secure attachment seems to foster a sense that other relationships can function similarly in buffering anxiety, as securely attached individuals are more likely to turn to romantic relationships for protection from existential fears. In contrast, individuals who are insecure in their attachment to their parents are unable to move beyond their rudimentary relationship insecurities and therefore continue to seek protection from parental relationships in response to mortality concerns. Thus, our connections to our parents and what these connections represent can continue to provide protection from existential anxiety long after we've left the 'nest'.

Back to basics: Simple structure, temporal thought, and nostalgia. As the body of TMT research has developed, the function of culturally derived conceptions of reality (i.e., worldviews) and our relationships in thwarting deeply rooted concerns about death has become clear. However, much of this research has focused on how heightened concerns about death foster increased reliance on specific aspects of worldviews (e.g., beliefs and in-group identities) and specific relationships (e.g., romantic ones), and little attention has been given to the more basic building blocks of these meaning providing belief systems. Recent work has started to fill this gap and illuminated the existential value of a structured conception of reality and the ways our ability to think temporally can help us achieve this end.

Early work entertaining these ideas examined how stereotypes function, in part, to stabilize the worldviews which individuals utilize to attenuate mortality concerns. Schimel et al. (1999) found that when the need to maintain a stable view of reality is heightened (i.e., following MS), individuals think in more stereotypical ways and prefer individuals who conform to the stereotypes that society offers. This suggests that constructing a stable and meaningful view of what otherwise might be seen as a chaotic and unpredictable reality helps to serve basic terror management functions. More recently, Landau et al. (2004a) argued that individuals who display a chronic disposition for simple and unambiguous knowledge [e.g., high in personal need for structure (PNS); Neuberg & Newsom, 1993] may be most likely to derive a sense of meaning from a worldview that is both familiar and well structured. This research showed, across a variety of studies, that high-PNS individuals respond to mortality concerns with an increased preference for well-ordered and unambiguous meaning. Additional work in this burgeoning literature has even used these ideas to understand taste for modern art, as high-PNS individuals responded to the awareness of death with decreased liking for art that was devoid of clear meaning, unless the artwork was given a meaningful title or frame of reference (Landau, Greenberg, Solomon, Pyszczynski, & Martens, 2006). Taken together, these findings suggest that certain individuals manage existential anxieties by structuring reality in ways that render it stable and unambiguous. Of course, coming to a better understanding of what enables other individuals to more comfortably tolerate ambiguity in their social world is an important direction for future research.

Our unique ability to think temporally, reflecting on where we have been and where we might be going, undoubtedly contributes to the structuring of our social worlds. Indeed, cultures provide organized conceptions for understanding the passing of time which allows individuals to structure their daily lives and place themselves within a meaningful historical context (Brown, 1959; see Routledge & Arndt, 2005). From a TMT perspective, conceptions of time are important aspects of cultural worldviews that can alleviate distress associated with the awareness of mortality. Consistent with this, for example, MS led to more vehement support for cultural conceptions of time and motivated individuals strongly invested in a well-ordered sense of reality (e.g., high-PNS individuals) to make daily plans with more clearly demarcated temporal boundaries (Landau, Greenberg, Arndt, & Routledge, forthcoming).

In addition, our specific ability to reflect upon the past is useful for allaying mortality concerns in a variety of ways. As part of a broader program of research, Wildschut, Sedikides, Arndt, and Routledge (2006) provided evidence that nostalgic reflection can strengthen psychological resources which serve terror management functions (e.g., self-esteem). And indeed, after being reminded of death, nostalgic reverie (both dispositonally high and experimentally induced) promotes enhanced perceptions

of meaning in life and reduced accessibility of death related cognitions (Routledge, Arndt, Sedikides, & Wildschut, 2008). Nostalgic reverie may be particularly useful for elderly individuals, as they can reflect back upon their lives to acquire a sense that their lives were meaningful. Thus, although our propensity for temporal thought is ultimately responsible for the awareness of our inescapable future demise, it also allows us to construct and place ourselves in a meaningful conception of reality which serves to alleviate the terror associated with the inevitability of death.

Motivational integration: Creativity, growth, and open-mindedness. Despite the existential trepidations we all must face, we do not always defensively ensconce ourselves in a rigid cultural security blanket. Many people, like Captain Kirk, boldly go where no one has gone before. This is perhaps best exemplified with creativity. Indeed, there clearly seems to be another side to motivation that reflects open-minded and self-enriching oriented behavior (e.g., Deci & Ryan, 1985; Maslow, 1962; see, e.g., Greenberg, Pyszczynski, & Solomon, 1995). Research has begun to explore two, perhaps divergent, consequences of juxtaposing creative action with the provocation of concerns about mortality.

The first such strand of research studied the emotional consequences of creative action. Based on the classic theorizing of Otto Rank (e.g., 1932 and 1989), and contemporary ideas about optimal distinctivness (Brewer, 1991), Arndt, Greenberg, Solomon, Pyszczynski, and Schimel (1999) suggested that creative engagement, by virtue of removing oneself from a conventional social fabric, threatens the social connection that provides protection from our existential fears. Therefore, when faced with existential fears, creative action can lead to feelings of guilt (an emotion that reflects a desire for social reparation: Tangney, 1995) and also efforts to bolster perceived similarity to others. 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 (Arndt, Routledge, Greenberg, & Sheldon, 2005). Accordingly, after being reminded of death, people can be more creative if the product is directed toward communal benefit, but less creative if the product is directed toward individual gain (Routledge, Arndt, Vess, & Sheldon, forthcoming). This work thus not only reveals some of the dark sides of creative expression, but also suggests that as people are faced with managing existential fears, creativity has the potential to facilitate more optimal engagement with life.

Building from this, Routledge et al. have begun to explore how creativity can promote a more holistic sense of open-mindedness that, in contrast to the findings of previous TMT research, can increase peoples' readiness to explore new ideas that may even challenge their own. Routledge, Arndt, and Sheldon (2004) found that when creativity inspires a more open-minded orientation, it reduces people's tendency to manage existential

fears by derogating those with conflicting beliefs. More recently, Routledge and Arndt (forthcoming a) showed that priming the cultural value of creativity can even increase willingness to expose oneself to ideas that run counter to prevailing cultural beliefs. Taken together, research is unlocking avenues through which to explore how people can manage the awareness of death in ways that not only have less adverse effects on others, but actually embrace the rich diversity of perspectives that the world offers. Of course, there is a puzzle here in how creativity can both threaten our connections to others and also dispose us to more open-minded beliefs. Future work is needed to achieve a fuller understanding of these processes. We suggest that one fruitful avenue may be to explore how different expressions of creativity can give rise to different cognitive and motivational orientations. For example, some forms of creativity or creativity in certain contexts may engender greater attentiveness to open mindedness, whereas other forms or contexts may elicit greater concern with social cohesion.

Applying the lens: Applications of TMT to social issues

Consistent with Kurt Lewin's (1951) eloquently insightful comment that, 'There is nothing so practical as a good theory' (p. 169), TMT researchers have applied the theory in a variety of ways that have helped to broaden our understanding of pressing social issues. In the section below, we outline just a few of these applications that have recently been picking up steam.

Distal defense: Specific applications to politics, law, and psychopathology. People's efforts to secure order, meaning, and value in life to combat the existential terror associated with the awareness of mortality (i.e., distal defenses) have a variety of manifestations. Consider for example, the choices that people are making in our current geopolitical climate. TMT hypotheses have been used to understand the potential impacts that deeply rooted existential fears have on preferences and support for political leaders, a willingness to sacrifice one's life for country (or belief), and endorsement for radical violence against the perceived 'enemies' of one's culture. For instance, faced with concerns about mortality, people became more supportive of President Bush specifically (vs. then candidate John Kerry; Landau et al., 2004b) and charismatic leaders more generally (Cohen et al., 2004) presumably because such leaders communicate an ability to provide security from threats (e.g., terrorist attacks), enable people to feel special, and implicate an identifiable 'evil' (e.g., terrorists) for one's culture to strive against. Furthermore, reminders of death have been found to increase British individuals' reported willingness to sacrifice themselves for their country (Routledge & Arndt, forthcoming b), Iranians' support for martyrdom attacks against the United States, and Americans' endorsement of radical military action (that could kill innocent civilians) against countries that are perceived as a threat to

the United States (Pyszczynski et al., 2006). Thus, TMT has provided a useful framework from which to understand the development of 'good' versus 'evil' ideologies and their contributions to violent conflicts throughout the world.

In a similar fashion, TMT work on legal decision making has uncovered how motivational biases provoked by the awareness of mortality can inform when and how justice eludes us. In fact, the first TMT experiment found that municipal judges asked to contemplate mortality (relative to those who were not) set bail amounts for an alleged prostitute (who presumably violated cultural and legal values) that were on average $400 higher than judges in the control condition (Rosenblatt et al., 1989). More recently, mortality concerns have been found to attenuate punitive reactions towards hate crime offenders if their victims threatened the participant's worldview (Lieberman, Arndt, Personius, & Cook, 2001) and to influence responses to evidence deemed inadmissible in court (Cook, Arndt, & Lieberman, 2004; for a review of TMT applications to legal decision making, see Arndt, Lieberman, Cook, & Sheldon, 2005). These findings are alarming, given the frequency with which the topic of death can come up in court, because they suggest that efforts to affirm one's beliefs and values in response to mortality concerns can significantly disrupt due process.

In addition to politics and jurisprudence, several lines of inquiry have explored terror mismanagement; that is, implications of the awareness of mortality on symptoms associated with psychopathology. Earlier work in this vein focused on how the awareness of mortality and a lack of enduring meaning play significant roles in depressive symptomology (e.g., Simon et al., 1998). More recent applications demonstrate that the awareness of mortality can exacerbate symptomatic responses among those with different types of anxiety disorders, such as hand washing duration among individuals with obsessive–compulsive tendencies (Strachan et al., 2007) and dissociative responses to reflections on the terrorist attacks of September 11th (Kosloff et al., 2006). These research programs illustrate the contributions that an existential analysis can make towards understanding psychopathology.

The proximal and distal: Applying the cognitive architecture of TMT to physical health. In addition to applications of TMT's hypotheses regarding efforts to manage unconscious thoughts of death, Goldenberg and Arndt (forthcoming) recently proposed a terror management health model (TMHM) that utilizes the notions of proximal and distal defenses against mortality concerns to understand decisions and behaviors relevant to physical health. Specifically, the model articulates how health threats, such as cancer, can activate death-related thought (Arndt, Cook, Goldenberg, & Cox, 2007) and from there suggests that conscious thoughts of death motivate health-related responses that are geared towards removing

death–related thoughts from focal attention. Such responses may proceed down adaptive (e.g., exercising: Arndt, Schimel, & Goldenberg, 2003) or maladaptive (e.g., vulnerability denial: Greenberg et al., 2000) avenues and tend to be influenced by the health-relevant coping strategies an individual brings to the table (Arndt, Routledge, & Goldenberg, 2006).

Once thoughts of death have been driven out of focal attention, their unconscious reverberations linger to engender distal defenses that, as the second proposition of the TMHM suggests, entail efforts to live up to cultural standards of value and affirm meaning providing beliefs. This may occur in ways conducive to good physical health (e.g., exercising more for those who derive self–esteem from physical fitness: Arndt et al., 2003), but also may occur even at the expense of physical health. For example, among individuals who derive self–esteem from living up to cultural standards of attractiveness, MS has been shown to reduce endorsement of sunscreen products that protect against skin cancer but inhibit tanned skin (Routledge, Arndt, & Goldenberg, 2004). As recent studies show, under–standing the consequences of the awareness of death can also help explain why some religious fundamentalists refuse medical treatment on religious grounds (Vess et al., forthcoming). In short, the management of unconscious thoughts of death can ironically contribute to a reluctance to engage in health promoting behaviors if they conflict with the distal motivations to bolster self-esteem or affirm one's beliefs.

A third proposition of the TMHM draws from research indicating that our physical bodies pose a unique existential threat because they remind us that we are ultimately creatures fated for death and decay (Goldenberg, Pyszczynski, Greenberg, & Solomon, 2000). From this perspective, cultural values and beliefs related to our physicality help to symbolically elevate us above other animals and the mortal fate we share with all forms of life. Work in this line has shown, for example, that when the similarities between humans and other animals were made salient, thinking about the physical aspects of sex increased the accessibility of death-focused cognition. Importantly, these effects did not emerge if the ways in which humans are distinct from other animals were made salient or when individuals were asked to think about the culturally symbolic, romantic aspects of sex (Goldenberg et al., 2002).

Building from these ideas, the TMHM proposes that existential threats associated with our physicality can inhibit healthy behaviors associated with the body. For example, for women, the prospect of a breast exam–ination can be especially threatening (and thus avoided) because it conjures up (often unconscious) concerns with one's physicality and mortality (Goldenberg, Arndt, Hart, & Routledge, forthcoming). In sum, the TMHM applies specific hypotheses derived from TMT to demonstrate the ways that fears associated with the awareness of mortality impact decisions and behaviors related to physical health.

A Look to the Future

Having offered some glimpses into where TMT has been and currently is, it also bears mentioning some directions TMT research could be heading. Throughout the article, we have tried to note some areas that are in need of further work – whether it be applications to other classic social psychology domains or a better understanding of existing applications – but there are clearly many that we have not even touched on. One issue centers around the landscape of psychological defense against concerns with mortality. It seems that individuals can buffer existential anxiety in a variety of ways (e.g., by enhancing self-esteem, structuring reality in unambiguous ways, or clinging to culturally derived beliefs) with a variety of implications. Yet, we still know relatively little about how individuals resolve motivational conflicts that may be implicated by different needs. Although contemporary research speaks to the substitutability of self-related defenses (e.g., Tesser, 2000), work is needed to elucidate when, why, and how specific types of defenses take priority of others. For example, in some instances, people may prefer to maintain their iconic view of significant others (e.g., their parents) at the expense of their own success (Landau, Greenberg, & Sullivan, forthcoming), suggesting that strivings for self-esteem may offer little protection from existential fears if such strivings undermine faith in one's view of the world. Future work should build from this momentum, but in so doing, must meet the methodological challenge of developing research paradigms that provide individuals the opportunity to choose between defenses.

Conventional TMT paradigms also implicate another potential future direction. For the purposes of empirical elucidation, as discussed earlier, TMT research has typically reminded people of their mortality (i.e., relative to people not reminded of mortality; the 'MS paradigm') in efforts to observe the more vigorous manifestations of defense. However, the operation of terror management processes is posited to be an ongoing state of affairs due to the ever present rumblings of our existential predicament. Indeed, as William James (1910, 1978) notes, 'Let sanguine healthy-mindedness do its best with its strange power of living in the moment and ignoring and forgetting, still the evil background is really there to be thought of, and the skull will grin in at the banquet.' (p. 132). Unfortunately, the general reliance on the typical MS paradigm may be inadvertently constricting the types of terror management questions being asked.

Fortunately, other frameworks are appearing on the horizon. For example, increasingly studies are examining how daily events (e.g., information about terrorist attacks: Landau et al., 2004b; health threats such as cancer: Arndt et al., 2007) implicate terror management processes. In addition, an increasing number of studies are examining how breakdowns in the psychological buffers that keep concerns with mortality at bay (e.g., relationship discord: Mikulincer et al., 2002; human sexuality and physicality:

Goldenberg et al., 1999; threats to our cultural values: Schimel et al., 2007) can implicate these processes as well. Finally, Edmondson, Park, Chaudoir, and Wortmann (forthcoming) have examined how the presence of religious struggle among terminal heart disease patients can increase fears of death, which in turn predict the onset and intensity of depression. These and many other examples reflect some of the different approaches that one can take to understand how concerns with mortality can influence our navigation through life.

Conclusion

In this article, we have tried to offer a general sense of what TMT is all about and a sampling of some of the recent issues, refinements, extensions, and applications of research inspired by the theory. Although this sampling obviously reflects directions with which we are more familiar, we hope this treatment is illustrative of how an existential perspective generally, and a terror management perspective specifically, can be a useful vehicle for understanding important facets of human social behavior. Clearly, however, more research is needed, and as boundaries are pushed back, we may arrive at a deeper understanding of how one of the truths of reality, death, affects us even as we live.

Short Biography

Jamie Arndt is an associate professor in the Department of Psychological Sciences at the University of Missouri, Columbia. He received his BS from Skidmore College and his PhD in 1999 from the University of Arizona. Arndt's research is concerned with how the existential realities of the human condition impact diverse forms of social behavior. To date, these interests have been focused on understanding facets of the self, psychological defense, unconscious processes, and behavioral health, among other areas. He has authored or co-authored work in these and other areas in such outlets as *Journal of Personality and Social Psychology*, *Psychological Bulletin*, *Psychological Science*, and *Journal of Experimental Psychology: General*.

Matthew Vess is a graduate student in the Department of Psychological Sciences at the University of Missouri, Columbia working under the tutelage of Dr. Jamie Arndt. He earned his BA from Ohio University in 2005 and his MA from the University of Missouri-Columbia in 2007. His research to date has explored various aspects related to the self, including how efforts to affirm self-relevant beliefs can shape responses to environmental issues and medical decisions. More broadly, his research interests include complexities of the self-esteem construct, psychological defense, and how individuals manage conflicts between self-relevant systems of meaning and value.

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Endnote

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