The Role of Death in Life: Existential Aspects of Human Motivation

Article · March 2011

DOI: 10.1093/oxfordhb/9780195399820.013.0004

2 authors:

Pelin Kesebir
University of Wisconsin–Madison
25 PUBLICATIONS **220** CITATIONS

SEE PROFILE

Tom Pyszczynski
University of Colorado Colorado Springs
203 PUBLICATIONS **15,842** CITATIONS

SEE PROFILE

The Role of Death in Life: Existential Aspects of Human Motivation

Pelin Kesebir

Tom Pyszczynski

University of Colorado at Colorado Springs

Keywords: Terror management theory, experimental existential psychology, death anxiety, existential anxiety, motivation

Abstract

The capacity for self-reflection, which plays an important role in human self-regulation, also leads people to become aware of the limitations of their existence. Awareness of the conflict between one's desires (e.g., to live) and the limitations of existence (e.g., the inevitability of death) creates the potential for existential anxiety. In this chapter, we review how this anxiety affects human motivation and behavior in a variety of life domains. Terror management theory and research suggests that transcending death and protecting oneself against existential anxiety are potent needs. This protection is provided by an anxiety buffering system, which imbues people with a sense of meaning and value that function to shield them against these concerns. We review evidence of how the buffering system protects against existential anxiety in four dimensions of existence—the physical, personal, social, and spiritual domains. Because self-awareness is a prerequisite for existential anxiety, escaping self-awareness can also be an effective a way to obviate the problem of existence. After elaborating on how existential anxiety can motivate escape from self-awareness, we conclude the chapter with a discussion of remaining issues and directions for future research and theory development.

The Role of Death in Life: Existential Aspects of Human Motivation

Unlike any other animal, we humans live our lives starkly aware that, despite our most fervent desires, death will sooner or later come to us. This knowledge, combined with other uniquely human sophisticated mental abilities, inevitably leads people to ask questions about the meaning, value, and purpose of existence. Although writers and philosophers throughout the ages have pointed to the vital impact of existential concerns on the human psyche, systematic empirical investigation of how existential concerns affect human motivation began only relatively recently. The purpose of terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986) is to explain the role that awareness of the inevitability of death plays in diverse aspects of human life. In this chapter, we review what terror management theory and research has revealed about existential anxiety and its effects on human behavior and experience. The main tenet of TMT is that the desire to transcend the fragility of human existence by construing oneself as a valuable contributor to a meaningful universe lies at the root of a diverse array of otherwise distinct human motives.

The research we will review in this chapter focuses on a uniquely human source of motivation. Although other animals react with fear to clear and present dangers that threaten their existence, only humans have the self-awareness that leads them to realize that death is inevitable. Like other evolutionary advances, this awareness led to changes in the way motivational systems operated by building on previous evolved adaptations. Thus, existential motivation operates on other more basic motive systems—co-opting them to meet new needs and changing the way other needs other needs are pursued. We start by considering how the emergence of self-awareness changed the human condition.

(h1) Self-Awareness: A Blessing and a Curse

Awareness of self is a tremendously adaptive cognitive capacity that exponentially increases the flexibility of the system through which humans regulate their behavior (Becker, 1971; Duval & Wicklund, 1972; Leary, 2004; Pyszczynski, Solomon, & Greenberg, 1986). Self-awareness is a distinct type of consciousness that enables the human self to become an object to itself. Although some other species are capable of a rudimentary form of self-recognition, they lack the linguistic abilities to conceive of an abstract self and use it to structure their experiences and behavior (Mitchell, 2003). Self-awareness enables humans to step back, reflect on their circumstances, weigh multiple options for how to meet their needs and the chances of each one succeeding, and then select the option they believe will be most successful for achieving their goal. It greatly expands one's options for how to behave and gives greater executive control to the self over one's actions. Accompanied by other uniquely human capacities, such as language and symbolic thought, causal thinking, and imagination, reflexive self-awareness has been critical to the formation of complex human society and culture as we know it today. As Leary argues, "science, philosophy, government, education, and health care would all be impossible if people could not consciously self-reflect" (2004, p. 12).

Contemporary thinking about the role of self-awareness in human behavior was stimulated by Duval and Wicklund's (1972) objective self-awareness theory. They pointed out that conscious attention can be directed either externally, toward the environment, or internally, toward the self. Objective self-awareness theory posits that directing attention toward the self instigates a self-evaluative process, in which one's current state on whatever dimension is currently salient is compared with salient standards for that dimension. The detection of discrepancies between current state and standards produces affect that motivates the person to either reduce any discrepancies or escape the self-focused state. Research has been highly

supportive of these basic propositions (for reviews, see Carver & Scheier, 2002; Duval & Silvia, 2001; Pyszczynski & Greenberg, 1992). Carver and Scheier (1981; Carver, 1979) integrated these ideas with a very general cybernetic model of self-regulation in which this process of comparing the self's current state to standards and the increased effort to reduce any discrepancies are viewed as the most basic process through which the self regulates its own actions. Self-awareness thus adds multiple layers of sophistication and flexibility to the simple system of comparing and matching to standards through which all self-regulating systems operate.

One of the most important innovations that Carver and Scheier (1981) brought to their synthesis of self-awareness and self-regulation was their conceptualization of a hierarchy of standards that integrated concrete physical actions and the even more concrete biological, chemical, and electrical changes through which these actions are accomplished, with the more abstract goals, identities, and sense of self-worth that these actions (and their lower level components) are oriented toward achieving. From this perspective, all behavior functions to simultaneously meet multiple hierarchically organized goals, and this organization gives coherence and flexibility to human action. The standard at any given level of abstraction is simultaneously a behavior through which the standard at a higher level of abstraction is met. For example, writing a paper for a college class is a behavior through which the standard of getting a good grade in the class is met; getting a good grade in the class is the behavior through which the more abstract standard of getting a college degree is met; getting a college degree is the behavior through which the more abstract standard of getting a good job is met; getting a good job is the behavior through which the more abstract standard of having a successful career is met; and having a successful career is the behavior through which the even more abstract goal of being a

valuable person is met. One could also move down the hierarchy to consider the component behaviors through which writing a paper, gathering information, reading articles to provide that information, moving the focus of one's eyes across the words on the page are accomplished, and so on down to the biological and chemical reactions that underlie these actions.

Flexibility in behavior is provided by the fact that there are usually multiple behaviors through which any given standard can be met. For example, self-esteem can be achieved by means of success in one's career, relationships, community activities, or family. And there are many ways to succeed in any of these more specific endeavors, just as there are many particular routes through which any particular success could be attained. Self-awareness sets in motion a variety of executive processes through which choices among these multiple routes to goals at these various levels of abstraction are met. Of course this is a very complex system and we are able to provide only a brief overview here. For a more thorough presentation, see Carver and Scheier (1981; 2002). For present purposes, our goal is to make clear the central role and adaptive utility that self-awareness and hierarchical organization of standards and behavior play in human motivation and behavior. Put simply, self-awareness increases the human capacity for freedom and willful self-determined behavior.

Although self-awareness opened the door to many new opportunities for humans, it also set the stage for some uniquely human challenges. Perhaps the most basic problem born from self-awareness was the recognition of one's limits, one's perpetual vulnerability, and one's ultimate mortality. Human beings, compelled by their sophisticated mental abilities to be aware of their own existence, had to face the basic conditions of life and their limitations against them. The juxtaposition of what humans were born into and what they naturally desired created certain existential dilemmas with which they had to contend. Irvin Yalom (1980) delineated four

ultimate concerns and proposed that the individual's confrontation with each of these "givens of existence" constituted a major existential conflict. These four concerns are *death*, *freedom*, *isolation*, and *meaninglessness*. Human beings wish to continue being, yet they are inevitably finite (*death*). They wish for ground and structure, yet there is no universal design or plan for human life other than that which humans create, leaving people responsible for creating themselves and their world (*freedom*). They wish for communion with others and to be part of something larger than themselves, yet they are born alone and ultimately die alone (*isolation*). They desperately seek meaning, yet there is no pre-ordained, inherent meaning to the universe (*meaninglessness*). According to Yalom, each of these clashes between the structure of existence and the wishes of the self-reflective human being spawns conscious and unconscious fears and motives. Existential psychology is the branch of psychology that investigates how these fears and motives affect humankind, and how they interact with the other needs and desires that are essential to human existence

For most of the still brief history of psychology, the existential subdiscipline was synonymous with existential psychotherapy; its concepts and theories were scattered in a piecemeal fashion within the existing literature; and it had little interaction with empirically oriented psychological science (Jacobsen, 2007). The methodology of existential psychological research was qualitative and descriptive, with a particular emphasis on phenomenology. Notwithstanding the rich insights these methods are capable of yielding, causal inferences regarding the effect of existential realities on human motivation can be made only through rigorous experimental research. This is why terror management theory's application of experimental methods to existential psychological questions has been an invigorating contribution to existential psychology, resulting in the prolific subfield of social psychology

known as experimental existential psychology (see Greenberg, Koole, & Pyszczynski, 2004; Pyszczynski, Greenberg, Solomon, & Koole, 2010).

(h1) Terror Management Theory

Terror management theory was inspired by cultural anthropologist Ernest Becker's (1971, 1973, 1975) attempts to integrate and synthesize what he viewed as the most important insights into the human condition provided by the social and natural sciences, as well as humanities. Building on the work of thinkers as diverse as Freud, Rank, Mead, Fromm, Kierkegaard, Heidegger, and Sartre, Becker built on the premise that the idea of death is unbearable to a self-aware animal: "To have emerged from nothing, to have a name, consciousness of self, deep inner feelings, an excruciating inner yearning for life and self-expression—and with all this yet to die" (1973, p. 87). To Becker, the terror inherent in this knowledge haunted humans like nothing else and was a mainspring of human activity: "Of all things that move man, one of the principal ones is his terror of death" (1973, p. 11). In his view, a major function of individual character and societal institutions was to deny one's mortality and avert this terror. He viewed human striving for a sense of value and unshakable meaning as the primary defense against the terror-inducing awareness of mortality, and he conceptualized this striving as taking place within the context of the cultural worldviews to which people subscribe. To Becker, participating in and contributing to a cultural system that imbues existence with order, purpose, and permanence provided the individual with a feeling of outliving or outshining death and the psychological equanimity that this produces.

TMT was initially developed to answer three fundamental questions about human nature: Why do people need self-esteem? Why do people need to believe that out of the multitude of ways that people construe reality, theirs happens to be the one that is ultimately correct? And

why are interpersonal and intercultural relations so frequently ridden with conflict and violence? Becker's ideas offered potential answers to these and many other questions. TMT was an attempt to simplify Becker's ideas and integrate them with existing knowledge within the fields of social, personality, developmental, cognitive, and motivational psychology in a way that would generate testable hypotheses about the functions of self-esteem and culture. TMT posited that knowledge of inevitable mortality, when combined with the biologically rooted craving for life, creates a potential for paralyzing terror. To function effectively in the world, people must keep this terror at bay. Protection from this terror is provided by self-esteem and faith in one's cultural worldview (Solomon, Greenberg, & Pyszczynski, 1991). These two psychological entities function to buffer death-related anxiety. Later research revealed close interpersonal relations as an additional component of the anxiety-buffering mechanism (Mikulincer, Florian, & Hirschberger, 2003).

TMT posits that awareness of the inevitability of death is a powerful motivating force that influences the human needs for meaning, self-esteem, and close relationships. The precursors of these motives probably initially evolved because they solved practical problems of living that increased our ancestors' chances of passing on their genes by staying alive, mating, and caring for their offspring. However, once human intelligence had evolved to the point that awareness of death emerged, the need for protection from the fear that this awareness created led people to develop systems of meaning and value that provided protection from this fear. From this point on, people no longer simply needed meaning systems that helped them procure the necessities of life—now, their meaning systems also needed to help manage their potential for existential anxiety. The value of accuracy and practical utility of the meaning systems was

usurped by the value of death transcendence, and from this point on the pursuit of truth and protection were often in conflict with each other.

Well over 400 separate studies conducted in over 20 countries have tested and supported hypotheses derived from TMT. These studies helped expand the theory beyond its initial focus and applied it to topics as varied as religion and spirituality, legal decision making, nostalgia, human sexuality, fascination with fame, creativity, materialism, and psychopathology. The fact that existential concerns have been shown to affect human behavior across so many domains suggests that existential anxiety is a central motivating force for the human psyche. In the next sections, we provide an overview of TMT findings that support this claim; however, we first describe the logic of the methods commonly employed in TMT studies.

(h2) The TMT Research Strategy

TMT research has been focused on three general hypotheses that have been combined in various ways to assess the basic propositions of the theory and applied to a diverse array of behaviors and social problems to document the generality and generativity of the theory. The earliest TMT studies (Greenberg et al., 1990; Rosenblatt et al., 1989) used the mortality salience hypothesis to assess the theory's propositions, which has remained the most common approach to testing TMT. Indeed, according to a recent meta-analysis of 238 empirical TMT journal articles reporting 277 experiments, 83% directly tested this hypothesis (Burke, Martens, & Faucher, 2010). The mortality salience (MS) hypothesis states that to the extent a psychological structure (e.g., self-esteem, faith in one's cultural worldview) provides protection against death anxiety, reminders of death should intensify the need for this structure, and therefore lead to more positive reactions to people and ideas that support that structure and more negative reactions to people and ideas that threaten it. In a typical MS study, the experimental group is

exposed to a reminder of death (mortality salience) and then compared to a control group that has not been reminded of death on the variable hypothesized to buffer against existential anxiety.

The most common mortality salience induction technique entails asking participants two open-ended questions about their own mortality, as first utilized by Rosenblatt et al. (1989). Specifically, participants are asked to "Please briefly describe the emotions that the thought of your own death arouses in you" and "Please jot down as specifically as you can what you think will happen to you as you physically die and once you are physically dead." In the control condition, participants respond to similarly worded questions regarding a neutral (e.g., watching TV) or negative topic not related to death (e.g., dental pain) Other techniques to manipulate MS include having participants complete fear of death scales, watch car crash or holocaust videos, read an essay about cancer or the 9/11 attacks, exposing them to subliminal death primes, and interviewing them in front of a funeral home or cemetery. Findings have been highly consistent across these different mortality salience inductions.

In their meta-analysis, Burke and colleagues (2010) found that MS manipulations yielded moderate-to-large effects ($r = .35$, $d = .75$) on a wide range of attitudinal, behavioral, and cognitive dependent variables. This effect size reaches the top quartile of effects for psychology in general and the 80th percentile for theories in social psychology (Lipsey & Wilson, 1993; Richard, Bond, & Stokes-Zoota, 2003). The same meta-analysis revealed that a longer delay between MS manipulation and the dependent variable assessment yields larger effect sizes. This finding highlights an important finding regarding how people react to reminders of death—death-related thoughts elicit strongest defensive reactions when they are no longer in current focal attention, yet are still accessible. This led to a distinction between the types of defenses that people use to cope with conscious and non-conscious death-related thoughts ((Pyszczynski,

Greenberg, & Solomon, 1999). People deal with conscious thoughts of mortality using *proximal defenses* that operate in a relatively direct and rational fashion—for example, by reminding themselves of their excellent health or the "longevity gene" running in their family, by resolving to eat better, to exercise more, to have more regular check-ups, etc. Non-conscious thoughts of death, that is, thoughts that are highly accessible but not in current focal attention, lead to *distal defenses* that cope with the problem in a more indirect, symbolic manner. These distal defenses emerge only when thoughts of mortality have faded to the fringes of consciousness. Research showing that the removal of delay and distraction tasks eliminates effects of MS on worldview defense and self-esteem striving supports this dual process model of defense (Greenberg, Arndt, Simon, Pyszczynski, & Solomon, 2000). Hence, delay/distraction tasks (e.g., scales of positive and negative affect, word puzzles, anagram tasks) between the MS induction and measures of the dependent variable are essential for testing the MS hypothesis.

A second early approach to assessing TMT was the anxiety-buffer hypothesis. According to this hypothesis, to the extent that a psychological structure buffers anxiety, then strengthening that structure should lead to less anxiety in threatening situations and weakening it should lead to more anxiety. In the initial test of the anxiety-buffer hypothesis (Greenberg et al., 1992), participants were given bogus positive or neutral personality profiles designed to either increase their self-esteem or have no effect on it. They then watched a graphic video of death-related scenes or a neutral film, after which their state anxiety was assessed. Although the death-related video led to significantly elevated levels of anxiety in the neutral self-esteem condition, it had no effect on anxiety in the self-esteem boost condition. Follow-up studies by Greenberg et al. (1993) replicated this finding with different manipulations of self-esteem and threat and physiological measures of anxiety. These studies showed that both experimentally elevated and dispositionally

high levels of self-esteem led to lower levels of death-denying defensive distortions, which presumably were decreased because of the anxiety-buffering effect of high self-esteem. Still other studies combined the anxiety-buffer and mortality salience hypotheses to show that bolstering self-esteem, faith in one's worldview, or close personal relationships eliminates the increase in defensiveness that reminders of death otherwise produce (e.g., Florian, Mikulincer, & Hirschberger, 2002; Harmon-Jones, et al., 1997).

A third, increasingly common approach to assessing TMT is the death-thought accessibility (DTA) hypothesis. The hypothesis states that to the extent a psychological structure serves to protect against death anxiety, weakening this structure would increase, and strengthening it would decrease, the accessibility of death-related thoughts. According to a recent review (Hayes, Schimel, Arndt, & Faucher, 2010), there are over 80 published studies that have made use of the DTA concept in the context of TMT. The vast majority of these studies assessed DTA through the word-fragment completion task. This task, originally used by Greenberg et al. (1994), consists of word fragments, some of which can be completed in either death-related or death-unrelated ways (e.g., SK _ _ L can be completed as skull or skill). DTA is operationalized as the number of words completed in death-related ways. The successful use of this measure in languages other than English, including Hebrew, Chinese, French and Dutch, attests to the construct validity and generality of the method. DTA studies were essential to the development of TMT, because they revealed that the anxiety-buffer does not operate only when death thoughts are activated by external events (as studies testing the MS hypothesis show), but that they are continuously functioning to keep death-related thoughts beneath consciousness.

In our view, the most convincing aspect of the evidence for TMT is the high degree of consistency and convergence in findings across different methods. Although in some cases it

may be possible to offer alternative explanations for specific findings, we have yet to encounter an attempt to provide an alternative account of the converging evidence provided by these diverse methods. We now discuss evidence obtained with these and other methods that reveal the role of existential anxiety in energizing and directing human behavior.

(h1) Evidence for the Motivational Role of Existential Anxiety

In presenting the findings on the diverse ways that the fear of death affects human behavior, we use a taxonomy widely used by existential psychologists (van Deurzen-Smith, 1984). According to this framework, humans experience the world on four basic dimensions, commonly referred to with their German names: Physical dimension (*Umwelt*), personal dimension (*Eigenwelt*), social dimension (*Mitwelt*), and spiritual dimension (*Überwelt*). The first three dimensions are drawn from the work of Swiss psychiatrist Ludwig Binswanger (1946). Based on the writings of authors such as Buber (1923), Jaspers (1931), and Tillich (1952), existential psychotherapist van van Deurzen-Smith (1984) proposed a fourth, spiritual dimension. According to van Deurzen (1997), all these dimensions have their own paradoxes and tensions, their own human objectives and aspirations, as well as their own ideals and evils. They create a complex four-dimensional field of forces that encompass the major aspects of the human experience. The four dimensions are obviously interrelated, with the self standing at the center of the person's entire network of physical, social, personal and spiritual relations. Indeed, these four dimensions overlap substantially with William James's four constituents of the self—the material self, social self, spiritual self, and the pure ego (1950). For organizational purposes, nonetheless, we will treat them separately and discuss how the human experience on each of these dimensions is affected by existential concerns.

(h2) The Physical Dimension

The physical dimension is concerned with how people relate to nature and the material world around them. Their relationship to their bodies, physical environment, concrete surroundings, and material possessions make up this dimension (van Deurzen, 2002). How do existential motives shape human behavior and experience on the physical dimension?

(h3) The Problem of the Body

Human beings are condemned to a dual existence: They are half animal and half symbolic—to use Becker's colorful metaphor, they are "gods with anuses" (1973, p. 51). The capacity for self-reflection that distinguishes the human race so sharply from the rest of the animal kingdom ironically also leads to the realization that humankind is ultimately *part of nature* and subject to the same ultimate fate of death and decay. The knowledge that one is "up in the stars and yet housed in a heart-pumping, breath-gasping body" (Becker, 1973, p.26), the awareness of one's common fate with all creatures, explains why people are often ill at ease with their own corporeality. Indeed, research has shown that reminders of death intensify the desire to distance oneself from other animals and from one's own body.

For example, Goldenberg and colleagues (2001) demonstrated that mortality salience leads to increased preference for an essay that describes humans as distinct from animals over one that emphasizes human-animal similarities. These researchers also found that mortality reminders increase disgust reactions to situations involving bodily products (e.g., "seeing a bowel movement left unflushed in a public toilet") and animals (e.g., "seeing maggots on a piece of meat in an outdoor garbage pail"). In a similar vein, viewing pictures of bodily wastes has been found to increase the accessibility of death-related thoughts (Cox, Goldenberg, Pyszczynski, & Weise, 2007). Other research has shown that intimations of the frailty of the human body, as in the case of elderly people (Martens, Greenberg, Schimel, & Landau, 2004) or

persons with physical disabilities (Hirschberger, Florian, & Mikulincer, 2005), spontaneously increase the accessibility of death-thoughts.

The urge to distance oneself from one's body in the face of death thoughts acquires great practical significance in the context of health behaviors. Ironically, the salience of mortality thoughts often poses a barrier to health-promoting behaviors that could actually forestall death (Goldenberg & Arndt, 2008). Research has shown, for example, that when mortality is salient, reminders of creatureliness decrease women's willingness to conduct breast self-examinations (Goldenberg, Arndt, Routledge, & Hart, 2008).

Interestingly, thoughts of death increase health-promoting behavior when they are in current focal attention, but decrease such behavior when they are on the fringes of consciousness. This is consistent with the TMT distinction between proximal defenses, that deal with the problem of death in a rational way and emerge when one is consciously thinking about death, and distal defenses, that deal with the problem of death symbolically by boosting one's sense of meaning and value that emerge when such thoughts are accessible but not in focal attention. For example, Routledge, Arndt, and Goldenberg (2004) found that immediately after reminders of death people were more interested in using a sunscreen that provided a high level of protection (to reduce their chances of skin cancer), but after a delay and distraction, they were more interested in sunscreen with a lower level of protection (to get a better tan).

According to TMT, the great efforts individuals and societies put in denying and disguising the body's physicality are motivated, to a large extent, by a need to escape the creaturely aspects of existence. This need is perhaps nowhere more apparent than in the domain of human sexuality, which is a potent reminder of the fundamentally animal side of human nature. After all, as Cole Porter put it, "birds do it, bees do it, even educated fleas do it."

Supporting the argument that sex is threatening when it is closely associated with creatureliness, research found that when similarities between humans and animals were salient, reminders of death resulted in decreased attraction to the physical, but not romantic (and hence uniquely human), aspects of sex (Goldenberg, Cox, Pyszczynski, Greenberg, & Solomon, 2002). These researchers also found that when participants were primed with human-animal similarities, thinking about physical, but not romantic, aspects of sex increased the accessibility of death-related thoughts. These findings suggest that construing human sex as indistinguishable from animal copulation can be uncomfortable due to the mortality concerns it arouses.

Confrontations with the natural world at its wildest can induce a similar sense of discomfort. Studies reveal that people have more death thoughts in wilderness settings compared to cultivated nature or urban settings, and that death reminders reduce the perceived beauty of wild landscapes and increase the perceived beauty of cultivated landscapes (Koole & Van den Berg, 2005). This helps explain the appeal of carefully mowed lawns and manicured gardens and the many hours that people devote to imposing unnatural order on their natural environment.

Finally, it has also been found that mortality thoughts increase people's desire to fly, whereas engaging in flight fantasies mitigates defensive reactions to mortality thoughts. These findings suggest that fantasies of flight can serve a terror management function by helping people to transcend physical confines, albeit in imagination only (Solomon, Greenberg, Pyszczynski, Cohen, & Ogilvie, 2009). All in all, our review indicates that existential concerns play a distinct role in humankind's relationships with their bodies and nature. Now we examine how existential concerns affect our relationship with material possessions.

(h3) Materialism

Materialism, or the importance a person attaches to worldly possessions (Belk, 1985), has frequently been recognized by scholars as a way to secure meaning and transcend death. Irvin Yalom, for example, wrote that accumulating material wealth can become "a way of life which effectively conceals the mortal questions churning below" (1980, p. 121). Others contended that underlying the American ideology of affluence is the pursuit of secular personal immortality through material means (Hirschman, 1990). It has also been suggested that achieving immortality is a significant motivating force for collectors (e.g., Pearce, 1992).

Research inspired by TMT provides empirical support for this general line of thinking. Kasser and Sheldon (2000), for instance, demonstrated that participants primed with mortality thoughts not only reported higher financial expectations for themselves 15 years in the future, but also became greedier and less environmentally sensitive in a forest-management simulation. Another study (Mandel & Heine, 1999) revealed that subtle reminders of mortality increase preference for high-status products such as Lexus automobiles or Rolex watches. Rindfleisch, Burroughs and Wong (2009) similarly showed that the strong connections materialistic individuals form with their brands serve to buffer against existential insecurity. These and other parallel findings suggest that people often seek protection from existential anxiety in the sense of value and self-esteem provided by material objects.

(h2) The personal dimension

The personal dimension refers to how individuals relate to themselves (van Deurzen, 2002). It includes views about their identity, character, past experience, and future possibilities. In this section we examine how existential concerns affect human behavior and experience on the personal dimension, particularly in the context of self-esteem and psychopathology.

(h3) Self-esteem

Self-esteem refers to people's evaluations of themselves, and it is almost axiomatic in social psychology that people strive for positive self-esteem. The question of why people need self-esteem was, in fact, one of the original questions that begot TMT. The theory posits that self-esteem functions to keep death anxiety at bay (for a review, see Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). According to TMT, self-esteem is attained by meeting or exceeding the standards of value that are part of one's cultural worldview; it is the sense that one is a valuable contributor to a meaningful universe. Although the standards upon which self-esteem is contingent vary across cultures and individuals, the underlying need for self-esteem is universal.

A large body of research supports the notion that self-esteem provides a buffer against existential anxiety. In the first test of this hypothesis, as we have seen, Greenberg and colleagues (1992) showed that boosting participants' self-esteem through bogus positive feedback leads to lower levels of self-reported anxiety in response to graphic depictions of death, and lower physiological arousal when anticipating painful electric shocks. Other research revealed that both artificially enhanced and dispositionally high self-esteem are associated with lower levels of worldview defense and lower death-thought accessibility in response to mortality reminders (Harmon-Jones et al., 1997), as well as lower levels of defensive distortions aimed at denying vulnerability to early death (Greenberg et al. 1993). Studies also demonstrate that death-thought accessibility increases when participants think about their "undesired self" (Ogilvie, Cohen, & Solomon, 2008), or when their self-esteem is directly threatened, such as when they are informed that their personality is ill-suited for their career aspirations (Hayes, Schimel, Faucher, & Williams, 2008). Conversely, having participants affirm their most important values reverses the effect of self-esteem threat on death-thought accessibility (Hayes et al., 2008).

In addition to evidence that self-esteem buffers death anxiety, research also shows that death reminders increase people's striving for self-esteem. In one dramatic illustration of this point, Israeli soldiers engaged in more risky driving behavior after mortality reminders, but only to the extent they derived self-esteem from their driving ability (Taubman Ben-Ari, Florian, & Mikulincer, 1999). Further support for the notion that existential anxiety increases striving for self-esteem in domains one is invested in is provided by studies showing that mortality salience improved strength performance among individuals invested in strength training, but had no impact on those not invested in strength training (Peters, Greenberg, & Williams, 2005). Similarly, mortality salience increased identification with one's body and interest in sex among people high in body self-esteem, but not among those with low body self-esteem (Goldenberg, McCoy, Pyszczynski, Greenberg, & Solomon, 2000).

Existential anxiety also amplifies self-serving biases, which are perhaps the most commonly researched manifestation of the need for self-esteem. Research shows, for example, that in achievement-related tasks, participants reminded of their mortality are more likely to attribute positive outcomes to internal, stable, and global causes and negative outcomes to external, unstable, and specific causes compared to participants in a control condition (Mikulincer, & Florian, 2002). Furthermore, the accessibility of death-related thoughts induced by mortality reminders is mitigated when participants are given the opportunity to provide causal attributions excusing their failure.

The body of research reviewed here highlights the role of self-esteem in buffering existential anxiety. Humans struggle for a sense of identity and significance in the world, partly as a way to shield themselves from death and its attendant anxieties. This search for validation and value oftentimes takes the form of expanding oneself and merging with something larger

than oneself. The family, nation, religion, science, or art can all serve as avenues for a person to find meaning and value in a vast arena that will not be shattered by one's death. These avenues for self-expansion provide the person with symbolic immortality—the sense that one is a valuable part of something larger, more significant, and longer lasting than one's individual existence. In the words of John Steinbeck, "After the bare requisites of living and reproducing, man wants most to leave some record of himself, a proof, perhaps, that he has really existed. He leaves his proof on wood, on stone, or on the lives of other people. This deep desire exists in everyone, from the boy who scribbles on a wall to the Buddha who etches his image in the race mind" (1995, p. 49). Lifton (1979) has elaborated on the various ways in which humans strive for symbolic immortality, the most common of which seem to be living on through one's progeny and through one's works.

In line with the idea that symbolic immortality can help to manage the threat of death, research has found an inverse correlation between self-reports of symbolic immortality and fear of personal death (Florian & Mikulincer, 1998). In the same study, a high sense of symbolic immortality also reduced participants' tendency to respond to mortality reminders with increased worldview defense, suggesting a protective, anxiety-buffering role for symbolic immortality. Interestingly, the desire for symbolic immortality may at times even trump the desire for life. In a study reported in The Economist, more than half of 198 Olympic-level American athletes said that they would take a banned drug if they knew that by taking it they would win every competition for the next five years but then die from the substance's side effects ("Superhuman Heroes," 1998). The case of suicide bombers is another illustration of how the quest for symbolic immortality can paradoxically lead to suicide (Kruglanski, Chen, Dechesne, Fishman, & Orehek, 2009).

In this section, we have reviewed evidence showing that a personal sense of worth and significance can effectively buffer anxiety. In the next section, we discuss findings from the emerging literature on the role of death anxiety in psychological disorders.

(h3) Psychopathology

TMT argues that successful management of existential anxiety is required for effective functioning and psychological well-being. If that is the case, then problems in managing this anxiety would be associated with psychological disturbances. Existentially-oriented scholars have often argued that psychological disorders reflect extreme, graceless, or inefficient ways of dealing with existential anxiety (Becker, 1971, 1973; Lifton, 1979; Yalom, 1980). Becker (1973), for example, posited that mental illness results when people fail in their death-transcendence goals. Psychiatrist Irvin Yalom similarly noted: "Either because of extraordinary stress or because of an inadequacy of available defensive strategies, the individual who enters the realm called 'patienthood' has found insufficient the universal modes of dealing with death fear and has been driven to extreme modes of defense. These defensive maneuvers, often clumsy modes of dealing with terror, constitute the presenting clinical picture" (1980, p. 111).

Recent TMT studies provide empirical support for the proposition that psychological disorders are associated with mismanaged death anxiety (for a review, see Arndt, Routledge, Cox, & Goldenberg, 2005). Mortality reminders have been found to exacerbate anxiety symptoms in those who suffer from anxiety disorders such as phobia and obsessive-compulsive disorder (Strachan et al., 2007). In one study, clinically diagnosed spider-phobics spent less time looking at pictures of spiders presented on a computer screen after mortality reminders, and they also rated the spiders in the pictures as more threatening. No such effect of mortality reminders was observed among non-phobic participants. In a similar vein, following mortality salience,

college students who scored high on a measure of contamination obsession and compulsive hand-washing used more water to wash their hands after they had been soiled with gooey electrode gel. Other studies have shown that neuroticism, which refers to an enduring tendency to experience negative emotional states and which is robustly associated with a broad array of psychological disorders (Malouff, Thorsteinsson, & Schutte, 2005), makes it more difficult for individuals to manage death anxiety (e.g., Arndt & Solomon, 2003; Goldenberg, Pyszczynski, McCoy, Greenberg, & Solomon, 1999; Goldenberg, Routledge, & Arndt, 2009).

TMT has also recently been applied to the understanding of post-traumatic stress disorder (PTSD) in the form of anxiety-buffer disruption theory (Pyszczynski & Kesebir, 2011). Anxiety-buffer disruption theory posits that PTSD results from a breakdown in one's anxiety-buffering system, that normally provides protection from anxiety in general and death anxiety in particular. When the anxiety-buffer stops functioning effectively due to a traumatic encounter, the individual becomes defenseless in the face of incapacitating fears and anxieties. As a consequence, he or she is flooded with overwhelming anxiety, leading to hyper-arousability, intrusive thoughts, and avoidance behavior, the primary clusters of PTSD symptoms. Recent research has supported the hypothesis that if PTSD involves a disrupted anxiety-buffer, PTSD-inflicted individuals would not respond to death reminders in the way that psychologically healthier individuals with functional anxiety-buffers do. A study conducted in the aftermath of the 2005 Zarand earthquake in Iran, for example, showed that individuals with high PTSD symptom severity two years after the earthquake did not respond to mortality reminders with typical cultural worldview defenses (Abdollahi, Pyszczynski, Maxfield, & Luszczynska, 2011). Another study conducted with survivors of the Ivory Coast civil war (Chatard et al., in press) revealed that participants with high levels of PTSD symptoms did not respond to mortality

reminders with the typical immediate suppression of death-related thoughts, while those with low PTSD symptom levels in the study did. These and similar studies (e.g., Edmondson, 2009; Kesebir, Luszczynska, Pyszczynski, & Benight, in press) provide encouraging initial support for anxiety-buffer disruption theory, though more research is of course needed. Although the well-functioning individuals who have been studied in the vast majority of TMT studies have shown little signs of the abject terror of death posited by the theory, presumably because their anxiety-buffer systems are intact, this terror is easy to see in those whose anxiety-buffers are malfunctioning. Expanded use of TMT to understand psychological disorders seems a promising line of inquiry for the future.

(h2) The social dimension

The social dimension refers to our relationships with other people, the culture we live in, and the groups that make the social fabric of daily life. The need to belong to and affiliate is a powerful, fundamental, and extremely potent human motive (Baumeister and Leary, 1995). Although this need may have initially evolved because of the distinct evolutionary advantages that group living provides, TMT argues that with the evolution of sophisticated intelligence, it took on the existential function of helping people manage death-related anxiety. Here we present this literature in two major sections—first we review how existential motivation affects humans as they relate to the groups to which they belong (and do not belong) and then we review the role of existential motivation in close personal relationships.

(h3) Group belonging and worldview validation

According to TMT, faith in one's cultural worldview is a potent buffer against existential anxiety. The term worldview comes from the German word *Weltanschauung*, meaning a view or perspective on the world that encompasses one's total outlook on life, society and its institutions

(Koltko-Rivera, 2004). TMT defines cultural worldviews as personally and culturally held assumptions and beliefs about the nature of existence. Individuals construct their own individualized worldviews as they go through life by combining the beliefs and values of the individuals with whom they interact, the groups to which they belong, and the broader society that surrounds them. Cultural norms, moral values and religious beliefs are among the most central cultural worldviews. They are "theories of reality" that explain what life is and how it should be lived. As such, they imbue existence with meaning, purpose, structure, and permanence, thereby helping to control anxiety.

Individuals are heavily invested in their worldviews, and rely on them for navigating through life. Yet there is a problem with worldviews—it is impossible to definitively prove the accuracy or superiority of one's own worldview. As shared human constructions, cultural worldviews depend on social consensus for sustenance (Hardin & Higgins, 1996). The wide diversity of extant worldviews exacerbates people's motivation to validate their own worldviews as a protection against existential anxiety. This, from a TMT perspective, is the central reason people are attracted to those who share their cherished beliefs and values, and conversely, why they are generally uncomfortable around, and at times hostile toward, those who do not.

If cultural worldviews protect against the potential for terror inherent in the knowledge of one's mortality, then mortality reminders would intensify the need to hold on to one's ingroup and worldview and defend them against the outgroup and rival worldviews. In addition, threats to one's ingroup and cultural worldview should increase death-related thoughts and anxieties. Since the earliest days of TMT research, an avalanche of studies have supported these prepositions and demonstrated the role of these tendencies in ingroup bias and outgroup hostility. The first evidence of the role of death concerns in intergroup conflict came from a study by

Greenberg and colleagues (1990) which showed that after mortality reminders, American Christians evaluated a fellow Christian student more positively and a Jewish student more negatively. Other studies found that mortality salience increases preference for an author with pro-American views over an author with anti-American views among American students (Greenberg et al., 1994), and increases criticism of an anti-Japan essay writer among Japanese students (Heine, Harihara, Niiya, & 2002). Conversely, when participants heavily invested in their Canadian identity were exposed to material that derogates Canadian culture, they exhibited increased accessibility of death-related thoughts (Schimel, Hayes, Williams, & Jahrig, 2007).

Further corroborating the existential function served by the ingroup, a study conducted in Italy revealed that reminders of mortality increase peoples' identification with their ethnic identities as Italians, their belief in the entitativity of this identity, and their ingroup bias (Castano et al. 2002). These participants rated Italians as a significantly more stable, coherent, and distinct ethnic group after mortality reminders, while another study found mortality reminders to lead participants to view their ingroup as more human (Vaes, Heflick, & Goldenberg, 2010). Mortality reminders have been reported to intensify ingroup favoritism (e.g., Castano et al. 2002; Tam, Chiu, & Lau, 2007), and this bias seems to occur even when the group allocation is based on minimally meaningful criteria such as aesthetic preferences (Harmon-Jones et al., 1996).

It is important to note, however, that according to TMT, ingroups provide existential protection only to the extent that they are a source of value and meaning. The desire to affiliate with groups thus depends on the broader connotations and value of this affiliation for the individual. In support of this idea, Harmon-Jones and colleagues (1996) found that mortality primes did not increase ingroup bias when group assignment was entirely random. Similarly,

participants reminded of their own death exhibited reduced identification with their college football team after the team's loss (Dechesne, Greenberg, Arndt, & Schimel, 2000); and Mexican-American participants primed with mortality showed decreased affiliation with their ethnicity when they were exposed to a negative example of their ingroup by reading about a "Mexican drug cartel chief" (Arndt, Greenberg, Schimel, Pyszczynski, & Solomon, 2002).

A perceived threat to one's cherished beliefs can undermine the much-needed sense of meaning, value, and existential security, propelling people to defend their worldview and even resort to violence. This is why existential anxiety is not only associated with an intensified need to validate one's worldview and cling to one's ingroup, but also with a host of unsavory behaviors such as outgroup derogation, stereotyping, prejudice, and discrimination. Reminders of death have been shown to increase stereotypic thinking about an outgroup and preference for those who confirm one's stereotypes (Schimel et al., 1999), as well as punitive reactions toward those who violate one's moral/cultural values (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989).

The outrage felt at worldview-threatening others can also lead people to resort to violence, as exemplified by a study in which participants in a mortality salience condition administered a larger amount of hot sauce to a person who disliked hot sauce and disparaged their political ideology (McGregor et al., 1998). Furthermore, there is evidence that the annihilation of worldview-threatening others can mollify death anxiety. Hayes, Schimel, and Williams (2008) found that while Christian participants responded with increased death-thought accessibility to a news article reporting the Muslimization of Nazareth, informing them that many Muslims had died in a plane crash on their way to Nazareth eliminated this effect of worldview threat. Other studies revealed that existential fears can heighten the support for

violence committed against worldview-threatening others. Pyszczynski, Abdollahi, Solomon, Greenberg, Cohen and Weise (2006) documented that mortality reminders increased Iranian college students' support for martyrdom attacks against the United States. A follow-up study by these authors found that reminders of death or 9/11 made politically conservative American college students more accepting of extreme military action in the War on Terror, such as the use of nuclear and chemical weapons, or the killing of thousands of civilians as collateral damage. Research has also shown that reminders of death lead conservative Israelis to view violence against Palestinians as more justified (Hirschberger & Ein-Dor, 2006).

These findings imply that the psychological protection that cultural worldviews provide against the reality of death often comes at the price of increased intergroup conflict and violence. Fortunately, the link between existential anxiety and intergroup conflict is neither automatic, nor inevitable. An early study showed that a chronically high or temporarily heightened level of tolerance can eliminate negative reactions toward dissimilar others induced by mortality primes (Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992). Since then, research has revealed that the effect of mortality reminders on reactions to threatening others depends on the particular norms that are salient to the person. Jonas and colleagues (2008) demonstrated, for instance, that whereas a mortality prime led people to become harsher toward a moral transgressor when conservative values were made salient, a benevolence prime counteracted this effect. Others found that the violence-promoting effects of death anxiety can be attenuated or reversed when values such as compassion or shared humanity are salient (Rothschild, Abdollahi, & Pyszczynski 2009; Motyl, Hart, & Pyszczynski 2010). This line of research may suggest a promising direction for those who wish to promote peace in the face of ongoing intractable war and violence.

(h3) Close personal relationships

As Bowlby (1969) has pointed out, all infants are born with an attachment system oriented toward maintaining proximity to significant others in times of stress. In order to survive, children need caregivers who will provide protection and ensure that their needs are met. The attachment relationship to the caregiver helps children manage distress and feel secure, even before they possess the cognitive complexity to develop a sense of self or a concept of death. In the last decade, TMT research has demonstrated that the anxiety-buffering role of interpersonal attachments continues well into adulthood (Hart, Shaver, & Goldenberg, 2005; Mikulincer et al., 2003). Parents continue to function as a safe haven in the face of death thoughts, as revealed by studies showing that activating thoughts of one's parent in response to mortality reminders reduces death-thought accessibility and worldview defense (Cox et al., 2008). Close personal relationships—be they with family members, romantic partners or friends—work in concert with faith in one's worldview and self-esteem in a dynamic, interrelated system to provide protection against existential anxiety.

In support of the anxiety-buffering function of personal relationships, mortality reminders have been found to increase people's willingness to initiate social interactions and decrease their sensitivity to rejection (Taubman Ben-Ari, Findler, & Mikulincer, 2002). Research has also shown that mortality thoughts lead to reports of increased commitment to one's romantic partner (Florian, Mikulincer, & Hirschberger, 2002). Conversely, inducing participants to think about their relationship problems (Florian et al., 2002) or about fear of intimacy (Taubman Ben-Ari, 2004) increases the accessibility of death-related thoughts. Consistent with the idea that close personal attachments serve to buffer death anxiety, writing about one's romantic commitment

has been demonstrated to eliminate the need to resort to worldview defense after mortality reminders (Florian et al., 2002).

Research also shows that individual differences in attachment style predict differences in how people respond to existential threats. While correlational studies document that securely attached individuals report less fear of death than insecurely attached individuals (Mikulincer, Florian, & Tolmacz, 1990), experiments show that chronic attachment styles moderate terror management defenses. Mikulincer and Florian (2000), for example, found that mortality reminders led to harsher judgments about moral transgressions among insecurely attached, but not securely attached, individuals. In contrast, death thoughts led to an increase in one's sense of symbolic immortality and in the desire for intimacy among securely attached persons but not insecurely attached persons. From this body of research, close personal relationships emerge as an integral part of the existential anxiety-buffer system—intimately related to self-esteem and worldview validation needs, but distinct from them. It is possible that the reliance on interpersonal attachments as an existential defense involves more automatic and biologically based mechanisms, while worldview defense is mediated by cultural-symbolic processes (Wisman et al., 2003).

The social dimension constitutes an extraordinarily important aspect of the human experience—heaven, as well as hell, is indeed other people. In this section, we have reviewed the role that existential concerns play on this dimension. As we have seen, the groups to which we belong and the people with whom we relate can provide meaning, value, a sense of security, and the hope of transcending death, thereby acting as a powerful balm against existential fear.

(h2) The spiritual dimension

The spiritual dimension entails the human proclivity to connect with something greater than oneself, typically involving abstract, supernatural, magical, or divine beings or entities. It encompasses our beliefs, values, and ideals pertaining to these entities as well as the experiences and altered states of consciousness that are often part of these relationships. From an existential perspective, the spiritual dimension functions to help people transcend the limitations of human existence in general and mortality in particular. In this section, we will review research on how concerns about mortality affect behavior on the spiritual dimension, particularly when it comes to the questions of meaning, religion, and spirituality.

Human beings require meaning, both to navigate through the mundane tasks of daily life and to imbue their lives with purpose and transcendent value (Frankl, 1963). To live without meaning, values, or ideals is distressing (Yalom, 1980), and many people are willing to live and die for their ideals and values. TMT posits that believing that things are as they are supposed to be—that the mundane ways of life make sense, and that human existence fits into some overall meaningful pattern—provides the coherence, structure and security that protects people against death anxiety. Indeed, cultural worldviews and personal relationships can succeed as existential anxiety-buffers only to the extent they provide the individual with this sense of meaning.

Supporting the notion that maintaining a meaningful view of reality is essential for protection against existential anxiety, research finds, for example, that reminders of mortality increase distaste for apparently meaningless art, particularly among those who dispositionally prefer unambiguous knowledge (Landau, Greenberg, Solomon, Pyszczynski, & Martens, 2006). Similarly, Vess, Routledge, Landau, and Arndt (2009) documented that death reminders bolster perceptions of life's meaning among participants with a high personal need for structure—those who are inclined to prefer simple and unambiguous interpretations of reality. Also, death

thoughts are found to lead people to imbue everyday actions with more meaning, and to judge their current actions to be more meaningfully connected to their long-term goals (Landau, Kosloff, & Schmeichel, 2010). The desire to see the world as a just and orderly place (Lerner, 1980) can also be considered a manifestation of the fundamental need for meaning, structure, and comprehensibility. In line with this, Landau and colleagues (2004) found that for participants high in need for structure, reminders of mortality increased preference for narratives that suggest a just world and a benevolent causal order of events in the social world (see also, Hirschberger, 2006).

This body of research, taken together, suggests that thoughts of death intensify the desire to see the world as a meaningful, structured, and ordered place, particularly for people who are predisposed to simpler interpretations of reality. Mortality thoughts also seem to intensify the need to find meaning on a larger scale, a so-called "cosmic meaning"—the sense that "life in general or at least human life fits into some overall coherent pattern" (Yalom, 1980, p. 423). In Becker's words, "man cannot endure his own littleness unless he can translate it into meaningfulness on the largest possible level" (1973, p. 196). The belief that there is some superordinate design to life and that each individual has some particular role to play in this design can thus be an extraordinary source of existential comfort.

Historically, religions have been the major sources of cosmic meaning, and despite the increase in popularity of atheistic worldviews (e.g., Dawkins, 2006; Harris, 2004; Hitchens, 2007), this is true for the vast majority of people today as well. Religions, typically, offer a comprehensive meaning schema, according to which the world and human life are part of a divinely ordained plan. This plan includes stories about the origin of the universe, clear moral guidelines, and theodicies that help people explain and endure suffering—all of which make the

inevitability of death easier to handle. American historian and philosopher Will Durant talked about the "eternal hunger of mankind for supernatural consolations" (1932, p. 36), and TMT argues that this hunger stems largely from existential anxieties, and particularly the need to deal with the overwhelming reality of death (for a comprehensive review of the terror management function of religion, see Vail et al., 2010).

Religions, unlike any other institutions, are capable of promising literal immortality to their believers—in the form of heaven, reincarnation, or some other form of afterlife—which can be a powerful tool in mollifying death anxiety**.** Research shows, for example, that among those who believe in an afterlife, reminders of death increase this belief (Osarchuk, & Tatz, 1973). Further support for the anxiety-buffering effects of belief in afterlife is provided by Dechesne and colleagues (2003), who found that exposure to scientific-looking evidence about the existence of life after death eliminates the typical increased worldview defense and striving for self-esteem that is produced by death primes. Mortality reminders have also been demonstrated to intensify faith in supernatural agents. Norenzayan and Hansen (2006) found that after the activation of death thoughts, North Americans, particularly those who were religiously affiliated, displayed stronger belief in God and divine intervention, even showing greater belief in spiritual entities associated with religious faiths other than their own.

Research also suggests that different orientations to religious faith have different psychological consequences. Whereas a fundamentalist orientation has been shown to be associated with a variety of socially undesirable tendencies, an intrinsic orientation appears to be especially effective in managing death related fears. Religious fundamentalism refers to the belief that there is one absolute truth and that all other belief systems are wrong and evil. A large body of research has found religious fundamentalism to be positively associated with racial

prejudice (e.g., Altemeyer, 2003; Altemeyer & Hunsberger,1992; Laythe, Finkel, & Kirkpatrick, 2001), religious ethnocentrism (Altemeyer, 2003), and support for militarism (e.g., Henderson-King, Henderson-King, Bolea, Koches, & Kauffman, 2004; Nelson & Milburn, 1999). These attitudes are mediated by the absolutist authoritarian structure of the fundamentalist's belief system (Laythe et al., 2001; Vail, Motyl, & Arndt, 2009). A rigid black-and-white orientation to truth is likely to make beliefs that deviate from one's own especially threatening and thus encourage more vigorous attempts to assert the correctness of those beliefs—derogation of and violence toward those with different beliefs are ways of bolstering confidence in the veracity of one's own beliefs.

Intrinsic religious orientation, on the other hand, seems to have more benefits and few costs. Batson, Schoenrade, and Ventis (1993) report that intrinsic religious beliefs are associated with lessened death anxiety and heightened existential well-being. Research also shows that people high in intrinsic religiousness do not engage in some forms of worldview defense after reminders of mortality, and experience lessened death-thought accessibility following mortality salience if they are given a chance to affirm their religious beliefs (Jonas & Fischer, 2006).

Becker (1973) notes the distinctive human need "to spiritualize human life, to lift it onto a special immortal plane, beyond the cycles of life and death that characterize all other organisms" (p. 231). While religions can effectively address this need for some people, others prefer less clearly structured forms of spirituality. Spirituality can be defined as a "personal quest for understanding answers to ultimate questions about life, about meaning, and about relationship to the sacred or transcendent" (Koenig, McCullough, & Larson, 2001, p. 18). The idea of the sacred is considered to be the distinctive core of spirituality (e.g., Pargament, 1999), and it has been frequently proposed that people fervently desire to live in a "sacralized cosmos" (Eliade,

1959). By providing a sense of transcendence, boundlessness, ultimate value and purpose, the sacred can alleviate the pain accompanying one's awareness of creatureliness, powerlessness, and ultimate finitude. Supporting this notion, studies show that construing different aspects of the world (e.g., nature, children, music) in sacred terms can protect the individual against death anxiety and its possibly destructive effects such as outgroup hostility and materialism (Kesebir, Chiu, & Pyszczynski, 2011).

The human predilection for a sacred, magical, divinely inspired view of reality can also manifest itself in the affection for charismatic leaders, for hero-worshipping, and the fascination with celebrities. The word charisma, for example, originates from a Greek word meaning "divine gift," or "talent from God," and studies find that reminders of death intensify preference and support for charismatic leaders who proclaim the superiority of one's ingroup (Cohen, Solomon, Maxfield, Pyszczynski, & Greenberg, 2004). Cultural heroes, as well as famous people who represent individually and collectively held values, tend to be perceived as symbolically and literally immortal, which might help their admirers to transcend death and insignificance by proxy. In support of the existential function of famous people, Kesebir, Chiu and Kim (2011) demonstrated that after mortality reminders, participants expect famous people to be remembered for a longer time in the future, and this effect is qualified by how much the famous people represent cultural values. Similarly, the more a famous person was perceived to represent her culture's values, the less likely people thought that a plane she boarded would crash. These findings suggest that charismatic, heroic, or famous people might occupy a demigod status in the eyes of their fans, and in so doing provide them with meaning and existential stamina.

In this section, we have argued that humans harbor a potent need for an all-encompassing sense of meaning, an underlying reality that transcends everyday life, and a sacralized, magical

cosmos—a need that is, at least partially, driven by existential concerns. This concludes our discussion of how existential motivation influences the human experience on the four dimensions of living. Our review suggests that on all the four dimensions—the physical, social, psychological, and spiritual—knowledge of one's mortality and accompanying existential concerns intensify people's striving for special meaning, value, and security. An inevitable fate of nonexistence, a realization that "our existence is but a brief crack of light between two eternities of darkness" (Nabokov, 1999, p. 9), is extremely difficult to accept, which renders the quest for assurances of invulnerability a primary human motive. As we have seen, a broad array of human behaviors—from self-esteem striving to outgroup derogation, from materialism to spirituality—serve to provide protection against existential dread. The breadth and depth of phenomena that have been subjected to research by TMT and shown to be affected by existential concerns testifies to the prominent role that existential motivation plays in human life. There remains, however, one last behavioral tendency that can be induced by existential motivation we have not explored yet.

(h2) Transcending Death by Escaping Self-Awareness

As discussed earlier in this chapter, self-awareness is a prerequisite for experiencing existential anxiety. In support of this claim, research shows that simple self-awareness manipulations, such as viewing oneself in a mirror, increase the accessibility of thoughts about both life and death (Silvia, 2001). This suggests that escaping self-awareness would be one way to obviate the problem of thoughts of death. Indeed, research has shown that participants induced to write about death spend less time on the task when they are made to feel self-aware (Arndt, Greenberg, Simon, Pyszczynski, & Solomon, 1998). This indicates that self-awareness makes mortality thoughts either more accessible or more threatening.

According to self-awareness theory (Duval & Wicklund, 1972), self-focused attention triggers evaluative processes in which people compare themselves to whatever standards and values that are currently salient. If they perceive themselves as falling short of these standards, they either change their behavior in the direction of the standards or attempt to resolve the distress this produces by trying to lose self-awareness (Duval et al., 1972; Carver & Scheier, 1981). TMT suggests that self-awareness leads to comparison with standards, and to behavior aimed at reducing any discrepancies that are detected, because self-awareness can cause a leakage of existential terror. As a way to buffer this terror, people strive to meet their standards of value, and acquire the self-esteem this brings (Pyszczynski, Greenberg, Solomon, & Hamilton, 1990), which both require comparisons with standards to effectively accomplish. Consistent with this analysis, self-awareness has been shown to lead to a host of behaviors that are also induced by mortality reminders—behaviors more in tune with both personal and social standards of value (Diener & Wallbom, 1976; Scheier & Carver, 1988; Wicklund, 1975) or behaviors aimed at maintaining self-esteem such as the self-serving attributional bias (Duval & Silvia, 2002; Federoff & Harvey, 1976).

The human eagerness to lose self-awareness, escape consciousness, or enter a state of forgetfulness of existence can thus be a response to existential anxiety. The TMT analysis suggests that underlying the desire to escape self-awareness is something even deeper than the wish to escape thoughts of one's shortcomings or the modern culture's emphasis on and fascination with selfhood (Baumeister, 1991)—it is the need to evade confrontation with the existential reality of death and the potential for terror this invokes. A variety of behaviors have been shown to reduce levels of self-awareness, including alcohol consumption (Hull, 1981), binge eating (Heatherton & Baumeister, 1991), television viewing (Moskalenko, & Heine, 2003),

and sexual masochism (Baumeister, 1988). Spiritual exercises such as meditation are also considered to lead to lower levels of self-awareness (Baumeister, 1991). A myriad of religious doctrines converge on the importance of shedding the self and emphasize mystical practices that help one lose self-consciousness—such as reaching Nirvana in Buddhism or fanaa in Sufism. In principle, any absorbing activity can provide an effective means of escape. Csikszentmihalyi's concept of flow, which he characterizes as a process that produces optimal human experience, similarly entails a loss of self-consciousness, a merging of action and awareness and a transformation of one's perception of time (Csikszentmihalyi, 1975). It appears that avenues for escaping self-awareness can cover a broad range from the most sadly self-destructive to the most spiritually exalted, and according to TMT, they all help shield the individual from the existentially problematic implications of self-awareness.

Research testing the effects of mortality reminders on the desire to engage in activities that promote loss of self-awareness is still at a preliminary stage. Yet there are data showing that death-related stimuli increase consumers' desire to purchase higher quantities of food products and lead them to actually eat higher quantities, particularly among those who have low self-esteem (Mandel & Smeesters, 2008). Similarly, Hirschberger and Ein-Dor (2005) found that eating a tasty snack eliminated the effects of MS on defensive responses. There is also a plethora of anecdotal evidence suggesting that after the 9/11 attacks, Americans resorted to drinking, gambling, renting videos, watching television, and shopping as a way to deal with the shock (Pyszczynski, Solomon, & Greenberg, 2003). The New York Times, for example, reports three months after the event that according to liquor distributors, "the dramatic rise in consumption of alcoholic beverages immediately after Sept. 11 was a nationwide phenomenon" (Burros, 2001). This could be interpreted as an attempt on the Americans' part to flee the massive existential

insecurity produced by the 9/11 attacks. There is also indirect evidence for the idea that existential anxiety can generate the urge to escape self-awareness: Studies show that among restrained eaters, self-esteem threats increase the amount of eating (Heatherton, Herman, & Polivy, 1991; Polivy, Herman, & McFarlane, 1994), suggesting that a threat to one's existential anxiety buffer might intensify the desire to lose self-awareness.

Under what conditions would existential anxiety drive people to shut off self-awareness, and under what conditions would it lead to a more active striving for meaning, value, and security? This question is critical, considering that people's attempts to escape self-awareness sometimes occur through extremely self-destructive means. Previous research suggests that avoidance of self-awareness occurs primarily when people perceive the discrepancy between their current state and ideal state to be so high that it is unlikely to be reduced (Duval, Duval, & Mulilis, 1992). Drawing a parallel, we might predict that existential anxiety is most likely to lead to self-escapist behaviors when people perceive the gap between their actual self and ideal self as hardly bridgeable, when they are having extreme difficulties finding meaning in their lives or reconciling their worldviews with their life experiences. In other words, people would resort to escapism in the face of existential anxiety, when their anxiety-buffers are— temporarily or chronically—not strong enough to provide protection. The most extreme, irreversible form of flight from the self is suicide (Baumeister, 1990), and in our analysis, people would be more likely to commit suicide when their anxiety buffers have stopped functioning entirely and the ensuing terror is overwhelming. An existence devoid of any meaning, value, or hope would turn self-awareness into an unbearable state and might make suicide an appealing escape. After all, ironically, dying seems to be the one certain way to rid oneself from existential anxiety for good (Greenberg, Solomon, & Arndt, 2008).

Escape from self-awareness might also be likely when people's self-regulatory energies are depleted and they lack the stamina needed for actively pursuing death transcendence. Gailliot, Schmeichel, and Baumeister (2006) reported an inverse relationship between strength of self-control and the accessibility of death thoughts — people who are good at self-control seem to have lower levels of chronic death-thought accessibility, while reminders of mortality are shown to lead to poorer self-regulation. When we consider that lack of self-control would be associated with behaviors aimed at escaping the self, the moderating role of self-control in the relationship between death thoughts and the demand for losing self-awareness becomes apparent: If death thoughts reduce the capacity for self-control, they would be even more likely to lead to self-escapist behaviors. Discovering ways to prevent the depletion of self-regulatory resources in the face of existential anxiety, or to replenish them, seems thus a worthy goal for future research.

In sum, the capacity for existential anxiety is a consequence of self-awareness and the existential burden is felt most deeply when we are self-aware. In some instances, particularly when the anxiety-buffer is doing a poor job in counteracting existential anxiety, people might choose to avoid the self-focused state as a way to make the problem of existence disappear. We have initial evidence on the role of existential anxiety in prompting the desire to escape self-awareness; however, we believe that the topic needs to be explored further, given the serious costs associated with destructive escape strategies.

(h1) Remaining Issues and Future Directions

In the preceding sections, we have presented a myriad of studies demonstrating how existential concerns—and particularly death anxiety—can affect human behavior in diverse life domains. While we believe that the preponderance of evidence puts the role of existential anxiety as a motivational force for the human psyche beyond dispute, questions and unexplored areas,

naturally, remain. We have touched upon some of these issues earlier in our discussion, and before concluding, we wish to briefly comment on a few others.

Over the years, TMT studies underwent a number of refinements and improvements in methodology. This allowed us to obtain converging support for the predictions of the theory through a variety of operationalizations and to broaden our understanding of the mechanisms involved in terror management. Open-ended items about mortality, death anxiety scales, proximity to funeral homes, and subliminal death primes, for example, have all been shown to instigate terror management responses—a testament to the validity of the role death concerns play in human motivation. When it comes to the topic of methodology, however, we should remember that a whopping majority of TMT studies test the mortality salience hypothesis; that is, they make mortality thoughts salient to assess their effects on the dependent variable (Burke et al., 2010). While this is a powerful and indispensable tool to test hypotheses derived from TMT, the theory would benefit from new and creative methods to explore the workings of terror management. In that sense, the increasingly common use of the death-thought accessibility methodology in the literature (Hayes et al., 2010) is encouraging, though not sufficient. We encourage researchers to venture beyond the tried-and-true methods.

Perhaps the most common criticism leveled against TMT has been that the effects obtained in response to mortality salience may not be unique to thoughts of death per se, but are due to some other aversive state elicited by death thoughts (e.g., negative affect, arousal), or some other threat inherent in the knowledge of mortality (e.g., meaninglessness, uncertainty, lack of control). Although some studies have found that threats to one's meaning system or sense of certainty produce the same effects as those produced by mortality reminders (e.g., Proulx, & Heine, 2008; van den Bos, Poortvliet, Maas, Miedema, & van den Ham, 2005), the bulk of

empirical evidence suggests that priming alternative topics (e.g., meaninglessness, uncertainty, cultural values, failure, giving a speech in public, worries about life after college, social exclusion, general anxiety, dental pain, general pain, paralysis) typically fails to produce the same defensive responses as priming mortality thoughts (Greenberg, Solomon, & Arndt, 2008). Also, a recent meta-analysis finds that the effects produced by mortality salience follow the unique, signature time course—death thoughts have more influence on distal or symbolic TMT defenses after a delay—consistent with the dual process model described by Pyszczynski and colleagues (1999). Furthermore, a growing number of studies, as we reviewed earlier, reveal that threats to one's anxiety buffer make thoughts of death, but not thoughts of other threats, more accessible. We believe these findings constitute convincing evidence affirming the specific role of death concerns.

Although we attribute a unique quality to awareness of death for the human motivational system, by no means do we wish to intimate that threats to meaning or uncertainty are without consequence. On the contrary, as we repeatedly noted, meaning and certainty are essential components of the anxiety buffer. Indeed, TMT posits that elements of the anxiety buffering system are effective only to the extent they are held with certainty or faith and provide the person with a sense of meaning and value. We view existential anxiety as a complex force that is born from the clash of human desires with the realities of existence. TMT construes the conflict between the biologically rooted desire for immortality and the inevitability of death as leading people to need certainty regarding whatever system of meaning they use to feel safe and secure.

One way of resolving this issue is to view threats to meaning, structure, and certainty as threatening for both epistemic and existential reasons. Epistemically, people need certainty about a structured and meaningful world because this provides a basis for confident action. This

generally motivates people to seek accurate understandings that will help them attain their goals that ultimately relate to evolved proclivities for survival and reproductive success. These motives, at least in rudimentary form, probably exist in all animals (except perhaps the simplest ones). Although there may be rare instances in which an inaccurate understanding of reality facilitates the attainment of concrete goals, accuracy is the general rule. Existentially, people need certainty regarding well-structured meanings that help them cope with the fears that result from their awareness of the reality that existence is finite. This often, though not always, leads to a preference for fanciful wish-fulfilling beliefs that bear little relation to objective reality and to avoidance of and disdain for anything that might challenge these beliefs. It may be, then, that the *form* of the biases and defenses instigated by epistemic and existential threats often take different forms, and this might help reconcile TMT with other theories that emphasize the needs for meaning and certainty (Heine, Proulx, & Vohs, 2006; Lind & van den Bos, 2002. That said, we believe that these accounts have more in common than not, and despite their differences, they all shed light on how existential anxiety motivates human behavior (for a detailed discussion of how these accounts interrelate, see Pyszczynski, Greenberg, Solomon, & Maxfield, 2006).

(h1) Conclusion

"Death is immense/ We all are his/ with laughing mouths/ When we are in/ the midst of life/ he dares to weep/ right in our midst" goes the *End Poem* by celebrated Bohemian-Austrian poet Rainer Maria Rilke. These lines constitute a literary tribute to the role that knowledge of death plays in our lives, of which we are perhaps not sufficiently aware. In this chapter, we have tried to elucidate this role, based on TMT research that emerged over the last 25 years. We have argued that the desire to transcend death is a powerful motive in human life. A broad array of

human behaviors seems to ultimately serve to render death anxiety and accompanying existential anxieties less accessible or less threatening.

Despite the problems which result from human awareness of the inevitability of death, many thinkers have argued that what gives life its depth and intensity is its limited duration. We echo these sentiments in suggesting that, though agonizing, heightened awareness of death—rather than a forgetfulness or denial of it—might ultimately lead us to happier, wiser, more authentic lives. The picture that emerged from terror management theory research regarding the role of death in human life to date has mostly been a dark, unappealing one. It is possible, however, that people can turn the reality of death into a constructive, empowering force for their lives. Research with people who had near encounters with death or those who experienced posttraumatic growth attests to the tremendously positive, transformative impact that death can have on some people. The next frontier of terror management theory might thus be a positive existential psychology—a research area that investigates how death thoughts can become a source of strength and virtue rather than a source of dread and destruction.

References

Abdollahi, A., Pyszczynski, T., Maxfield, M., & Luszczynska, A. (2011). Posttraumatic stress reactions as a disruption in anxiety-buffer functioning: Dissociation and responses to mortality salience as predictors of severity of post-traumatic symptoms. *Psychological Trauma: Theory, Research, Practice, and Policy*.

Altemeyer, B. (2003). Why do religious fundamentalists tend to be prejudiced? *The International Journal for the Psychology of Religion, 13*, 17–28.

Altemeyer, B., & Hunsberger, B. (1992). Authoritarianism, religious fundamentalism, quest, and prejudice. *The International Journal for the Psychology of Religion, 2*, 113–133.

Arndt, J., Greenberg, J., Schimel, J., Pyszczynski, T., & Solomon, S. (2002). To belong or not to belong, that is the question: Terror management and identification with gender and ethnicity. *Journal of Personality and Social Psychology, 83*, 26–43.

Arndt, J., Greenberg, Simon, L., Pyszczynski, & Solomon, S. (1998). Terror management and self-awareness: Evidence that mortality salience provokes avoidance of the self-focused state. *Personality and Social Psychological Bulletin, 24,* 1216–1227.

Arndt, J., Routledge, C., Cox, C. R., & Goldenberg, J. L. (2005). The worm at the core: A terror management perspective on the roots of psychological dysfunction. *Applied and Preventative Psychology, 11*, 191–213.

Arndt, J., & Solomon, S. (2003). The control of death and the death of control: The effects of mortality salience, neuroticism, and worldview threat on the desire for control. *Journal of Research in Personality, 37*, 1–22.

Batson, C. D., Schoenrade, P., & Ventis, W. L. (1993). *Religion and the individual: A social-psychological perspective*. New York: Oxford University Press.

Baumeister, R. F. (1988). Masochism as escape from self. *Journal of Sex Research, 25*, 28–59.

Baumeister, R. F. (1990). Suicide as escape from self. *Psychological Review, 97,* 90–113.

Baumeister, R. F. (1991). *Escaping the self: Alcoholism, spirituality, masochism, and other flights from the burden of selfhood.* New York: Basic Books.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117,* 497–529.

Becker, E. (1971). The *birth and death of meaning.* New York: Free Press.

Becker, E. (1973) *The denial of death*. New York: Free Press.

Becker, E. (1975). *Escape from evil.* New York: Free Press.

Belk, R. W. (1985). Materialism: Trait aspects of living in the material world. *Journal of Consumer Research, 12,* 265–280.

Binswanger, L. (1946). The existential analysis school of thought, in R. May, E. Angel, and H. F. Ellenberger (Eds.), *Existence*. New York: Basic Books.

Bowlby, J. (1969). *Attachment and loss: Attachment.* New York: Basic Books.

Buber, M. (1923). *I and thou* (tr. W. Kaufmann). Edinburgh: T&T Clark.

Burke, B. L., Martens, A., & Faucher, E. H. (2010). Two decades of terror management theory: A meta-analysis of mortality salience research. *Personality and Social Psychology Review, 14*, 155–195.

Burros, M. (2001, December 5). In a stressed city, no room at the bar. *The New York Times*. Retrieved from http://www.nytimes.com/

Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York: Springer.

Castano, E., Yzerbyt, V., Paladino, M.-P., & Sacchi, S. (2002). I belong, therefore, I exist: Ingroup identification, ingroup entitativity, and ingroup bias. *Personality and Social Psychology Bulletin, 28,* 135–143.

Chatard, A., Pyszczynski, T., Arndt, J., Selimbegović, L., Konan, P., & Van der Linden, M. (in press). Extent of trauma exposure and PTSD symptom severity as predictors of anxiety-buffer functioning. *Trauma Psychology: Theory, Research, Practice, and Policy*.

Cohen, F., Solomon, S., Maxfield, M., Pyszczynski, T., & Greenberg J. (2004). Fatal attraction: The effects of mortality salience on evaluations of charismatic, task-oriented, and relationship-oriented leaders. *Psychological Science, 15*, 846–851.

Cox, C. R., Arndt, J., Pyszczynski, T., Greenberg, J., Abdollahi, A., & Solomon, S. (2008). Terror management and adults' attachment to their parents: The safe haven remains. *Journal of Personality and Social Psychology, 94,* 696–717.

Cox, C. R., Goldenberg, J. L., Pyszczynski, T., & Weise, D. (2007). Disgust, creatureliness, and the accessibility of death related thoughts. *European Journal of Social Psychology, 37,* 494–507.

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco, CA: Jossey-Bass, Inc.

Dawkins, R. (2006). *The God delusion*. London: Bantam.

Dechesne, M., Greenberg, J., Arndt, J., & Schimel, J. (2000). Terror management and the vicissitudes of sports fan affiliation: The effects of mortality salience on optimism and fan identification. *European Journal of Social Psychology, 30,* 813–835.

Dechesne, M., Pyszczynski, T., Arndt, J., Ransom, S., Sheldon, K. M., van Knippenberg, A., et al. (2003). Literal and symbolic immortality: The effect of evidence of literal immortality

on self-esteem striving in response to mortality salience. *Journal of Personality and Social Psychology, 84,* 722–737.

Diener, E., & Wallbom, M. (1976). Effects of self-awareness on antinormative behavior. *Journal of Research in Personality, 10,* 107–111.

Durant, W. (1932). *On the meaning of life*. New York: Ray Long & Richard R. Smith.

Duval, T., Duval, V., & Mulilis, J. (1992). Effects of self-focus, discrepancy between self and standard, and outcome expectancy favorability on the tendency to match self to standard and withdraw. *Journal of Personality and Social Psychology, 62,* 340–348.

Duval, T. S., & Silvia, P. J. (2001). *Self-awareness and causal attribution: A dual-systems theory*. Boston: Kluwer Academic Publishers.

Duval, T. S., & Silvia, P. J. (2002). Self-awareness, probability of improvement, and the self-serving bias. *Journal of Personality and Social Psychology, 82,* 49–61.

Duval, S., & Wicklund, R. A. (1972) *A theory of objective self-awareness*. New York: Academic Press.

Edmondson, D. (2009). *From shattered assumptions to weakened worldviews: Evidence of anxiety buffer disruption in individuals with trauma symptoms*. Ph.D. thesis, University of Connecticut.

Eliade, M. (1959). *The sacred and the profane.* W. R. Trask, trans. San Diego, CA: Harcourt.

Federoff, N. A., & Harvey, J. H. (1976). Focus of attention, self-esteem, and the attribution of causality. *Journal of Research in Personality, 10,* 336–345.

Florian, V., & Mikulincer, M. (1998). Symbolic immortality and the management of the terror of death: The moderating role of attachment style. *Journal of Personality and Social Psychology, 74,* 725–734.

Florian, V., Mikulincer, M., & Hirschberger, G. (2002). The anxiety-buffering function of close relationships: Evidence that relationship commitment acts as a terror management mechanism. *Journal of Personality and Social Psychology, 82,* 527–542.

Frankl, V. E. (1963). *Man's search for meaning*. New York: Simon & Schuster.

Gailliot, M. T., Schmeichel, B. J., & Baumeister, R. F. (2006). Self-regulatory processes defend against the threat of death: Effects of self-control depletion and trait self-control on thoughts and fears of dying. *Journal of Personality and Social Psychology, 91,* 49–62.

Goldenberg, J. L., & Arndt, J. (2008). The implications of death for health: A terror management model of behavioral health promotion. *Psychological Review, 15,* 1032–1053.

Goldenberg, J. L., Arndt, J., Hart, J., & Routledge, C. (2008). Uncovering an existential barrier to breast self-exam behavior. *Journal of Experimental Social Psychology, 44,* 260–274.

Goldenberg, J. L., Cox, C. R., Pyszczynski, T., Greenberg, J., & Solomon, S. (2002). Understanding human ambivalence about sex: The effects of stripping sex of meaning. *Journal of Sex Research, 39,* 310–320.

Goldenberg, J. L., McCoy, S. K., Pyszczynski, T., Greenberg, J., & Solomon, S. (2000). The body as a source of self-esteem: The effect of mortality salience on identification with one's body, interest in sex, and appearance monitoring. *Journal of Personality and Social Psychology, 79,* 118–130.

Goldenberg, J. L., Routledge, C., & Arndt, J. (2009). Mammograms and the management of existential discomfort: Threats associated with the physicality of the body and neuroticism. *Psychology and Health, 24,* 563–581.

Goldenberg, J. L., Pyszczynski, T., McCoy, S. K., Greenberg, J., & Solomon, S. (1999). Death, sex, love, and neuroticism: Why is sex such a problem? *Journal of Personality and Social Psychology, 77*, 1173–1187.

Goldenberg, J. L., Pyszczynski, T., Greenberg, J., Solomon, S., Kluck, B., & Cornwell, R. (2001). I am not an animal: Mortality salience, disgust, and the denial of human creatureliness. *Journal of Experimental Psychology, 130*, 427–435.

Greenberg, J., Arndt, J., Simon, L., Pyszczynski, T., & Solomon, S. (2000). Proximal and distal defenses in response to reminders of one's mortality: Evidence of a temporal sequence. *Personality and Social Psychology Bulletin, 26*, 91–99.

Greenberg, J., Koole, S., & Pyszczynski, T. (2004). *Handbook of experimental existential psychology*. Guilford Press: New York.

Greenberg, J., Pyszczynski, T., Solomon, S., Pinel, E., Simon, L., & Jordan, K. (1993). Effects of self-esteem on vulnerability-denying defensive distortions: Further evidence of an anxiety-buffering function of self-esteem. *Journal of Experimental Social Psychology, 29*, 229–251.

Greenberg, J., Pyszczynski, T., Solomon, S., Rosenblatt, A., Veeder, M., Kirkland, S., & Lyon, D. (1990). Evidence for terror management II: The effects of mortality salience on reactions to those who threaten or bolster the cultural worldview. *Journal of Personality and Social Psychology, 58*, 308–318.

Greenberg, J., Pyszczynski, T., Solomon, S., Simon, L., & Breus, M. (1994). Role of consciousness and accessibility of death-related thoughts in mortality salience effects. *Journal of Personality and Social Psychology, 67*, 627–637.

Greenberg, J., Simon, L., Pyszczynski, T., Solomon, S., & Chatel, D. (1992). Terror management and tolerance: Does mortality salience always intensify negative reactions to others who threaten one's worldview? *Journal of Personality and Social Psychology, 63,* 212–220.

Greenberg, J., Solomon, S., & Arndt, J. (2008). A basic but uniquely human motivation: Terror management. In J. Y. Shah & W. L. Gardner (Eds.), *Handbook of motivation science* (pp. 114–134). New York: Guilford.

Greenberg, J., Solomon, S., Pyszczynski, T., Rosenblatt, A., Burling, J., Lyon, D., et al. (1992). Why do people need self-esteem? Converging evidence that self-esteem serves as an anxiety-buffering function. *Journal of Personality and Social Psychology*, *63*, 913–922.

Hardin, C. D., & Higgins, E. T. (1996). Shared reality: How social verification makes the subjective objective. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition, Vol. 3: The interpersonal context* (pp. 28–84). New York: The Guilford Press.

Harmon-Jones, E., Greenberg, J., Solomon, S., and Simon, L. (1996). The effects of mortality salience on intergroup bias between minimal groups. *European Journal of Social Psychology*, *26*, 677–81.

Harmon-Jones, E., Simon, L., Greenberg, J., Pyszczynski, T., Solomon, S., & McGregor, H. (1997). Terror management theory and self-esteem: Evidence that increased self-esteem reduces MS effects. *Journal of Personality and Social Psychology, 72,* 24–36.

Harris, S. (2004). *The end of faith: Religion, terror, and the future of reason*. New York: W.W. Norton.

Hart, J., & Shaver, P. R., & Goldenberg, J. L. (2005). Attachment, self-esteem, worldviews, and terror management: Evidence for a tripartite security system. *Journal of Personality and Social Psychology, 88*, 999–1013.

Hayes, J., Schimel, J., Arndt, J., & Faucher, E. H. (2010). A theoretical and empirical review of the death-thought accessibility concept in terror management research. *Psychological Bulletin*, *136*, 699–739.

Hayes, J., Schimel, J., Faucher, E. H., & Williams, T. J. (2008). Evidence for the DTA hypothesis II: Threatening self-esteem increases death-thought accessibility. *Journal of Experimental Social Psychology*, *44*, 600–613.

Hayes, J., Schimel, J., & Williams, T. J. (2008). Fighting death with death: The buffering effects of learning that worldview violators have died. *Psychological Science*, *19*, 501–507.

Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin, 110*, 86–108.

Heatherton, T. F., Herman, C. P., & Polivy, J. (1991). The effects of physical threat and ego threat on eating. *Journal of Personality and Social Psychology*, *60*, 138–143.

Heine, S. J., Harihara, M., & Niiya, Y. (2002). Terror management in Japan. *Asian Journal of Social Psychology*, *5*, 187–196.

Heine, S., Proulx, T., & Vohs, K. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review, 10*, 88–110.

Henderson-King, D., Henderson-King, E., Bolea, B., Koches, K., & Kauffman, A. (2004). Seeking understanding or sending bombs: Beliefs as predictors of responses to terrorism. *Peace and Conflict: Journal of Peace Psychology*, *10*, 67–84.

Hirschberger, G. (2006). Terror management and attributions of blame to innocent victims: Reconciling compassionate and defensive responses. *Journal of Personality and Social Psychology, 91*, 832–844.

Hirschberger, G., & Ein-Dor, T. (2005). Does a candy a day keep the death thoughts away? The terror management function of eating. *Basic and Applied Social Psychology, 27*, 179–186.

Hirschberger, G., & Ein-Dor, T. (2006). Defenders of a lost cause: Terror management and violent resistance to the disengagement plan. *Personality and Social Psychology Bulletin, 32*, 761–769.

Hirschberger, G., Florian, V., & Mikulincer, M. (2005). Fear and compassion: A terror management analysis of emotional reactions to persons with disabilities. *Rehabilitation Psychology, 50*, 246–257.

Hirschman, E. C. (1990). Secular immortality and the American ideology of affluence. *Journal of Consumer Research, 17*, 31–42.

Hitchens, C. (2007). *God is not great: How religion poisons everything*. New York: Twelve Books.

Hull, J. G. (1981). A self-awareness model of the causes and effects of alcohol consumption. *Journal of Abnormal Psychology, 90*, 586–600.

Jacobsen, B. (2007). *Invitation to existential psychology: A psychology for the unique human being and its applications in therapy*. London: Wiley.

James, W. (1950). *The principles of psychology* (Vol. 1). New York: Dover Publications.

Jaspers, K. (1931) Psychologie der Weltanschauungen (tr. M. Franck and A. Newton), in M. Friedman, *The worlds of existentialism*. Chicago and London: University of Chicago Press.

Jonas, E., & Fischer, P. (2006). Terror management and religion: Evidence that intrinsic religiousness mitigates worldview defense following mortality salience. *Journal of Personality and Social Psychology, 91*, 553–567.

Jonas, E., Martens, A., Niesta, D., Fritsche, I., Sullivan, D., & Greenberg, J. (2008). Focus theory of normative conduct and terror management theory: The interactive impact of mortality salience and norm salience on social judgment. *Journal of Personality and Social Psychology, 95*, 1239–1251.

Kasser, T., & Sheldon, K. M. (2000). Of wealth and death: Materialism, mortality salience, and consumption behavior. *Psychological Science, 11*, 348–351.

Kesebir, P., Chiu, C-Y., & Kim, Y-H. (2011). *Existential functions of famous people*. Unpublished manuscript. University of Illinois at Urbana-Champaign.

Kesebir, P., Chiu, C-Y., & Pyszczynski, T. (2011). *The sacred: An existential anxiety buffer*. Unpublished manuscript. University of Colorado at Colorado Springs.

Kesebir, P., Luszczynska, A., Pyszczynski, T., & Benight, C. C. (in press). Posttraumatic stress disorder involves disrupted anxiety-buffer mechanisms. *Journal of Social and Clinical Psychology*.

Koenig, H. G., McCullough, M. E., & Larson, D. B. (2001). *Handbook of religion and health*. London: Oxford University Press.

Koltko-Rivera, M. E. (2004). The psychology of worldviews. *Review of General Psychology, 8*, 3–58.

Koole, S. L., & Van den Berg, A. E. (2005). Lost in the wilderness: Terror management, action orientation, and nature evaluation. *Journal of Personality and Social Psychology, 88*, 1014–1028.

Kruglanski, A. W., Chen, X., Dechesne, M., Fishman, S., & Orehek, E. (2009). Fully committed: Suicide bombers' motivation and the quest for personal significance. *Political Psychology, 30*,331–357.

Landau, M. J., Greenberg, J., Solomon, S., Pyszczynski, T., & Martens, A. (2006). Windows into nothingness: Terror management, meaninglessness, and negative reactions to modern art. *Journal of Personality and Social Psychology, 90*, 879–892.

Landau, M. J., Johns, M., Greenberg, J., Pyszczynski, T., Solomon, S., & Martens, A. (2004). A Function of form: Terror management and structuring of the social world. *Journal of Personality and Social Psychology, 87*, 190–210.

Landau, M. J., Kosloff, S., & Schmeichel, B. (2010). Imbuing everyday actions with meaning in response to existential threat. *Self and Identity, 10*, 64–76.

Laythe, B., Finkel, D., & Kirkpatrick, L. A. (2001). Predicting prejudice from religious fundamentalism and right-wing authoritarianism: A multiple-regression approach. *Journal for the Scientific Study of Religion, 40*, 1–10.

Leary, M. R. (2004). *The curse of the self: Self-awareness, egotism, and the quality of human life*. New York: Oxford University Press.

Lerner, M. J. (1980). *The belief in a just world: A fundamental delusion*. New York: Plenum Press.

Lifton, R. J. (1979). *The broken connection: On death and the continuity of life*. New York: Simon & Schuster.

Lind, E. A., & van den Bos, K. (2002). When fairness works: Toward a general theory of uncertainty management. In B. M. Staw, & R. M. Kramer (Eds.). *Research in organizational behavior* (*Vol. 24*, pp. 181–223). Greenwich, CT: JAI Press.

Lipsey, M. W., & Wilson, D. B. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. *American Psychologist*, *48*, 1181–1209.

Mandel, N., & Heine, S. J. (1999). Terror management and marketing: He who dies with the most toys wins. *Advances in Consumer Research*, *26*, 527–532.

Mandel, N., & Smeesters, D. (2008). The sweet escape: The effects of mortality salience on consumption quantities for low and high self-esteem consumers. *Journal of Consumer Research, 35,* 309–323.

Malouff, J. M., Thorsteinsson, E. B., & Schutte, N. S. (2005). The relationship between the five-factor model of personality and symptoms of clinical disorders: A meta-analysis. *Journal of Psychopathology and Behavioral Assessment, 27,* 101–114.

Martens, A., Greenberg, J., Schimel, J., & Landau, M. J. (2004). Ageism and death: Effects of mortality salience and perceived similarity to elders on reactions to elderly people. *Personality and Social Psychology Bulletin*, *30*, 1524–1536.

McGregor, H., A., Lieberman, J.D., Greenberg, J., Solomon, S. Arndt, J., Simon, L. et al. (1998). Terror management and aggression: Evidence that mortality salience motivates aggression against worldview-threatening others. *Journal of Personality and Social Psychology*, *74*, 590–605.

Mikulincer, M., & Florian, V. (2000). Exploring individual differences in reactions to mortality salience: Does attachment style regulate terror management mechanisms? *Journal of Personality and Social Psychology, 79*, 260–273.

Mikulincer, M., & Florian, V. (2002). The effect of mortality salience on self-serving attributions—Evidence for the function of self-esteem as a terror management mechanism. *Basic and Applied Social Psychology, 24*, 261–271.

Mikulincer, M., Florian, V., & Hirschberger, G. (2003). The existential function of close relationships: Introducing death into the science of love. *Personality and Social Psychology Review, 7*, 20–40.

Mikulincer, M., Florian, V., & Tolmacz, R. (1990). Attachment styles and fear of personal death: A case study of affect regulation. *Journal of Personality and Social Psychology, 58*, 273–280.

Mitchell, R.W. (2003). Subjectivity and self-recognition in animals. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 567–593). New York: Guilford.

Moskalenko, S., & Heine, S. J. (2003). Watching your troubles away: Television viewing as a stimulus for subjective self-awareness. *Personality and Social Psychology Bulletin, 29*, 76–85.

Motyl, M., Hart, J., & Pyszczynski, T. (2010). When animals attack: The effects of mortality salience, infrahumanization of violence, and authoritarianism on support for war. *Journal of Experimental Social Psychology, 46*, 200–203.

Nabokov, V. (1999). *Speak, memory*. New York: Everyman's Library. (Original work published 1951)

Nelson, L. L., & Milburn, T. W. (1999). Relationships between problem-solving competencies and militaristic attitudes: Implications for peace education. *Peace and Conflict: Journal of Peace Psychology, 5*, 149–168.

Norenzayan, A., & Hansen, I.G. (2006). Belief in supernatural agents in the face of death. *Personality and Social Psychology Bulletin, 32*, 174–187.

Ogilvie, D. M., Cohen, F., & Solomon, S. (2008). The undesired self: Deadly connotations. *Journal of Research in Personality, 42,* 564–576.

Osarchuk, M., & Tatz, S. J. (1973). Effect of induced fear of death on belief in afterlife. *Journal of Personality and Social Psychology, 27,* 256–260.

Pargament, K. I. (1999). The psychology of religion and spirituality? Yes and no. *International Journal for the Psychology of Religion, 9,* 3–16.

Pearce, S. M. (1992). *Museums, objects, and collections: A cultural study*. Leicester: Leicester University Press.

Peters, H. J., Greenberg, J., & Williams, J. M. (2005). Applying terror management theory to performance: Can reminding individuals of their mortality increase strength output? *Journal of Sport and Exercise Psychology, 27,* 111–116.

Polivy, J., Herman, C. P., & McFarlane, T. (1994). Effects of anxiety on eating: Does palatibility moderate distress-induced overeating in dieters? *Journal of Abnormal Psychology, 103,* 505–510.

Proulx, T., & Heine, S. J. (2008). The case of the transmogrifying experimenter: Affirmation of a moral schema following implicit change detection. *Psychological Science, 19*, 1294–1300.

Pyszczynski, T., Abdollahi, A., Solomon, S., Greenberg, J., & Weise, D. (2006). Mortality salience, martyrdom, and military might: The Great Satan versus the Axis of Evil. *Personality and Social Psychology Bulletin, 32,* 525–538.

Pyszczynski, T., Greenberg, J., & Solomon, S. (1999). A dual-process model of defense against conscious and unconscious death-related thoughts: An extension of terror management theory. *Psychological Review, 106,* 835–845.

Pyszczynski, T., Greenberg, J., Solomon, S., & Maxfield, M. (2006). On the unique psychological import of the human awareness of mortality: Theme and variations. *Psychological Inquiry, 17,* 328–356.

Pyszczynski, T., & Kesebir, P. (2011). Anxiety buffer disruption theory: A terror management account of posttraumatic stress disorder. *Anxiety, Stress, & Coping, 24,* 3–26.

Pyszczynski, T., Solomon, S., & Greenberg, J. (2003). *In the wake of 9/11: The psychology of terror*. Washington, DC: American Psychological Association.

Pyszczynski, T., Greenberg, J., Solomon, S., Arndt, J., & Schimel, J. (2004). Why do people need self-esteem? A theoretical and empirical review. *Psychological Bulletin, 130,* 435–468.

Pyszczynski, T., Greenberg, J., Solomon, S. & Hamilton, J. (1990). A terror management analysis of self-awareness and anxiety: The hierarchy of terror. *Anxiety Research, 2,* 177–195.

Pyszczynski, T., Greenberg, J., Solomon, S., & Koole, S. L. (2010). Experimental existential psychology: Coping with the facts of life. In S. T. Fiske, D. T. Gilbert & G. Lindzey (Eds.), *Handbook of social psychology* (5th Edition) (pp. 724–757). Hoboken, NJ: Wiley.

Richard, F. D., Bond, C. F., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology*, *7*, 331–363.

Rindfleisch, A., Burroughs, J. E., & Wong, N. (2009). The safety of objects: Materialism, existential insecurity, and brand connection. *Journal of Consumer Research*, *36*, 1–16.

Rosenblatt, A., Greenberg, J., Solomon, S., Pyszczynski, T., & Lyon, D. (1989). Evidence for terror management theory I: The effects of mortality salience on reactions to those who violate or uphold cultural values. *Journal of Personality and Social Psychology*, *57*, 681–690.

Rothschild, Z., Abdollahi, A., & Pyszczynski, T. (2009). Does peace have a prayer? The effect of mortality salience, compassionate values and religious fundamentalism on hostility toward out-groups. *Journal of Experimental Social Psychology*, *45*, 816–827.

Routledge, C., Arndt, J., & Goldenberg, J. L. (2004). A time to tan: Proximal and distal effects of mortality salience on sun exposure intentions. *Personality and Social Psychology Bulletin*, *30*, 1347–1358.

Scheier, M. F., & Carver, C. S. (1988). A model of behavioral self-regulation: Translating intention into action. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 303–346). New York: Academic Press.

Schimel, J., Hayes, J., Williams, T., & Jahrig, J. (2007). Is death really the worm at the core? Converging evidence that worldview threat increases death-thought accessibility. *Journal of Personality and Social Psychology*, *92*, 789–803.

Schimel, J., Simon, L., Greenberg, J., Pyszczynski, T., Solomon, S., Wazmonsky, J. et al. (1999). Stereotypes and terror management: Evidence that mortality salience enhances

stereotypic thinking and preferences. *Journal of Personality and Social Psychology*, *77*, 905–926.

Silvia, P. J. (2001). Nothing or the opposite: Intersecting terror management and objective self-awareness. *European Journal of Personality*, *15*, 73–82.

Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). A terror management theory of social behavior: On the psychological functions of self-esteem and cultural worldviews. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 93–159). San Diego, CA: Academic Press.

Solomon, S., J. Greenberg, T. Pyszczynski, F. Cohen, and D. Ogilvie (2009). Teach these souls to fly: Supernatural as human adaptation. In M. Schaller, A. Norenzayan, S. Heine, T. Yamagishi and T. Kameda, editors. *Evolution, culture, and the human mind* pp. (99–119) Mahwah, NJ: Lawrence Erlbaum.

Steinbeck, J. (1995). *Pastures of Heaven*. New York: Penguin Classic.

Strachan, E., Schimel, J., Arndt, J., Williams, T., Solomon, S., Pyszczynski, T., & Greenberg, J. (2007). Terror mismanagement: Evidence that mortality salience exacerbates phobic and compulsive behaviors. *Personality and Social Psychology Bulletin, 33*, 1137–1151.

Superhuman heroes. (1998, June 6). *The Economist*, *347*, 10–12.

Tam, K. P., Chiu, C. Y., & Lau, I. Y. (2007). Terror management among Chinese: Worldview defence and intergroup bias in resource allocation. *Asian Journal of Social Psychology*, *10*, 93–102.

Taubman-Ben-Ari, O. (2004). Intimacy and risky sexual behavior—What does it have to do with death? *Death Studies, 28,* 865–887.

Taubman Ben-Ari, O., Findler, L., & Mikulincer, M. (2002) The effects of mortality salience on relationship strivings and beliefs: The moderating role of attachment style. *British Journal of Social Psychology, 41*, 419–441.

Taubman Ben-Ari, O., Florian, V., & Mikulincer, M. (1999). The impact of mortality salience on reckless driving: A test of terror management mechanisms. *Journal of Personality and Social Psychology, 76*, 35–45.

Til1ich, P. (1952). *The courage to be*. Glasgow: Collins/Fontana.

Vaes, J., Heflick, N., & Goldenberg, J. (2010). "We are people": Ingroup humanization as an existential defense. *Journal of Personality and Social Psychology, 98(5)*, 750–760.

Vail, K. E., III, Motyl, M. S., & Arndt, J. (2009). *The rage of the religious right: The mediating role of right-wing authoritarianism in the political and social attitudes of religious fundamentalism.* Unpublished manuscript, University of Missouri–Columbia.

Vail, K., III, Rothchild, Z., Weise, D., Solomon, S., Pyszczynski, T., & Greenberg, J. (2010). A terror management analysis of the psychological functions of religion. *Personality and Social Psychology Review, 14*, 84–94.

van den Bos, K., Poortvliet, M., Maas, M., Miedema, J., & van den Ham, E. (2005). An enquiry concerning the principles of cultural norms and values: The impact of uncertainty and mortality salience on reactions to violations and bolstering of cultural worldviews. *Journal of Experimental Social Psychology, 41*, 91–113.

van Deurzen-Smith, E. (1997). *Everyday Mysteries*. London: Routledge.

van Deurzen, E. (2002). *Existential counselling and psychotherapy in practice*. (2nd edn.) London: Sage.

van Deurzen-Smith, E. (1984). Existential therapy. In W. Dryden (Ed.), *Individual therapy in Britain*. London: Harper and Row.

Vess, M., Routledge, C., Landau, M., & Arndt, J. (2009). The dynamics of death and meaning: The effects of death-relevant cognitions and personal need for structure on perceptions of meaning in life. *Journal of Personality and Social Psychology*, *97*, 728–744.

Wicklund, R. A. (1975). Objective self awareness. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 8, pp. 233–275). San Diego, CA: Academic Press.

Wisman, A., & Koole, S. (2003). Hiding in the crowd: Can mortality salience promote affiliation with others who oppose one's worldviews? *Journal of Personality and Social Psychology, 84*, 511–526.

Yalom, I. (1980). *Existential psychotherapy*. New York: Basic Books.