

## Chapter 26

# Multilayered Meanings in Health Decision Making: A Terror Management Health Model Analysis

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Contemporary research on the link between health and meaning has typically considered meaning as a coping resource or endeavored to predict the maintenance of meaning in the face of health problems and disease (e.g., Jim et al. 2006). Although such perspectives have generated important insights, there is need for more nuanced appreciation of how meaning operates in health contexts (see Park 2010). In this chapter, we speculate that multiple layers of meaning resonate deeply and are critical for understanding how people make everyday decisions that may ultimately impact their health. Using the terror management health model (TMHM; Goldenberg and Arndt 2008), we suggest that recognizing the motivational impact of conscious and nonconscious awareness of death affords key insights in the context of health decisions, by distinguishing orientations toward two important types of “macro-level” systems of meaning.

### Meaning as Multilayered Behavioral Guidance

Following Baumeister (1991), many researchers view meaning as an organism’s perception of the environment, and the objects within it, as operating according to a clearly defined, reliable, and thus predictable set of contingencies (see also Heine et al. 2006; Chap. 4 by Proulx, this volume). All forms of meaning rely on an epistemic knowledge base, outlining the ways objects and events relate to each other. From our perspective, this forms the basic “micro-level” of meaning (see Arndt

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et al. 2013; Chap. 21 by Vess, this volume). Certainly, each of the world's creatures must be able to expect and react to basic principles to effectively navigate their environment, escape hazards, and precipitate desirable outcomes—humans are no exception. People recognize, for example, that they need to eat to satisfy hunger, to open the bottle if they want to pour out the sunblock, and to swing the bat if they want to hit the baseball. Thus, humans and other animals share a fundamental reliance on the perception of predictable mechanical environmental properties and behavioral contingencies.

But, although this micro-level system of meaning can help people understand the basic mechanics of behavior-environment interaction, it offers little information about the reasons people become involved in lifelong pursuits of symbolic projects, goals, and aspirations (see Arndt et al. 2013). *Why* would anyone want to pour out sunblock or hit a baseball in the first place? To understand this, it is important to at least briefly consider the cognitive abilities that allow humans to comprehend situations that are beyond the present and do not yet immediately exist.

Whereas animals like the platypus or the lizard, or even one's pet dog, are generally limited to relying on sets of expected relations within their immediate physical environments, the emergence of self-awareness allows humans to more abstractly conceptualize themselves across time and space. Only humans can envision what it would have been like to live in the Indus Valley 7,500 years ago, or what it will be like tomorrow or even 60 years from now. Using these cognitive faculties, people can also recognize the impact current behaviors and environments will have on future selves: for instance, that cultivating farms and gardens may eventually give us steady sources of food, that batting practice may help win more baseball games, and that a sunburn may eventually contribute to skin cancer. Thus, the cognitive ability for abstract thought allows humans to plan for the future and more comprehensively understand and manipulate their environment. People develop and abide by well-structured "macro-level" systems of meaning, which function in part to guide their present behaviors in ways that will systematically impact an abstract conceptualization of their future self. It is at this level of meaning, the macro-level, on which this chapter will focus.

### Awareness of Death as Influencing Trajectories of Meaning

The ability to mentally project the self through time, despite its merits, presents a thorny psychological problem: it renders humans aware of the fact that they will eventually die. Of course, so will one's pet dog. But what separates humans from their canine companions is that whereas humans can recognize the inevitability of their own ultimate demise long in advance, denizens of the canine realm appear to lack this capacity. On this note, terror management theory (TMT; Greenberg et al. 1986) builds on the work of cultural anthropologist Ernest Becker (1973; also see Rank 1936), to posit that people are motivated to quell the potential anxiety that would otherwise arise from the unmitigated awareness of their impending demise.

People manage this psychological problem by using macro-level strategies of maintaining meaning that rely on the relational foundation of the micro-level systems. Moreover, research specifies that people utilize two classes of relatively macro-level meaning structures (i.e., relatively abstract sets of expectations) to manage death awareness depending on whether the thought of death is directly in focal attention (see Pyszczynski et al. 1999). Compared to micro-level meaning systems, the first of these operates on a moderately more abstract level, relying on construals of potentially unseen, unexperienced, and often temporally distant behavioral and environmental health consequences. Specifically, when people are consciously aware of death, they employ threat-oriented defenses to remove death thoughts from focal attention. Thus, as we will later elaborate, conscious death thoughts can motivate efforts to take advantage of *health-oriented* macro-level structures, which can serve as a guide to taking meaningful steps toward death-denial. For instance, once recognizing that popping the cap and applying sunblock represents a meaningful step toward the prevention of sunburns and skin cancer, a beachgoer reacting to conscious thoughts of death may attempt to forestall death with a more liberal application of sunblock. However, because the goal triggered by conscious death thoughts is to remove them from focal attention, people may also suppress or otherwise distract themselves from death-related thoughts (e.g., Arndt et al. 1997; Greenberg et al. 1994).

The second type of macro-level meaning systems operates on an even more abstract level, involving behavioral guidelines dictated by symbolic cultural beliefs and values rather than concrete, physical rules. When death thoughts are accessible, yet not in focal consciousness (i.e., nonconscious), people employ these symbolic, self-oriented systems of meaning to guide behavior. Specifically, TMT posits that the internalized cultural worldview imbues one's social world with a *self-oriented* macro-level system of meaning and thus outlines the behavioral criteria for transcending the ultimate threat to the self: death. In this light, the self-oriented behavior-environment contingencies serve to guide efforts to attain self-esteem, which reflects the degree to which the self successfully qualifies for either literal (e.g., heaven or afterlife) or figurative (e.g., lasting accomplishments, progeny, or other mementos of one's self) immortality. Individuals are thus motivated to maintain faith in their cultural worldviews and strive to meet or exceed the associated criteria for personal value. People responding to nonconscious death thoughts rely on their cultural systems to outline meaningful steps toward achieving at least a modicum of death-denying personal value, perhaps by enhancing one's baseball skills, religious piety, or any number of other socially valued endeavors (see Pyszczynski et al. 2004 for a review).

### Meaning Structure, Health, and the Emergence of Dual Motivations

The assumption that a particular action has *meaning* is of course central to any health-relevant decision, though the scope of these meanings can be quite different and depend on the individual's internalization of certain socially constructed abstract

rules and contingencies. Consider two broad motivational themes revealed by research on health decision making: health- and self-relevant motivations.

Clearly, people are motivated to maintain their health. Effective responses to one's conscious health concerns require a moderately abstract construal of the mechanics of the body and beliefs about how one's health can be affected by environmental stimuli and/or by adjusting one's own behavior. A concerted effort to care for one's health therefore depends on perception of the behavioral and environmental contingencies that can directly or indirectly influence one's health. Thus, suitably motivated individuals can take meaningful action to adjust their lifestyle or environment to best improve their health. Indeed, two prominent streams of research on health-related decision-making (the health belief model, M. H. Becker 1974; protection motivation theory, Rogers 1983) have shown that when people are made aware of risks to their health, or their ability to effectively care for themselves, they tend to respond with health-enhancing decisions.

However, because salient health risks pose a personal threat, they can sometimes instigate a biased processing of health-related information (e.g., Liberman and Chaiken 1992; de Hoog et al. 2007). One explanation for this apparent discrepancy stems from parallel processing frameworks (e.g., Leventhal 1970; Witte 1998), suggesting that salient threats to one's health initiate defensive efforts designed to reduce (a) the health risk and/or (b) the associated distress caused by the awareness of the risk. Here, we can learn much about how the presence of a health-oriented macro-level system sets the stage for meaningful threat-reducing behaviors by observing reactions to salient health risks when people either do, or do not, perceive their health situation as predictable (or see an effective course of action). For example, more efficacious (Fry and Prentice-Dunn 2005) or optimistic (Scheier and Carver 1985) attitudes reflect individuals' evaluations that their health situations are reasonably predictable and within their realm of influence. In general, when exposed to a severe health threat, those with greater perceptions of health-related efficacy take meaningful steps to improve their health (e.g., Sturges and Rogers 1996; Witte 1992), whereas those with low efficacy beliefs not only lack such motivation but also defensively avoid their vulnerability (e.g., Fry and Prentice-Dunn 2005; Rippetoe and Rogers 1987).

Other research, however, has suggested that there are conditions under which health-related decisions reflect less of a direct concern with one's health, but rather are driven by the psychological implications for an abstract sense of the self. For example, responses to anti-smoking messages were better predicted by participants' self-identification as smokers than their current health risks due to smoking habits (Freeman et al. 2001). Here, we suggest that a more deeply symbolic meaning system is at work in guiding responses, one focused on personal worth and self-oriented value. In western culture, these contingencies of worth are often based on appearance and social status (Crocker and Wolfe 2001). People are thus more likely to take health risks when they hold positive prototypes of those who typically engage in such behavior (e.g., the "cool" smoker; Gibbens and Gerrard 1995; NCI 2008) but are less likely to take those risks when the behavior has negative consequences for their appearance value (Gibbens et al. 2005; Wakefield et al. 2003), illustrating

how health-related decisions can be driven more by efforts to enhance self-value than by efforts to reduce risk per se.

Thus, health decisions become subject to macro-level implications for the *self* when, for example, people perceive that smoking cigarettes will make them look cool or help them join the in-crowd or when they perceive that tanning, exercising, or purging food will help them achieve a desired skin tone or physique. Indeed, the personal value derived from positive affirmations of the self (Sherman et al. 2000) and the positive portrayal of abstract self-concepts to others (Leary et al. 1994) is based on perceptions about how the self is valued and has a critical influence on health-related decisions.

In sum, health decisions and outcomes are under some circumstances guided by relatively abstract macro-level appraisals of one's health situation. When people perceive a looming health issue to be subject to reasonably systematic influences, they can make meaningful adjustments to their behavior or environment to improve their health. When people are less optimistic about the efficacy of their health-relevant behaviors (or view their health outcomes as relatively unsystematic or arbitrary), they instead defensively bias their evaluation of explicit health risks. However, in at least some circumstances, people are guided less by reducing risk and more by psychological implications for the abstract, symbolic self, with health-related behaviors being governed most notably by the motive for self-enhancement and personal value.

### **Meaning and Health: A Terror Management Health Model Perspective**

Given the diversity of meaningful attitudes and behaviors, how can we understand whether individuals will rely on health-oriented or self-oriented meaning systems when making decisions that impact their health? The recently developed TMHM (Goldenberg and Arndt 2008) integrates the dual-process model of terror management and dual health-related motivations to provide some insight. Although the connection between health and death may seem obvious, the implications of death awareness on health behaviors are more nuanced. We suggest that recognizing the motivational impact of death awareness is critical to understanding the adherence to health-oriented and self-oriented patterns of behavior contingencies.

### ***Conscious Thoughts of Death and Health-Oriented Meaning Structures***

People are frequently involved in circumstances that evoke thoughts of death, especially in a health context. For example, conducting breast self-exams or reading a brief piece of information about cancer can increase the accessibility of death-related

thoughts (Arndt et al. 2007; Goldenberg et al. 2008). The TMHM suggests that when death thoughts enter focal consciousness, people become especially motivated to push them out. Toward that goal, people can employ health-oriented meaning structures to guide behaviors designed to reduce (perceptions of) vulnerability and enhance health, such as increasing their intentions to exercise or buy higher sunscreen that offers greater sun protection (Arndt et al. 2003; Routledge et al. 2004).

But the employment of such a response critically depends on expectations about what constitutes an efficacious route of action. Health models have highlighted a number of such behavior-outcome expectations in the form of active coping strategies, perceived response efficacy, and health optimism. According to the TMHM, such strategies should moderate the effect of conscious thoughts of death on health decisions. And research verifies that immediately after a reminder of one's mortality (mortality salience [MS]), individuals who had more adaptive coping strategies, or greater health optimism, tended to increase their health-related behavioral intentions (Arndt et al. 2006). Moreover, Cooper et al. (2010) showed that MS motivated those who viewed sun protection as effective against the onset of cancer to increase their sun-protection intentions; this effect did not emerge among those who did not perceive sun protection as effective. Thus, in health-relevant circumstances specifically, perceptions of future health-oriented contingencies allow people to take meaningful action (or implement intentions) designed to cope with the threat of death by improving their health.

But given that the principal goal activated by conscious thoughts of death is to remove such cognition from focal awareness, this motivation can also produce threat-avoidance, or threat-denial, responses. For example, people can suppress thoughts of death associated with explicit reminders of personal risk of cancer (Arndt et al. 2007) or deny vulnerability to those factors associated with a short life expectancy immediately after MS (Greenberg et al. 2000).

This research thus indicates that individuals engage health-enhancing behaviors if they are able to perceive meaningful steps to reduce vulnerability, but engage in behaviors designed to deny their vulnerability if that perception is absent, biased, or clouded. Arndt et al. (in press) recently explored these competing motives by considering the influence of common psychological pressures, like the craving for a cigarette, on the risky behavior of smoking. Although current smokers generally tend to discount future health risks (Odum et al. 2002), the intensity of smokers' cravings has a notable impact on the extent of this bias. Individuals with weak cravings can more easily see themselves taking meaningful steps toward quitting (Nuria et al. 2002), whereas stronger cravings motivate a focus on the more positive aspects and consequences of smoking (Sayette and Hufford 1997; Sayette et al. 2005).

Arndt et al. (2011) hypothesized that because individuals with a strong craving to smoke are more apt to discount risk and deny vulnerability by focusing on the positive consequences of smoking, MS should motivate those with stronger cravings to increase smoking vigor. In contrast, because those with weak cravings are better able to recognize risk and perceive meaningful paths to quitting—thereby addressing their vulnerability to death by reducing health risks associated with smoking—MS should reduce smoking intensity. After MS (vs. control topic), participants in

these studies smoked a cigarette while their puff topography was electronically recorded. MS motivated smokers with stronger cravings to smoke more intensely, whereas those with weaker cravings smoked less intensely.

In sum, whether the impact of conscious awareness of death on health decisions reflects health enhancement or threat denial depends on the perception of meaningful health-enhancing behavior-outcome contingencies. When people are able to perceive they can have a meaningful impact on their health (response efficacy, health optimism, low craving biases, etc.), conscious thoughts of death motivate them to take steps to reduce health threats and enhance their physical well-being.

### *The Perceptual Shift from Health-Oriented to Self-Oriented Macro-meaning Systems*

So far, we have considered how behaviors triggered by conscious death thoughts depend on the development and maintenance of health-oriented systems of meaning. In contrast, the nonconscious accessibility of death-related cognition triggers a shift in perceptual focus toward the symbolic value of the self. Thus, people need to adjust their construals of the world such that they can effectively traffic in self-oriented, symbolic systems of meaning. Research supporting this reasoning suggests that, compared to conscious death thoughts, nonconscious death thoughts produce a shift from viewing one's actions in terms of local details to viewing them in a more social and cultural context (e.g., Landau et al. 2011; Vail et al. 2013). This helps explain why Routledge and colleagues (2004) found, for example, that conscious thoughts of death increased intentions to use sunblock (i.e., reflecting a more proximal focus on health), whereas nonconscious thoughts decreased intentions to use sunblock (i.e., reflecting sensitivity to the cultural attractiveness of tan skin).

Further research in the health domain helps to clarify this distinction. Like Routledge and colleagues (2004), McCabe et al. (2013) reasoned that conscious death thoughts would produce an attentional sensitivity to health-relevant information but that nonconscious death thoughts would shift perceptual sensitivity toward information relevant to gleaning personal value according to one's self-oriented, cultural meaning system. American participants were first reminded of either death or a control topic. Then, either immediately (while still consciously aware of death) or after a brief delay (once death thoughts presumably faded out of focal consciousness yet remained nonconsciously active), participants viewed an advertisement for an ostensibly new brand of bottled water and indicated how much they would be willing to pay for it. In one condition, the advertisement featured an endorsement and photo of a female medical doctor in a white lab coat (offering cues about the health value of the product) and in a second condition featured the endorsement and photo of a famous American celebrity (Jennifer Aniston; offering cues about the cultural value of the product). In line with predictions, participants reminded of death were willing to pay more for the doctor-endorsed (but not the celebrity-endorsed) water in the no-delay condition and were willing to pay more for the

celebrity-endorsed (but not the doctor-endorsed) water in the delay condition. Notably, delay and advertisement conditions had no influence among non-MS-induced participants. An additional study conceptually replicated this pattern, but instead found such effects on amount of water consumed when participants were asked to sample water from bottles to which these endorsements were affixed.

### *Nonconscious Thoughts of Death, Self-Oriented Meaning Structures, and Health*

The above research helps to elucidate how explicit death thoughts instigate health-oriented responses. But once they fade from consciousness, they implicate a meaning system that enhances the symbolic value of the self and the cultural beliefs on which its value depends.

#### **The Impact of Efforts to Pursue Self-Esteem**

One of the hallmarks of TMT research is that nonconscious thoughts of death motivate efforts to obtain personal value by adhering to the beliefs and value contingencies prescribed by self-oriented systems of meaning (e.g., culture; Pyszczynski et al. 2004). By considering the impact of particular dominant or accessible standards of self-worth (c.f., Crocker and Wolfe 2001), we can further understand the impact of self-relevant existential motivation on health-related decisions. For example, when people derive their sense of self-worth from engaging in high-risk behaviors, non-conscious death awareness motivates people to take more risks in those domains (e.g., Taubman Ben-Ari et al. 1999). Research generated by the TMHM demonstrates that nonconscious death thoughts motivate people who base their self-esteem on being tan or fit to report increased intentions to tan or exercise (Arndt et al. 2003; Routledge et al. 2004). Similarly, when graphic cigarette warning labels conjured up thoughts of death outside of conscious awareness, smokers who base their self-worth on smoking increased smoking intentions (Hansen et al. 2010). Importantly, as the self exists within cultural meaning systems—largely socially constructed and relying heavily on perceived social consensus—people often base their standards for valued behavior on extrinsic social cues (c.f., Berger and Luckmann 1967). As a result, people may be particularly likely to make health-related decisions based on efforts to present themselves in socially valued ways. Supporting this idea, Arndt and colleagues (2009a) found that when people rely on external social standards for personal value, MS increased desire to tan, presumably reflecting strivings for the social value placed on tan skin.

By this same token, when people invest in external standards, social information about valued behavior can alter the landscape of meaningful self-oriented behaviors. Thus, individuals adjust their behavior in more healthy or unhealthy ways depending on conditional social value placed on certain health-related activities.

For example, after MS, people who smoked for extrinsic reasons increased their intentions to quit if they were first exposed to anti-smoking messages that portrayed smoking as socially negative (not “cool,” Arndt et al. 2009a, b; or leading to social exclusion, Martin and Kamins 2010).

This also implies that when esteem contingencies are oriented toward healthy behaviors, existential strivings for self-esteem can be health promoting. For instance, although nonconscious death thoughts increase tanning intentions when extrinsic cues suggest the social value of tanned skin (e.g., fashion article titled “Bronze is beautiful”, Cox et al. (2009), photos of attractive tanned women, Routledge et al. (2004)), Cox et al. demonstrated that when the societal attractiveness of untanned skin was primed (e.g., fashion article titled “Pale is pretty”), MS decreased intentions to suntan. These findings highlight how the malleability of efforts to accrue meaningful personal value can impact health-related decisions.

There may also be times when self-esteem itself can be based on being healthy. Arndt et al. (2009a) found that, after MS, exposure to information describing a positive exercise exemplar (vs. non-exercising exemplar) induced people sensitive to extrinsic social standards to more strongly view exercise as important for self-esteem. Similarly, increased nonconscious death thought accessibility led women attending a mammogram clinic to increase their intentions to conduct breast self-exams (BSE) if they were also presented with a brochure framing BSEs as empowering (compared to practical instructions; Cooper et al. 2011).

### *Worldview Beliefs as Macro-level Guides for Decisions That Impact Health*

One of the primary ways that people manage their awareness of death is living according to the blueprint of a culturally derived system of meaning, or worldview. And indeed, hundreds of studies have shown that reminders of death motivate efforts to defend such belief systems (see Greenberg et al. 2008). TMT helps to account for the (literal or figurative) death-denying content of these belief systems by positing that such beliefs serve the important function of mitigating concerns about mortality. Unfortunately, the motivation to protect the integrity of one’s cultural meaning systems can sometimes have negative implications for the health of oneself, as well as others. Consider, for instance, when defending one’s belief systems places one at odds with medically prescribed courses of action. Arndt et al. (2009b) found that nonconscious death thoughts (compared to a control topic) motivated Christian medical students to make higher (i.e., more cautious and protective) cardiac risk estimates for a fellow Christian patient (who supported their worldview) and lower (i.e., more careless) risk assessments for a Muslim patient (who threatened the veracity of their worldview).

This analysis not only informs how people treat others but how the reliance on a symbolic meaning system can compromise what many would otherwise regard as the most reasonable course of action for an individual’s own health. Vess and

colleagues (2009) hypothesized that nonconscious death thoughts would motivate an increased reliance on religious methods of healing among people with strong faith in their religious beliefs. Across a series of studies, among people scoring high on a measure of religious fundamentalism, nonconscious thoughts of death (vs. a control topic) motivated a preference for prayer as a substitute for medical treatment. This finding reflects the existentially enhanced reliance on fundamentalists' dominant system of beliefs as a guide for meaningful investment that attenuates underlying concerns about death. Indeed, after MS, when fundamentalist participants were allowed to affirm their preference for faith-based medical interventions (vs. not given such an opportunity), they decreased their desire to search for other sources of meaning in life.

### *Human Physicality as a Threat to Meaning in Health Contexts*

One psychological obstacle in abiding by either macro-level system of meaning (i.e., to enhance health or the value of the self) is the recognition of the finite nature of one's physical body. Like all other animals, people are susceptible to injuries, disease, and deterioration, rendering the body an ever-present reminder of human mortality (Goldenberg et al. 2000). The natural trajectory of the body's "creaturely" vulnerability therefore stands as an affront to any meaning system that attempts to place humans in a privileged and healthy, if not enduring, position. The relevance of this problem can be seen in various health screening activities, such as physical checkups, x-rays, or screening exams, each requiring close contact with one's physicality.

Integrating this analysis of human creatureliness with the TMHM, Goldenberg et al. (2008, 2009) hypothesized that MS, in conjunction with reminders of the creatureliness of the body, should motivate the individual to avoid health procedures, like breast cancer screenings, that bring the individual into closer contact with the body. In accord with this hypothesis, for example, when female participants read an article that emphasized the overlap between human and animal nature (vs. arguing for human uniqueness or a neutral control essay), they had lower intentions to conduct BSEs when primed with death and spent less time conducting a "practice exam" on a breast model that naturalistically increased death thought accessibility.

As the above examples imply, the potential for concerns about the creatureliness of the body to threaten the macro-level symbolic meaning systems may, in many contexts, be especially potent for women. For example, women may face further health implications when considering the macro-meaning engendered by the cultural standards that women "should" be slim and beautiful. Such dietary restriction was evidenced when females reminded of mortality (vs. control topic) restricted their consumption of a nutritious, albeit fatty food (Goldenberg et al. 2005). Of course, being slim is associated with health benefits; however, when vital nutrients are sacrificed for the sake of aesthetics, concern may arise. Together, these findings help illustrate how the existential motivation to seek value and permanence by adhering to macro-level meaning systems can lead people to avoid health contexts that may arouse the potentially threatening awareness of one's creaturely existence.

## Conclusion

In this chapter, we considered the link between meaning and health. In addition to a basic, epistemic micro-level system of meaning, the TMHM suggests that two relatively "macro-level" systems (a health-oriented system and a self-oriented system) of meaning guide attitudes and behaviors with respect to health. From the perspective of TMHM, when consciously aware of death, decisions reflect health enhancement or threat denial depending on the available perception of effective behavior-outcome contingencies. When people are able to perceive ways to meaningfully impact their health, conscious death thoughts can motivate them to take steps to become healthier. However, when thoughts of death are nonconsciously accessible, health decisions reflect efforts to enhance the *self* rather than health, potentially leading people to abide by value-providing worldviews that contradict health standards, or avoid medical practices that evoke the base creatureliness of one's body. Yet, when the self-oriented meaning systems confer personal value based on healthy criteria, non-conscious death thoughts can contribute to decisions that are conducive to health. Consideration of meaning from the context of the TMHM thus provides a relatively nuanced framework for understanding the role of meaning in health, as well as additional opportunities for promoting better health.

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