

A Terror Management Theory Perspective on Human Motivation

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Abstract and Keywords

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. This chapter reviews how this anxiety affects human motivation and behavior in a variety of life domains. Terror management theory and research suggest that transcending death and protecting oneself against existential anxiety are potent needs. This protection is provided by an anxiety-buffering system, which provides people a sense of meaning and value that function to shield them against these concerns. The chapter reviews evidence regarding the role of death and other existential concerns in four domains of existence: physical, personal, social, and spiritual. Because self-awareness is a prerequisite for existential anxiety, escaping or changing the nature of self-awareness can also be an effective way to manage the problems of life and death.

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

(p. 67) Unlike any other animal, we humans live our lives starkly aware that, despite our fervent desires, death will sooner or later come to us. This knowledge, which is an inevitable consequence of our uniquely human sophisticated cognitive capacities, profoundly influences the answers that people generate for questions about the meaning, value, and purpose of existence. Terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986; Solomon, Greenberg, & Pyszczynski, 2015) is an attempt to explain the role that awareness of death plays in diverse aspects of human life. The central 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 plays an important role in most other human motives. In this chapter, we discuss what TMT and research have revealed about existential anxiety and its effects on human motivation, behavior, and experience.

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The motives for meaning and self-esteem through which people transcend death are uniquely human. Although other animals react with fear to clear and present dangers to their continued existence, only humans have the cognitive sophistication and self-awareness that make them aware of the inevitability of death. This awareness of death, which resulted from the evolution of sophisticated intelligence in response to other adaptive challenges, changed the way motivational systems operate. Existential motives operate on other more basic motive systems—co-opting them to meet new needs and changing the way other needs are pursued. We start by considering how the emergence of the capacity for self-awareness changed the human condition.

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 (p. 68) behavior (Becker, 1971; Duval & Wicklund, 1972; Leary, 2004; Pyszczynski, Greenberg, Solomon, & Hamilton, 1990). Self-awareness refers to the capacity of the human self to become an object of its own attention. 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 current state and circumstances, weigh multiple options for how to meet their needs and the chances of each one succeeding, and then select the option they judge to be most likely to enable them to achieve their goals. It greatly expands one's options for how to behave and gives one greater executive control over one's actions. Along with other uniquely human capacities, such as language, symbolic thought, causal thinking, and imagination, self-awareness has been critical to the formation of complex human society and culture as we know it today. As Leary put it, "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. 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 the potential for affect, which motivates people to either reduce any discrepancies detected or escape the self-focused state. Research has been highly supportive of these propositions (for reviews, see Carver & Scheier, 1981; Duval & Silvia, 2001). Carver and Scheier (1981) 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, which increases efforts to reduce any discrepancies that are detected, is viewed as the central process through which the self regulates its own actions. Self-awareness thus adds multiple layers of sophistication and flexibility to the simple sys-

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tem 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 integrates 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 the next 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, and moving the focus of one's eyes across the words on the page are accomplished, and so on, down to the biological and chemical changes underlying 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 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. This is a very complex system and we can provide only a brief overview here. For a more thorough presentation, see Carver and Scheier (1981). For the 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.

(p. 69) 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 problematic consequence of self-awareness is 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 in the face of them. The juxtaposition of what humans were born into

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and what they naturally desired created certain existential dilemmas with which they had to contend.

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 an 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 TMT's application of experimental methods to existential psychological questions has been an invigorating contribution to this domain, resulting in the prolific subfield of social psychology, experimental existential psychology (see Greenberg, Koole, & Pyszczynski, 2004; Pyszczynski, Sullivan, & Greenberg, 2014).

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 the humanities. Building on the work of thinkers such 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 haunts humans like nothing else and is 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 Becker's view, a major function of individual character and societal institutions was to deny death 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. Becker proposed that participating in and contributing to a cultural system of meaning that imbues existence with order, purpose, and permanence provides equanimity in the face of death.

Terror management theory 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. Terror management theory was an attempt to simplify Becker's ideas and integrate them with ideas and knowledge from social, personality, developmental, cognitive, and motivational psychology in a way that would generate

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testable hypotheses about the functions of self-esteem and culture. Terror management theory posits that knowledge of inevitable mortality, when combined with evolved biological and psychological systems that sustain life, creates a potential for paralyzing terror. To function effectively in the world, people must keep this terror at bay. Protection from this potential for 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 system (Mikulincer, Florian, & Hirschberger, 2003).

This makes good theoretical sense, because the capacity of worldviews and self-esteem to manage anxiety is thought to develop from attachment processes that develop very early in life. According to Bowlby (1969), children are born with a propensity to experience and express distress when their needs are not met and their survival is threatened. Parents are predisposed to respond to signs of their offspring's distress by providing tactile comfort and addressing their needs. Thus, starting early in life, children associate parental love with relief from distress. As children develop and their capacities increase, parents show more affection when children behave in ways that demonstrate competence in line with (p. 70) cultural standards and less affection when they do things that deviate from these standards. As the self-concept emerges, usually during the second year of life, the sense of security provided by the parents' affection becomes increasingly linked to the child's sense that he or she is living up to these standards of value. As verbal and conceptual capacities develop, parents provide concepts, values, and explanations for the workings of the world that provide additional respite from the child's anxieties. As awareness of the inevitability of death emerges, the child's own self-evaluation and emerging worldview become increasingly important sources of emotional security. But attachment to close others remains a vital source of security and protection against anxiety throughout life.

Terror management theory posits that awareness of the inevitability of death is a powerful motivating force that influences the human motives 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 evolved to the point that awareness of death emerged, the anxiety this awareness created led people to start using their emerging systems of meaning and value to shield themselves from this fear. From this point on, people no longer simply needed meaning systems that helped them procure the tangible necessities of life—now, their meaning systems also needed to help manage 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 pursuits of truth and emotional security were often in conflict with each other.

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Hundreds of studies conducted in over 30 countries worldwide 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, terrorism, legal decision-making, nostalgia, human sexuality, romantic love, creativity, fascination with fame, 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.

The Terror Management Theory Research Strategy

Terror management theory 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, Greenberg, Solomon, Pyszczynski, & Lyon, 1989) used the *mortality salience (MS) hypothesis* to assess the theory's propositions, which has remained the most common approach to testing TMT. Indeed, according to a meta-analysis of 238 empirical TMT journal articles reporting 277 experiments, 83% directly tested this hypothesis (Burke, Martens, & Faucher, 2010). The MS hypothesis states that to the extent a psychological structure (self-esteem, faith in one's cultural worldview, attachments) 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 those that threaten it. In a typical MS study, an experimental group is exposed to a reminder of death and then compared to a control group that has not been reminded of death on a dependent variable hypothesized to buffer existential anxiety.

The most common MS induction entails asking participants two open-ended questions about their own mortality: "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 television) or negative topic not related to death (e.g., dental pain, paralysis, social exclusion, meaninglessness, uncertainty). 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, be exposed to subliminal death primes, death-related banners on Internet websites, or be interviewed in front of a funeral home or cemetery. Findings have been highly consistent across these different MS 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 (p. 71) variables. This effect size reaches the top quartile of effects for psychology in general and the 80th percentile for theories in social psychology (Lipsey

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& 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 highlights an important discovery regarding how people react to reminders of death—death-related thoughts elicit more worldview defense when they are no longer in current focal attention but are still accessible.

This led to a distinction between the types of defenses people use to cope with conscious and nonconscious death-related thoughts (Pyszczynski, Greenberg, & Solomon, 1999). People deal with conscious thoughts of death with *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, exercise more, etc. Nonconscious 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., word puzzles, prose) between the MS induction and measures of the dependent variable are essential for testing the MS hypothesis.

A second hypothesis derived from TMT is the *anxiety-buffer hypothesis*: To the extent that a psychological structure buffers anxiety, then strengthening it 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, Simon, Pyszczynski, Solomon, & Chatel, 1992), participants were given bogus positive or neutral personality profiles 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 replicated this finding with different manipulations of self-esteem and threat and physiological measures of anxiety; research also showed that both experimentally elevated and dispositionally high self-esteem led to lower levels of death-denying defensive distortions, presumably because of the anxiety-buffering effect of high self-esteem (Greenberg et al., 1993). Still other studies combined the anxiety-buffer and MS hypotheses to show that bolstering self-esteem, faith in one’s worldview, or close personal relationships eliminates the increase in defensiveness that MS otherwise produces (e.g., Florian, Mikulincer, & Hirschberger, 2002; Harmon-Jones et al., 1997).

A third approach to assessing TMT is the *death-thought accessibility (DTA) hypothesis*: To the extent a psychological structure provides protection against death anxiety, weakening this structure would increase, and strengthening it would decrease, the accessibility of death-related thoughts. Death-thought accessibility is usually assessed with either word-fragment completions, 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*), or a lexical decision task

in which faster responses to death-related words indicate greater accessibility. The successful use of the word-stem measure in languages other than English, including Hebrew, Chinese, French, and Dutch, attests to the construct validity and generality of the method. A review by Hayes, Schimel, Arndt, and Faucher (2010) of over 80 published DTA studies at that time concluded there is strong evidence that threats to worldview, self-esteem, and close relationships increase DTA and that bolstering these entities decrease DTA. Some of these studies showed that these effects do not emerge for aversive thoughts unrelated to death. Death-thought accessibility 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 hypotheses and 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 (p. 72) methods that reveals the role of existential anxiety in energizing and directing human behavior.

Evidence for the Motivational Role of Existential Anxiety

In presenting the findings on the diverse ways that death anxiety affects human behavior, we use a taxonomy widely used by existential psychologists (van Deurzen-Smith, 1984). This framework categorizes humankind's experience of the world into four dimensions, commonly referred to by 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 Buber (1923), Jaspers (1931), and Tillich (1952), existential psychotherapist van Deurzen-Smith (1984) proposed a fourth, spiritual dimension. According to van Deurzen-Smith (1997), all these dimensions have their own paradoxes and tensions, their own human objectives and aspirations, and their own ideals and evils. They create a complex four-dimensional field of forces that encompass the major aspects of human experience. The four dimensions are obviously interrelated, with the self at the center of one's entire network of physical, social, personal, and spiritual relations.

The Physical Dimension

The physical dimension is concerned with how people relate to their bodies, the natural environment, and material possessions (van Deurzen, 2002). How do existential motives shape human behavior and experience on the physical dimension?

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 humankind 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) and the awareness of one’s common fate with all creatures explain 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 MS leads to increased preference for an essay that describes humans as distinct from animals over one that emphasizes human–animal similarities. They also found that MS increases disgust regarding 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.

Ironically, the salience of death-related 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, Hart, & Routledge, 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, which deal with the problem of death in a rational way and emerge when one is consciously thinking about death, and distal defenses, which deal with the problem of death symbolically by boosting one’s sense of meaning and value and 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, which increases their attractiveness and self-esteem). Similarly, the salience of death thoughts was found to affect whether a participant was willing to pay more money for a bottle of water endorsed by a medical doctor versus a celebrity (McCabe, Vail, Arndt, & Goldenberg, 2014). Immediately after a death reminder, people were willing to pay more for the water endorsed by the medical doctor,

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suggesting that thoughts of (p. 73) death increased their interest in a healthy water option. After a delay and distraction, however, people were willing to pay more for the water endorsed by the celebrity, illustrating that when death thoughts are out of focal attention (yet still accessible), people prefer a product that will benefit their status rather than their health. The researchers replicated this finding in an additional study demonstrating that participants drank more water endorsed by the medical doctor immediately after reminders of death, whereas when a distraction and delay were used, they drank more water endorsed by the celebrity. For a review of research on how death reminders affect health-related behaviors, see Arndt and Goldenberg (2017).

According to TMT, the great efforts individuals and societies put into denying and disguising the body's physicality are motivated, to a large extent, by distress generated by the creaturely aspects of existence. This 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. 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, MS decreased attraction to the physical, but not romantic (and hence uniquely human), aspects of sex (Goldenberg, Cox, Pyszczynski, Greenberg, & Solomon, 2002). And when participants were primed with human-animal similarities, thinking about physical, but not romantic, aspects of sex increased DTA. These findings suggest that construing human sex as indistinguishable from animal copulation can be uncomfortable because of the mortality concerns it arouses.

Discomfort with human sexuality extends into the realm of reproduction, where reminders of reproduction—such as pregnancy, breastfeeding, and menstruation—act as reminders of our own creatureliness. For example, research has shown that reminders of creatureliness increased negative reactions to pregnant celebrities, but not nonpregnant celebrities (Goldenberg, Goplen, Cox, & Arndt, 2007). Similarly, reminders of death decreased approval of breastfeeding in public (Cox, Goldenberg, Arndt, & Pyszczynski, 2007). Roberts, Goldenberg, Power, & Pyszczynski (2002) demonstrated that after a female confederate "accidentally" dropped a wrapped tampon in front of them, both male and female participants evaluated her more negatively. Goldenberg (2013) subsequently argued that women's prominent role in reproduction may explain the tendency to objectify women. Research has shown that reminders of death lead women to self-objectify when women's reproductive features (e.g., viewing a picture of a pregnant woman; the experimenter asking the participant for a tampon) were made salient (Morris, Goldenberg, & Heflick, 2014). Likewise, Morris and Goldenberg (2015) found that reminders of death increased men's ratings of attractiveness for objectified women (whose images were literally fused with inanimate objects) but not nonobjectified women.

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 land-

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scapes (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.

Research has also shown that death reminders affect attitudes regarding environmental preservation. Selimbegović, Chatard, el Rafiy, and Pyszczynski (2016) found that both MS and images of the Fukushima nuclear disaster *increased* support for the use of nuclear energy in France among those with low levels of support for environmental preservation. Similarly, research has shown that support for environmental action is moderated by the degree to which participants derive self-esteem from caring about the environment. Participants who reported they derived self-esteem from caring about the environment increased support for environmental action after MS, whereas participants who reported that caring for the environment was unimportant to their self-esteem decreased such support after MS (Vess & Arndt, 2008). Fritsche, Jonas, Kayser, and Koranyi (2010) found that when proenvironmental norms are made salient, reminders of death increase proenvironmental attitudes. Interestingly, it was the combination of death reminders and norm salience that yielded these results—when participants were not reminded of death, proenvironmental norms did not increase proenvironmental attitudes; likewise, salience of proenvironmental norms were related to attitudes only after death reminders. Finally, it has been found that MS increases people's desire to fly, whereas engaging in flight fantasies mitigates defensive reactions to MS. These findings suggest that fantasies of flight can serve a terror management function by helping people to transcend physical (p. 74) confines, albeit in imagination only (Solomon, Greenberg, Pyszczynski, Cohen, & Ogilvie, 2009).

Materialism

Materialism, 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 contend that the American ideology of affluence is driven by the pursuit of secular personal immortality through material means (Hirschman, 1990) and that death concerns are a significant motivating force for collectors (e.g., Pearce, 1992).

Research provides support for these ideas. Kasser and Sheldon (2000) demonstrated that participants primed with mortality reported higher financial expectations for themselves 15 years in the future and became greedier and less environmentally sensitive in a forest-management simulation. Mandel and Heine (1999) found MS to 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 protect against existential insecurity. Other research has shown that MS increases estimates of the physical size of money and that handling money reduces reports of death anxiety (Zaleskiewicz, Gasiorowska, Kesebir, Luszczynska, &

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Pyszczynski, 2013). These findings suggest that people often use material objects as protection from existential anxiety.

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.

Self-Esteem

Self-esteem refers to people's evaluations of themselves, and large bodies of evidence document the various ways that people strive for positive self-esteem (e.g., Greenberg et al., 1986; Tesser, 1988). The question of why people need self-esteem was one of the original questions that led to terror management theory. 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 the theory, self-esteem is attained by meeting or exceeding the standards of value of one's cultural worldview; it is the sense that one is a valuable contributor to a meaningful universe. Although the standards on 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 proposition that self-esteem provides a buffer against existential anxiety. In the first test of this hypothesis, Greenberg and colleagues (1992) showed that boosting self-esteem through bogus positive personality feedback leads to lower self-reported anxiety in response to graphic depictions of death and physiological arousal when anticipating painful electric shocks. Other research shows that both artificially enhanced and dispositionally high self-esteem are associated with lower levels of worldview defense and lower DTA in response to MS (Harmon-Jones et al., 1997), as well as lower levels of defensive distortions that deny one's vulnerability to early death (Greenberg et al., 1993). Studies also demonstrate that DTA increases when people think about their "undesired self" (Ogilvie, Cohen, & Solomon, 2008) or when their self-esteem is directly threatened (Hayes, Schimel, Faucher, & Williams, 2008). Conversely, having participants affirm their most important values reverses the effect of self-esteem threat on DTA (Hayes et al., 2008).

Research also shows that death reminders increase people's striving for self-esteem. In one dramatic experiment, Israeli soldiers engaged in more risky driving behavior after MS, 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 in which one is invested comes from studies showing that MS improved grip strength among individuals invested in strength training, but had no impact on individuals who were not invested (Peters, Greenberg, & Williams, 2005). Similarly, MS increased identification with one's body and interest in sex

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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, 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 especially likely to attribute positive outcomes to internal, (p. 75) stable, and global causes and negative outcomes to external, unstable, and specific causes compared to participants in a control condition (Mikulincer & Florian, 2002). Increased DTA in response to death reminders is mitigated when participants are given the opportunity to provide causal attributions excusing their failure.

Research suggests that, although people from different cultures bolster their self-esteem in different ways, increased self-esteem striving in response to MS emerges across diverse cultures. For example, one study investigated the role of enculturation in a sample of Japanese students' views of personal success after reminders of death (Wakimoto, 2006). Students who reported strong enculturation to the interdependent Japanese culture viewed personal success more negatively after reminders of death, whereas students who reported less enculturation to the Japanese worldview responded with positive views of personal success. Terror management theory research has illustrated that people are inclined to defend their social and cultural affiliations after reminders of death, regardless of cultural background. This has been demonstrated in Turkey, where reminders of death increased negative evaluations of an essay criticizing the participants' university (Kökdemir & Yeniçeri, 2010). Likewise, Chinese participants preferred those who praised their nation over those who criticized it after reminders of death (Tam, Chiu, & Lau, 2007). Kashima, Halloran, Yuki, and Kashima (2004) demonstrated that reminders of death increased individualism among Australian college students but decreased it among Japanese college students. This research illustrates that although individuals from interdependent cultures may respond to reminders of death differently than individuals from individualistic cultures, these responses are consistent with cultural values in a way that maximizes self-esteem.

Though individuals from East Asian cultures are especially likely to increase their identification with other people as a way of staving off existential anxiety, this tendency is found in individualistic cultures, too, albeit to a lesser extent. Family, nation, religion, science, and 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

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who scribbles on a wall to the Buddha who etches his image in the race mind. (1995, p. 49)

Lifton (1979) 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. Research has supported this tendency to use one's children as a source of symbolic immortality by showing that MS increases the desire for offspring and that thoughts of one's children eliminate the increased in-group bias that otherwise occurred in response to MS (Fritsche et al., 2007; Wisman & Goldenberg, 2005). This tendency is complicated by the conflict between career and family faced by many women in contemporary societies: Mortality salience led to a desire for more offspring only among women who were not heavily invested in their careers, unless they were exposed to an essay arguing that caring for children is compatible with career success.

Research has shown 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 reduced participants' tendency to respond to MS with increased worldview defense. 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 5 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). Research has shown that MS increases willingness to die for one's country, but that this effect is eliminated when participants are reminded of other ways of attaining symbolic immortality (Routledge & Arndt, 2008).

Psychopathology

Existential psychologists argue that psychological disorders reflect extreme, graceless, or inefficient ways of dealing with existential anxiety (Becker, 1971, 1973; Lifton, 1979; Yalom, 1980). Becker (1973) (p. 76) posited that mental illness results when efforts at death transcendence fail. 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)

This suggests that psychological disturbances would be associated with problems managing death anxiety.

Recent TMT studies provide empirical support for the proposition that psychological disorders are associated with mismanaged death anxiety (for a review, see Yetzer & Pyszczynski, 2019). Mortality reminders have been found to exacerbate anxiety symptoms

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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 and rated the spiders in the pictures as more threatening after mortality reminders. No such effect of MS was observed among nonphobic participants. In a similar vein, MS led college students who scored high on a measure of contamination obsession and compulsive hand-washing to use more water to wash their hands after they had been soiled with gooey electrode gel. Other studies have shown that neuroticism, an enduring tendency to experience negative emotional states that 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).

Terror management theory has also been applied to the problem of posttraumatic stress disorder (PTSD; Pyszczynski & Kesebir, 2011). Anxiety-buffer disruption theory posits that PTSD results from a breakdown in one's anxiety-buffering system, which normally provides protection from anxiety in general and death anxiety in particular. Encounters with trauma undermine core assumptions about the world as a benevolent place and oneself as immune from tragedy. When the anxiety buffer stops functioning effectively, people become unable to manage the incapacitating fear and anxiety brought to the surface by the traumatic event. As a consequence, they are flooded with anxiety, leading to hyperarousability, intrusive thoughts, avoidance behavior, and negative self-referent thoughts, the primary clusters of PTSD symptoms. Recent research has supported the hypothesis that if PTSD involves a disrupted anxiety buffer, PTSD-afflicted 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 showed that individuals with high PTSD symptom severity 2 years after the earthquake did not respond to MS with typical worldview defenses, and this lack of typical terror management defense mediated the relationship between dissociation measured 1 month posttrauma and symptoms 2 years later (Abdollahi, Pyszczynski, Maxfield, & Luszczynska, 2011). Another study conducted with survivors of the Ivory Coast civil war (Chatard et al., 2012) revealed that participants with high levels of PTSD symptoms did not respond to MS with the typical immediate suppression of death-related thoughts, whereas those with low PTSD symptom levels did (see also Edmondson, 2009; Kesebir, Luszczynska, Pyszczynski, & Benight, 2011). More direct evidence of ineffective anxiety-buffer functioning was recently provided by Vail, Morgan, and Kahle (2017), who found that although self-affirmation (thought to both increase self-esteem and affirm one's worldview) reduced DTA among participants with low levels of PTSD symptoms, it had no effect among those with high levels of symptoms.

Although the well-functioning individuals who have been studied in the vast majority of TMT studies have shown little sign 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. Juhl and Routledge (2016) recently reviewed evidence of adverse emotional reactions to reminders of death among those with low lev-

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els of important anxiety-buffer elements but not among those with high levels. Expanded use of TMT to understand psychological disorders seems a promising line of inquiry for the future.

The Social Dimension

The social dimension refers to relationships with other people, the society in which we live, and the groups that make up the social fabric of daily life. The need to belong and affiliate is a powerful, fundamental, and extremely potent human motive (p. 77) (Baumeister & Leary, 1995). Although this need may have initially evolved because of the 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 first review how existential motivation affects relating to the groups to which people belong (and do not belong) and then the role of existential motivation in close personal relationships.

Group Belonging and Worldview Validation

According to TMT, faith in one's cultural worldview is a potent buffer against existential anxiety. Terror management theory defines cultural worldviews as personally and culturally held assumptions and beliefs about the nature of existence. They are *theories of reality* that explain what life is and how it should be lived. Cultural worldviews also provide the norms, values, and standards that must be met for a person to attain self-esteem. As such, they imbue existence with meaning, purpose, structure, and permanence, thereby managing anxiety. Though cultures provide the beliefs and values that constitute worldviews, 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. Though in the past most people lived in relatively homogeneous groups where there was a high degree of consensus regarding these beliefs and values, modern cultures are more complex and diverse, providing a wide array of often conflicting ideas about life and how to live it.

Though people rely on their cultural worldviews for managing anxiety and navigating through life, it is impossible to definitively confirm the veracity or validity of one's own worldview. Thus, certainty regarding one's worldview depends on social consensus (Hardin & Higgins, 1996). The wide diversity of extant worldviews is a constant reminder of other ways of understanding life, which further exacerbates the difficulty of maintaining faith in one's own worldview. Terror management theory posits that this is the primary reason people are attracted to those who share their cherished beliefs and values and, conversely, are uncomfortable around, and at times hostile toward, those who do not.

If cultural worldviews protect against existential terror, then death reminders would intensify the need to cling to one's in-group and worldview and defend them against out-groups and rival worldviews. The first evidence of the role of death concerns in inter-group conflict came from a study by Greenberg and colleagues (1990), which showed that MS led American Christians to evaluate a fellow Christian student more positively and a

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Jewish student more negatively. Other studies found that MS increases preference for an author with pro-American views over one with anti-American views among American students (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 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 derogation of Canadian culture or fundamentalist Christians were exposed to arguments in favor of human evolution, they exhibited increased DTA (Schimel, Hayes, Williams, & Jahrig, 2007).

Further corroborating the existential function served by one's in-group, research found that MS increased peoples' identification with their ethnic identities as Italians, their belief in the entitativity of this identity, and their in-group bias (Castano, Yzerbyt, Paladino, & Sacchi, 2002); other research found MS to lead participants to view their in-group as more human than out-groups (Vaes, Heflick, & Goldenberg, 2010). Mortality salience intensifies in-group favoritism (e.g., Castano et al., 2002; Tam et al., 2007), and this occurs even when the group membership is based on minimally meaningful criteria such as aesthetic preferences (Harmon-Jones, Greenberg, Solomon, & Simon, 1996). Mortality salience also increases preference for national symbols, such as the Deutschemark among Germans (Jonas, Fritsche, & Greenberg, 2005), and makes people more uncomfortable handling cultural symbols such as flags and crucifixes in disrespectful ways (Greenberg, Simon, Porteus, Pyszczynski, & Solomong, 1995).

It is important to note that TMT implies that groups should provide existential protection only to the extent that they are a source of value and meaning. Harmon-Jones and colleagues (1996) found that MS did not increase in-group 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 death decreased affiliation with their ethnicity when exposed to a negative example of their group by reading about a Mexican drug cartel chief (Arndt, Greenberg, Schimel, Pyszczynski, & Solomon, 2002).

(p. 78) 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. That is why existential anxiety is associated with a host of unsavory behaviors such as out-group derogation, stereotyping, aggression, prejudice, and discrimination. Reminders of death increase stereotypic thinking about an out-group and preference for those who confirm one's stereotypes (Schimel et al., 1999), as well as punitive behavior toward those who violate one's moral/cultural values (Rosenblatt et al., 1989).

The outrage felt at worldview-threatening others can also motivate people to resort to violence, as exemplified by a study in which MS led participants to administer a larger amount of hot sauce to a person who disparaged his or her political ideology and disliked hot sauce (McGregor et al., 1998). There is also evidence that the annihilation of world-

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view-threatening others can mollify death anxiety. Hayes, Schimel, and Williams (2008) found that although Christian participants responded with increased DTA 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. Other studies revealed that existential fears can heighten 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 and that reminders of either death or the 9/11 terrorist attacks made politically conservative American college students more accepting of extreme military action in the war on terror, including the use of nuclear and chemical weapons and the killing of thousands of civilians as collateral damage. Other studies have shown MS to increase conservative Israelis' view that violence against Palestinians is justified (Hirschberger & Ein-Dor, 2006).

These findings imply that the psychological protection that cultural worldviews provide 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 MS (Greenberg et al., 1992). More recent research has revealed that the effect of MS on reactions to threatening others depends on the norms that are salient to the person. Jonas and colleagues (2008) demonstrated, for instance, that whereas MS led people to become harsher toward a moral transgressor when conservative values were made salient, a benevolence prime counteracted this effect. Other research shows that the violence-promoting effects of death-related thought can be attenuated or reversed when religious values of compassion or shared humanity are salient (Motyl et al., 2011; Rothschild, Abdollahi, & Pyszczynski, 2009) or the nobility of warfare is stripped away by reading about similar behavior in chimpanzees (Motyl, Hart, & Pyszczynski, 2010). This line of research suggests possible strategies for promoting peace in the face of ongoing intractable war and violence.

Close Personal Relationships

As Bowlby (1969) pointed out, human infants are born with a readiness to form attachments to their parents or caregivers and stay close to them when stressed. To survive, children need caregivers to provide protection and ensure that their needs are met. The attachment relationship enables children to 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 past 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 combination with mortality reminders reduces DTA and worldview defense (Cox et al., 2008). Close personal relationships—be they with family members, romantic partners, or friends

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—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, MS has been found to increase people’s willingness to initiate social interactions and decrease their sensitivity to rejection (Taubman Ben-Ari, Findler, & Mikulincer, 2002). In a related vein, Cox and Kersten (2016) have shown that MS increases language-style matching in dyadic interactions, a sign of desire for positive interaction. Mortality salience also leads to reports of increased commitment to one’s romantic partner (Florian et al., 2002) and increased belief that one’s partner is committed to the relationship as well (Cox & Arndt, 2012). Conversely, inducing participants to (p. 79) think about relationship problems (Florian et al., 2002) or fear of intimacy (Taubman-Ben-Ari, 2004) increases DTA, but thinking about one’s partner’s commitment to the relationship decreases DTA. Consistent with the idea that close personal attachments buffer death anxiety, writing about one’s romantic commitment can eliminate the need to resort to worldview defense after death reminders (Florian et al., 2002).

Research also shows that individual differences in attachment style predict 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 MS led to harsher judgments about moral transgressions among insecurely attached, but not securely attached, individuals. In contrast, MS increased the sense of symbolic immortality and desire for intimacy among securely attached persons but not insecurely attached persons. This body of research suggests that close personal relationships are an integral part of the anxiety-buffering system, intimately related to self-esteem and worldview validation needs, but distinct from them. It may be that, in and of themselves, interpersonal attachments reflect more proximal biologically based mechanisms, but also contribute to the more distal forms of defense by providing validation of one’s worldview and self-esteem (Wisman & Koole, 2003).

The social dimension encompasses an extraordinarily broad and important aspect of the human experience—heaven, as well as hell, is indeed other people. As we have seen, the groups to which we belong and the people with whom we relate provide meaning, value, security, and the hope of transcending death, thereby acting as a powerful balm against existential fear.

The Spiritual Dimension

The spiritual dimension entails the human proclivity to connect with something greater than oneself, typically involving 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 helps people transcend the limi-

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tations of human existence in general and mortality in particular. In this section, we review research on how death concerns affect behavior on the spiritual dimension, with a focus on issues 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). Terror management theory 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 protect 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 death 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 meaningfulness among people with a high personal need for structure—those who prefer simple and unambiguous interpretations of reality. Mortality salience also leads people to imbue everyday actions with more meaning and to judge their current actions as more connected to their long-term goals (Landau, Kosloff, & Schmeichel, 2010). The desire to see the world as a just and orderly place (Lerner, 1980) is another manifestation of the need for meaning, structure, and comprehensibility. In line with this, Landau and colleagues (2004) found that for participants high in need for structure, MS increased preference for narratives that imply a just world and a benevolent causal order of events in the social world (see also Hirschberger, 2006).

Death-related thoughts also 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). Belief in a superordinate design to life and that each person has an important role to play in this design can be an extraordinary source of comfort.

Historically, religions have been the major sources of cosmic meaning, and despite the increased popularity of atheistic worldviews (e.g., Dawkins, 2006; (p. 80) Harris, 2004; Hitchens, 2007), this is true for the vast majority of people in the early 21st century 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 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). Terror management theory suggests that this hunger stems largely from the need to deal with the overwhelming reality of death (for a

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comprehensive review of the terror management function of religion, see Vail et al., 2010).

Religions, unlike any other institution, 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 (Os-archuk & Tatz, 1973). Dechesne and colleagues (2003) found that exposure to scientific-looking evidence that near-death experiences imply that life continues after physical death eliminates the increased worldview defense and striving for self-esteem that MS typically produces. Mortality salience has also been shown to intensify faith in supernatural agents. Norenzayan and Hansen (2006) found that MS led people, particularly those who were religiously affiliated, to display stronger belief in God and divine intervention and even show greater belief in spiritual entities associated with cultures 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 makes beliefs that deviate from one's own especially threatening and thus encourages more vigorous assertion of the correctness of those beliefs—derogation of and violence toward those with different beliefs function to bolster confidence in the veracity of one's own beliefs.

Intrinsic religious orientation, in contrast, seems to have more benefits and fewer costs. Batson, Schoenrade, and Ventis (1993) found that intrinsic religious beliefs are associated with less death anxiety and greater existential well-being; van Tongeren et al., (2017) found that this relationship was mediated by greater sense of meaning in life. Other research suggests that believing in meaning that continues after death decreases DTA relative to imbuing meaning to life itself (van Tongeren & Green, 2018). 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 DTA following MS 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). Although religions can effectively address this need for some people,

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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 the distinctive core of spirituality (e.g., Pargament, 1999); 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 out-group hostility and materialism (Kesebir, Chiu, & Pyszczynski, 2010). In a related vein, research has shown that Korean Buddhist monks do not show the same increases in pro-Korean bias in response to MS found among Korean lay people (p. 81) (Park & Pyszczynski, 2017); whether this reflects acceptance of death and a general lack of defensiveness about it, or simply less investment in national identity as a source of meaning, is unclear from these findings.

The human predilection for a sacred, magical, divinely inspired view of reality can also manifest itself in affection for charismatic leaders, hero worship, and fascination with celebrities. Mortality salience intensifies support for both hypothetical charismatic leaders who proclaim the superiority of one’s in-group (Cohen, Solomon, Maxfield, Pyszczynski, & Greenberg, 2004) and real-world leaders who do this, such as George W. Bush and Donald Trump (Cohen, Ogilvie, Solomon, Greenberg, & Pyszczynski, 2005; Cohen, Thompson, Solomon, & Pyszczynski, 2017). 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 vicariously transcend death and insignificance. In support of the existential function of famous people, Kesebir and Chiu (2010) demonstrated that after mortality reminders, participants expect famous people to be remembered for a longer time in the future, and this effect is moderated by how much the famous people represent cultural values. Similarly, the more a famous person was perceived to represent his or her culture’s values, the less likely people thought that a plane he or she boarded would crash. These findings suggest that charismatic, heroic, or famous people might be construed as transcending the ordinary limits of human existence.

Our review suggests that knowledge of the inevitability of death intensifies people’s striving for meaning, value, and security on all four dimensions of human experience—the physical, social, psychological, and spiritual. The breadth and depth of phenomena that have been subjected to research by TMT and shown to be affected by existential concerns testify to the prominent role that existential motivation plays in human life.

Transcending Death by Escaping or Transforming Self-Awareness

Becker (1971, 1973) argued that 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 thoughts of death 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 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 their distress by escaping self-awareness (Carver & Scheier, 1981; Duval & Wicklund, 1972). Terror management theory suggests that self-awareness leads to comparison with standards and to behavior aimed at reducing any discrepancies that are detected, because self-awareness opens the doors to existential terror. To buffer this terror, self-awareness drives people to strive to increase their self-esteem by meeting their standards of value (Pyszczynski et al., 1990). That is why self-awareness causes people to compare themselves with standards. Indeed, self-awareness has been shown to lead to a host of behaviors that are also induced by death 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 is another common response to existential anxiety. Terror management theory 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). In principle, any absorbing activity can provide escape. Csikszentmihalyi's concept of flow, which he characterizes as a process that produces optimal human experience, similarly entails a loss of (p. 82) 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 include a broad range of possibilities 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.

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Support for the idea that escaping self-awareness is another approach to coping with existential concerns comes from research showing that death reminders increase consumers' desire to purchase larger quantities of food products and to actually eat more, particularly among those with 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, suggesting that the sensual pleasure of taste may reduce self-awareness and the resulting existential anxiety. Anecdotal evidence suggests that after the 9/11 attacks, Americans resorted to drinking, gambling, renting videos, watching television, and shopping as ways of dealing with the shock (Pyszczynski, Solomon, & Greenberg, 2003). The *New York Times*, for example, reported that "the dramatic rise in consumption of alcoholic beverages immediately after Sept. 11 was a nationwide phenomenon" (Burros, 2001). This could be interpreted as reflecting attempts to flee the massive existential insecurity produced by the 9/11 attacks. Studies show that among restrained eaters, self-esteem threats increase the amount eaten (Heatherton, Herman, & Polivy, 1991; Polivy, Herman, & McFarlane, 1994), suggesting that a threat to one's anxiety buffer might intensify the desire to lose self-awareness. Research in Israel showed that MS increases alcohol consumption among drinkers (Ein-Dor et al., 2014) and the desire to get high among cannabis users and that cannabis consumption reduces DTA (Nagar & Rabinovitz, 2015).

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 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 unbridgeable or when they are having extreme difficulties finding meaning in their lives or reconciling their worldviews with their life experiences. In other words, people 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 attempt suicide when their anxiety buffers have stopped functioning entirely and the ensuing terror is overwhelming. Consistent with this view, research has shown that both failure and self-focused attention increase the accessibility of suicide-related thoughts (Chatard & Selimbegović, 2011; Selimbegović & Chatard, 2013). An existence devoid of any meaning, value, or hope would turn self-awareness into an unbearable state and might make suicide an appealing escape. Ironically, dying may be the only certain way to rid oneself of existential anxiety for good (Greenberg, Solomon, & Arndt, 2008).

Another approach to severing the link between self-awareness and existential anxiety might be meditation. Park and Pyszczynski (2019) found that an initial breathing meditation experience had the immediate effect of eliminating the increased worldview defense

that MS otherwise produced among both South Koreans and American college students. A follow-up study showed that meditation also reduces the immediate suppression of DTA that is typically found in MS studies and that this mediated the reduced worldview defense that meditation produced. This is consistent with the idea that meditation encourages people to observe their thoughts without judgment and, therefore, not respond to them in defensive ways. Perhaps mediation produces its effects by enabling people to focus attention on their internal experience without the comparison with standards that self-focus typically produces—a focus on the *I* rather than the *me*.

In sum, the capacity for existential anxiety is a consequence of self-awareness and one's existential burden is felt most deeply when one is self-aware. In some instances, particularly when the anxiety buffer is doing a poor job staving off existential anxiety, people might choose to avoid self-awareness as a way to make the problem of existence disappear. Given the costs of these destructive escape strategies, this topic is worthy of additional investigation.

(p. 83) Conclusion

In the preceding sections, we presented myriad studies demonstrating how existential concerns—and particularly death anxiety—affect human motivation and behavior in diverse life domains. Despite the problems that result from human awareness of the inevitability of death, many thinkers have argued that life's limited duration is what gives life its intensity and value. 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. Although the picture that emerges from TMT research regarding the role of death in human life has mostly been dark and unappealing, other research has shown that, under some circumstances, reminders of death can increase charitable giving, acceptance of those who are different from oneself, and creativity (for a review of positive consequences of confrontation with death, see Vail et al., 2012). This suggests 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 positive, transformative impact that death can have on some people. The next frontier of terror management theory might thus be a positive existential psychology—exploration of how awareness of death might become a source of strength and virtue rather than dread and destruction.

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