Chapter 11

Terror Management Theory and Religious Belief

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As early as the Upper Paleolithic Era, our ancient ancestors began burying their comrades with symbolic grave-goods and creating works of art suggesting belief in supernatural existence (Mithen, 1996). In the *Chauvet Pont d'Arc*, a cave in Southern France known as the "prehistoric Sistene Chapel," the oldest known human drawings ($\sim$30,000 BCE) include hundreds of paintings of animals—lions, panthers, bears, hyenas. But they also feature paintings of sacred shamanic intermediaries and voluptuous "Venus" figures, representing a type of earth-goddess with spiritual powers over the natural world, capable of ensuring success in hunting and fertility to land and women (BBC, 2014a, 2014b; McClellan, 2006). Elsewhere, archeological excavations reveal burial sites adorned with symbolic items for the immortal souls of the deceased to use during their passage to the afterlife (Tattersall, 1998).

These relics, indicating human belief in intangible spirits beyond the natural limitations of the body, place the emergence of supernatural religious concepts alongside the advent of communal living, symbolic thinking, language, and self-consciousness (Burkert, 1996; Donald, 1991; Langer, 1984; Mithen, 1996). This infusion of human life with supernatural life is ancient, yet remains a widespread aspect of human experience. Even today, as headlines tout the increasing numbers of individuals rejecting religion, research still finds nearly 85% of people worldwide with religious beliefs (Zuckerman, 2005) and about 82% who claim religion constitute an important part of their everyday life (Crabtree, 2009).

Why have religious beliefs been such a stable and wide-reaching force in human culture? Numerous answers have been offered. Some (e.g., Freud, 1927) have argued that religion soothes anxiety in the face of inexplicable and uncontrollable natural phenomena, and protects people from their own destructive instincts to aggress against the self, others, and civilization. Others

259

posited that religion serves an important social function, binding people together into common faith communities (Durkheim, 1912/1995; Graham & Haidt, 2010), providing members with valuable social identity (Ysseldyk, Matheson, & Anisman, 2010). Some offer that religion is a natural by-product of ordinary cognitive processes (Barrett & Zahl, 2013), such as when the adaptive propensity to attribute action (e.g., a flying arrow) to human-like agents (e.g., a raider) leads people to attribute activity with no human agent (e.g., stormy weather) to unseen supernatural beings or gods. And still others (Dawkins, 2006) offer that religion is merely a parasitic *meme* (unit of cultural inheritance) that entered the "meme pool" (akin to the gene pool) at great expense to the "hosts" yet nevertheless passes down each generation by preying on the human desire for immortality.

But each of these perspectives assumes an underlying motivation—to control anxiety, protect against threat, bond with fellow members of faith communities, and achieve immortality (despite great physical and societal expense). Even proponents of some of these ideas have hinted at these underlying, existential motivations, as Richard Dawkins did while explaining the spread of religious memes: "The idea of immortality itself survives and spreads because it caters to wishful thinking. And wishful thinking counts, because human psychology has a near-universal tendency to let belief be colored by desire" (2006, p. 221). But, why wish for immortality? And exactly how would such a belief be colored by desire?

Based on existential philosophy and anthropology (Becker, 1973; Burkert, 1996), terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986) proposes that religious belief in spiritual immortality, souls, gods, and other supernatural concepts stems from a basic motivation to manage the awareness of our impending mortality. TMT explains *why* people are motivated to hold religious beliefs, *what* the social consequences are, *who* is impacted by that motivation and its various orientations, and *how* the body shapes that motivation to believe.

TERROR MANAGEMENT THEORY RESEARCH AND RELIGIOUS FAITH

> *Religion is based, I think, primarily and mainly upon fear. It is partly the terror of the unknown and partly the wish to feel that you have a kind of elder brother who will stand by you in all your troubles and disputes. Fear is the basis of the whole thing—fear of the mysterious, fear of defeat, fear of death.*
>
> Bertrand Russell (1957, p. 22)

Just as the hummingbird seeks nectar and the bearded seal avoids polar bears, humans became adapted toward self-preservation and reproduction. But, unlike these other animals, the adaptive pressures that allowed humans to survive and reproduce also led to particularly sophisticated cognitive

capacities for self-representational thought (Tooby & Cosmides, 1992). Other creatures' cognitive representations are connected directly to their encountered stimuli, but humans can interpret and organize arbitrary symbols for events, objects, and people—including themselves—and mentally simulate space and time. The hummingbird pokes its beak into the flower to check for food, and the bearded seals "sing songs" to attract mates; but only the human can worry the lid of a latte while she helps her kid struggle through his math homework, silently sighing to herself and wondering if he will similarly take care of her when the time comes. That is, in allowing us to better interpret, organize, and understand our world—past, present, and future—these adaptive developments also produced the ability to recognize our mortality.

Yet because this cognitively sophisticated awareness of mortality does not entail a direct physical threat (e.g., a polar bear on the hunt), and thus cannot be resolved through reasonable physical response (e.g., evading the bear), it led to a unique *psychological* adaptation. Building on the work of cultural anthropologist Ernest Becker (1973; cf., Rank, 1936/1950), TMT posits that humans manage the awareness of their impermanence by perceiving themselves as qualifying for at least some form of permanence. To do so, humans fabricate and participate in *cultural worldviews*: sophisticated systems of belief that give order, meaning, and significance to the world. Cultural worldviews are diverse—including religious, ethnic, political, scientific, or other beliefs—and they spell out the standards and values for navigating the world. Second, they strive to accrue culturally relevant *self-esteem* by meeting or exceeding cultural standards. In doing so, the resulting self-esteem signals whether or not one has made meaningful, valued achievements worthy of cultural permanence.

The death-denying permanence offered by one's cultural worldviews can take at least one of two forms. For the first form, people can strive for *nonsupernatural (secular) immortality*: the impression that one's activity will leave a lasting legacy by which to be remembered after one is physically gone (see Chapter 13, this volume). For example, many academics adhere to the "publish or perish" mantra, striving to meet or exceed their field's valued scientific standards, in the hope of contributing information of lasting value to current and future generations; other worldviews might guide contributions to the future of one's family, business, service/charities, education, healthcare, government, art, sports, or any number of other available spheres. For the second form, people may strive for *supernatural immortality*: the impression that, despite natural death, our supernatural essence will literally continue to live on (afterlife).

Faith in Supernatural Immortality

Religions are unique in that they can offer both nonsupernatural and supernatural immortality. Of course, many believers take meaningful strides toward nonsupernatural immortality, ensuring their own beliefs spread to

future generations, such as by raising children in their denomination, offering money to one's religious organization, or proselytizing. In this way, perpetuating one's preferred religious belief is little different than perpetuating one's secular preference for a cricket team, music genre, or political party—a sense of permanence is gained by passing along some aspect of oneself to others, within the bounds of the natural world, via physical or social means.

But, powerfully, religions are primarily oriented toward the pursuit of supernatural immortality. Indeed, the earliest written narrative available, the Epic of Gilgamesh—believed to have originated around 3000 BCE in ancient Sumaria—focuses on Gilgamesh's encounter with the death of his friend Enkidu, provoking Gilgamesh to embark on a quest to thwart death with eternal life. Likewise, many Hindus, for example, follow the *śruti* scriptures (the four *Vedic* texts), conduct worship at temple, and believe their deeds on earth determine (*karma*) how their soul is transmigrated and reincarnated (*sasāra*)—all of which stem from the belief that in doing so one may seek permanent spiritual release from a mortal body (*moksa*). Similar efforts toward supernatural immortality are guided by Christianity (heaven), Islam (*jannat al-na'im*, gardens of delight), and Buddhism (*ching*, the pure land), among others. Despite variation in names and other trimmings, all religions function similarly to offer a reassuring promise of spiritual immortality, helping humans cope with the awareness of their eventual creep toward the grave.

Research testing this idea utilizes two simple approaches to testing TMT: the mortality salience (MS) hypothesis and the buffering hypothesis (see Chapter 1, this volume). First, according to the *MS hypothesis*, if faith in cultural worldviews (secular or supernatural) and self-esteem provide protection from death-related concerns, then heightened awareness of death should motivate increased reliance on them. Testing this hypothesis involves randomly assigning participants either to conditions that increase death awareness (MS) or conditions that involve nondeath-related stimuli, and then observing the effects of that manipulation on self-esteem striving and efforts to uphold cultural beliefs. Hundreds of studies have supported this hypothesis, using many different forms of death reminders (e.g., short essay prompts, subliminal presentations of the word "death" during computer tasks, and even proximity to local cemeteries) and control topic stimuli (e.g., pain, failure, ostracism, worrying thoughts, meaninglessness, self-uncertainty, etc.), in a wide range of cultural domains, with a wide range of demographics, and in dozens of countries on at least five continents (for review, see Chapter 1, this volume). For example, Greenberg et al. (1990) found that, compared to a nondeath-related control condition, MS led Christians to show increased reliance on their own death-denying religious worldview by increasing support for a fellow Christian but not for a Jewish person. Similarly, Osarchuk and Tatz (1973) found that religious believers reminded of death increased their faith in the afterlife.

Other research has adopted the *buffering hypothesis* in testing the role of afterlife belief in protecting individuals from mortality. According to this hypothesis, if cultural worldview beliefs and self-esteem provide protection from death-related concerns, then affirming them should buffer against anxiety and defensive reactions to mortality concerns. For example, Schoenrade (1989) found that, when confronted with death awareness, participants with a strong afterlife belief viewed death as having more positive and fewer negative implications. In other experiments, Dechesne et al. (2003) tested whether affirming supernatural immortality would buffer against the effect of MS on worldview-relevant defensive responses (i.e., self-esteem striving and worldview defense). Half of participants read an article (falsely) claiming that Harvard medical researchers examined over 600 cases of out-of-body near-death experiences—in which over 98% reported floating above their bodies and medical personnel, moving through a tunnel of light, feeling comfort, and interacting with deceased friends—and concluded that the preponderance of such similar experiences could be attributed to the existence of an afterlife. The other half of participants read an article describing those same out-of-body near-death experiences, but debunking them as a by-product of biological processes, such as oxygen deprivation in the brain. In the afterlife-debunked condition, MS (vs control topic) led to the typical boost in defensive responding. But that effect was eliminated when participants read the article affirming the existence of afterlife. These findings highlight supernatural immortality as religion's unique protection from death concerns.

Faith in Supernatural Agency

Religions are also unique, however, in that they complement the idea of supernatural immortality with examples of such spiritually unbounded beings. Indeed, every religion features immortal, supernatural agents. The Maori pantheon features *Io*, *Tangaloa*, and *Rangi*; the Christian supernatural ranks include gods, demons, angels, and saints; the Indic pantheon includes the Trimurti (*Brahma*, *Vishnu*, *Shiva*) and various other gods (*devas*); and so on among all other religions. As anthropologist Bronislaw Malinowski (1948) explained,

> *Man's conviction of continued life is one of the supreme gifts of religion...*
> *suggested by self-preservation—the hope of continued life and the fear of anni-*
> *hilation. The belief in spirits is the result of the belief in immortality. The sub-*
> *stance of which the spirits are made is the full-blooded passion and desire for*
> *life...Religion saves man from a surrender to death and destruction... (p. 51).*

Thus, from a TMT perspective, the presumed existence of gods, spirits, and other supernatural agents provide "evidence" that immortal spiritual existence is a real possibility.

Research has tested the terror management function of faith in supernatural agents. In some studies, MS not only boosted general religious faith, but also specifically increased belief in god and divine intervention (Norenzayan & Hansen, 2006). Likewise, Vail, Arndt, and Abdollahi (2012) found, in one study, that MS motivated American Christians to increase faith that Jesus/God exists, answers prayers, and can intervene in the world. In a second study, MS motivated Iranian Muslims to increase faith that Allah exists, answers prayers, and can intervene in the world. These results demonstrate that in managing the awareness of death, religious individuals not only bolster their religious belief, but specifically bolster their faith in their religion's conceptualization of supernatural agents.

Further, religious creation stories can help humans cope with their mortal confines, offering a spiritual cosmogony consistent with the concepts of supernatural immortality and agency. The *Enuma Elish* (c.1700 BCE), a collection of seven Bronze Age Babylonian tablets, concerns Marduk's violent struggle to become king of the gods and how he fashioned heaven, earth, and humankind from the slain corpses of other gods (Lambert & Parker, 1966). The ancient Egyptian *Pyramid Texts* (c.2400 BCE) describe a more peaceful spiritual beginning, in which the world emerged from an infinite, lifeless sea of chaos as the primordial gods caused the sun to rise for the first time (Leeming, 2010). Whether through divine lovemaking, the spoils of heavenly battle, or telekinetic fiat, creation stories offer a spiritual history that connects human souls to an infinite spiritual realm. Further, creation stories and other religious myths typically pay believers immense self-esteem boosting compliments, suggesting that their very existence is the culmination of a divine spiritual drama and of immense importance to the gods.

Researchers have tested the idea that creation stories serve a terror management function using the *death-thought accessibility (DTA) hypothesis*, which posits that if cultural worldview beliefs and self-esteem provide protection from death-related concerns, then threatening these constructs should bring death thoughts closer to conscious awareness. Increases in DTA can be observed when people become more likely to complete word fragments like GRA_ _ as death-related (GRAVE) rather than neutral (GRANT) words, or when they demonstrate faster reaction times when identifying death-related words (dead, coffin, etc.) in a computer task (see Chapter 1, this volume). Using this approach, Schimel, Hayes, Williams, and Jahrig (2007) found that creationists displayed increased DTA after they were exposed to a scientific article challenging creationism and arguing in favor of evolution, but not after they read a neutral article. Other research has found that MS can increase faith in intelligent design (creationism) rather than evolutionary theory (Tracey, Hart, & Martens, 2011). Together, these findings demonstrate how faith in supernatural agency and immortality further fuels religion's unique protection from death concerns.

THE SOCIAL MAINTENANCE OF RELIGIOUS FAITH

Because cultural worldviews, including religious ones, are conceptual figments created by humans, faith in them involves heavy investment in ideas that can never be objectively substantiated or conclusively determined to be "correct." And without any directly observable evidence confirming the existence of fundamental religious concepts, such as souls, spirits, angels, demons, heavens, gods, or any other such supernatural phenomena, confidence in these concepts is profoundly dependent on consensual social validation (Berger & Luckmann, 1967). When other people share one's worldview, that consensus helps affirm the worldview as a valid and worthwhile set of beliefs. But when others reject one's worldview and/or hold an alternative or competing set of beliefs, they raise the possibility that one's own way of life might either be wrong or irrelevant as a path to immortality. As a result, people engage in various psychological defenses to maintain the perceived legitimacy of their death-denying religious worldviews.

One such defense is the process of *bolstering fellow believers*, which involves expressing positive support for people and information that affirm the validity of one's own religious worldview. As but one example, Christians make up about 70% of the population in the United States (Pew Research Center, 2015), yet during their long history as the overwhelming American majority they have rarely placed non-Christian candidates in public office and have instead disproportionately elected their fellow Christians. About 91% of the current (115th) US Congress is Christian (Pew Research Center, 2017a), every single US President has believed in God (or at least claimed to), and all but one President (Jefferson) has identified himself as Christian (Pew Research Center, 2017b). From the TMT perspective, such strong support for their fellow Christians reflects the existential motivation to bolster the perceived legitimacy of their death-denying worldview.

A second defense is *derogation*, which involves expressing negative attitudes and opposition to people and information that threaten the legitimacy of one's death-denying worldview. Consider, for example, Mike Huckabee—former Baptist minister, Arkansas governor, two-time Republican Presidential primary candidate, and television and radio talkshow host—who on his syndicated radio show said:

> *I know we're not supposed to say anything unkind about Islam… I get that. But… [it's] a religion that promotes the most murderous mayhem on the planet in their so-called 'holiest days"…the Muslims will go to the mosque, and they will have their day of prayer, and they come out of there like uncorked animals—throwing rocks and burning cars.*

<div align="right">Poor (2013, para 3)</div>

According to TMT, such sentiments reflect motivation to attenuate death-related anxieties by delegitimizing alternative religious worldviews as

inhuman garbage. But Huckabee is certainly not alone in his sentiment. Recently, US President Donald Trump issued a ban on immigration from seven Muslim-majority nations, a move which polls showed was supported by over half of the nation (Kirk & Scott, 2017). And, more generally, whereas polls show that the predominantly Christian US population has a generally warm attitude toward their Judeo/Christian neighbors in America, they have much colder attitudes toward people of alternative belief systems (e.g., Buddhists, Hindus, Mormons) especially Muslims and atheists (Pew Research Center, 2014). Indeed, substantial portions of the population feel that Muslims around the world are both hostile to the West and a threat to its religious beliefs (Gallup, 2017).

Research has found ample evidence supporting the terror management function of the bolstering and derogation defenses. One early study found that when American Christian participants were reminded of death (vs control topic), they bolstered positive judgments of a target when described as a fellow Christian yet made harsh judgments of that same target when described as a Jewish person (Greenberg et al., 1990). Similar work conducted among Muslims in Indonesia found that MS bolstered their support for a fellow student who expressed desire for the government to rule Indonesia according to Islamic law (*Sharia*) and derogated the emerging sect of the Ahmadiyya as heretics (Iqbal, O'Brien, Bliuc, & Vergani, 2016). Further demonstrating that bolstering and derogation are indeed specific to one's own worldview defense, MS did not lead to increased support for Sharia and rejection of the Ahmadiyya among non-Muslim Indonesians (Iqbal et al., 2016). MS also boosts people's desire to romantically date similar in-group members but not out-group members (Frischlich, Rieger, Dratsch, & Bente, 2015). In the religious context, MS likewise increased participants' positive feelings toward a potential long-term dating partner but only if the potential partner shared the participants' religious beliefs (Kosloff, Greenberg, Sullivan, & Weise, 2010). Such findings help to shed light on nation-wide sociological data showing that the vast majority of believers of nearly every religious faith tend to wed spouses of their own religion (Pew Research Center, 2015).

But even if one can bolster fellow believers and attempt to disparage competing worldviews, the continued propagation of compelling alternative worldview beliefs can continue to undermine the legitimacy of one's own overarching belief system. In such cases, people can be motivated to engage in the defensive strategy of *threat accommodation*, which involves keeping faith in one's core worldview beliefs but selectively modifying peripheral beliefs to now include otherwise-threatening ideas as a part of one's own belief system. Consider, for example, that in the *Book of Genesis*, the Bible describes God creating the heavens and the earth in 6 days, ending with the creation of humankind on the sixth day. In contrast, the scientific method, and Charles Darwin's work in naturalism in particular, has thus far

contributed to a large body of evidence compellingly explained by the theory of evolution—a perspective which directly contradicts the Biblical account that humankind was supernaturally created, from scratch, in its current form. Thus, if the theory of evolution is correct, and Christians encounter it, they will be forced to contend with the very real possibility that the source of their religious worldview—the Bible—is simply wrong. Such Christians can try to defend the legitimacy of their views by bolstering fellow believers or derogating evolution as "just a theory," but the fact is that the scientific evidence for evolution remains strong.

An alternative defense strategy, therefore, would be to adjust the Christian view to accommodate the otherwise-threatening idea of human evolution as part of a peripheral belief, while preserving the central belief that God exists and created everything. Indeed, this is how the Church has responded to scientific consensus about evolution, as the current Pope (Francis) explained:

> When we read in Genesis the account of Creation, we risk imagining God as a magician, with a wand able to make everything. But it is not so. . . .He created beings and allowed them to. . .develop and to arrive at their fullness of being. . .And so creation continued for centuries and centuries, millennia and millennia, until it became that which we know today. The Big Bang, which nowadays is posited as the origin of the world, does not contradict the divine act of creating, but rather requires it. The evolution of nature does not contrast with the notion of creation, as evolution presupposes the creation of beings that evolve.
>
> Vatican Information Service (2014)

The point here is that the Bible mentions nothing about evolution or the Big Bang; those are ideas in the scientific community that potentially undermine the validity of the Bible. The Pope, however, accommodated those ideas into his periphery so that they no longer threaten the core belief that a creator god exists and that Christianity is a valid path to immortality. This interpretation is consistent with TMT research. Hayes et al. (2015, Study 2) recruited participants with strong belief in creationism and rejection of naturalistic explanations of human origins. When exposed to information highlighting evidence for evolution and refuting creationism, MS caused participants to reduce their rejection of evolution (peripheral belief) but keep their faith in God (core belief)—thus accommodating the threat into their extant worldview.

Alternatively, one might take a more active role in the defense of one's death-denying beliefs by attempting to *assimilate nonbelievers* into one's religious worldview. Such assimilation efforts are exemplified by the 3rd century travels of Buddhist *Dharma Bhanaks* throughout Asia, Muslim Imams' *dhawa* (missionary) efforts in Africa and the Middle East following the early Islamic Conquests (7−8th century), and Christian efforts to follow

Jesus' instructions to "Go into all the world and proclaim the good news to the whole creation" (Mark 16:15-16). And the tone of such proselytizing effort can range widely, from offering friendly and welcoming environments for others to learn about one's worldview beliefs, such as Hindu ISKCON events, mosque open-houses, or church Sunday schools, to the more bold and bloody attempts to forcibly convert suspected heretics and nonbelievers, such as occurred during the Christian Inquisitions. Research points to the terror management function of such assimilation efforts. In one study (Kosloff, Cesario, & Martens, 2017), Christian participants were exposed to MS (vs control) and then given the opportunity to either advise or derogate an atheist. MS motivated participants to derogate the atheist if portrayed as staunchly unreceptive to religious concepts; but if the atheist was portrayed as being open-minded, MS instead led participants to more zealously advise them to go to church and read the Bible. Thus, MS can lead people to bypass derogation in favor of an opportunity to simply convert a nonbeliever, turning social worldview-threat into validation.

But attempts at derogating, accommodating, and/or assimilating do not guarantee that threats to one's religious worldview will be effectively reduced. However, there remains a figurative—and potentially literal—"nuclear option." Social threat to one's religious beliefs can be effectively eliminated by efforts to *annihilate* the challenging people and ideas. From contemporary culture clashes to earlier tribal wars, and from East to West, religious believers have engaged in street fights, terrorism, military incursions, and even full-scale genocides to defend the legitimacy and primacy of their beliefs.

Even religious texts themselves sometimes blatantly urge believers to annihilate nonbelievers. The infamous *sword verse* (Quran 9:5) urges Muslims to "...kill the unbelievers wherever you find them and capture them and besiege them and lie in wait for them at every place of ambush. But if they should repent, establish prayer, and practice charity, then leave them free. Indeed, Allah is forgiving and merciful." And Deuteronomy 13:6-9 likewise proposes to Christians that, "If your very own brother, or your son or daughter, or the wife you love, or your closest friend, secretly entices you, saying, 'let us go and worship other gods'...do not yield to them or listen to them. Show them no pity. Do not spare them or shield them. You must certainly put them to death." Such scriptural calls set the stage for sectarian violence, such as Anders Breivik's 2011 bombings and shootings in Norway, which left 77 dead and at least 319 injured. Breivik left behind a detailed manifesto, in which he essentially called for a second Crusade—a renewed Christian war to defend European Christian culture against the threat of Muslim domination (Erlanger & Scott, 2017). Further, policy analysts point out that, compared to wars over secular disputes, religious wars are historically more frequent, devastating, and have a higher likelihood of recurrence (Toft, 2007).

Recent research compellingly illustrates how death-related anxiety can fuel such religious violence. In one experiment (Hayes, Schimel, & Williams, 2008),

American Christian participants were exposed to either an article about a neutral topic or an article about how the Christian holy city of Nazareth (Jesus' hometown) is becoming dominated by Muslims. Compared to the neutral topic, exposure to the article about the "Islamification" of Nazareth increased the Christians' DTA. However, that effect on DTA was eliminated when participants were also exposed to a report showing that a plane full of Muslims had been killed in a crash. This rather chilling result shows that threats to one's religion can increase DTA, but the DTA can be attenuated again by perceived annihilation of people representing those threatening ideas.

In similar research (Pyszczynski et al., 2006), Iranian students were exposed to either MS or a control topic, and then asked to evaluate two fellow students. One student spoke about portraying Islam as peaceful; the other advocated Islamic martyrdom-missions (suicide terrorism) against the United States. Under control conditions, participants preferred the pro-peace student; but MS strongly increased preference for the pro-martyrdom student and even increased self-reported willingness to join the cause—to sacrifice oneself in defending Islam against the West. Such research provides insight into the motivations behind Anders Breivik's violent defense of Christian European culture, but also the past century's rise in Islamic terrorism, troubles between Protestants and Catholics in Ireland, and ill-treatment of Muslims in Palestine, Jews in Europe, Hindus in Sri Lanka, and many other similar religious culture clashes.

VARIATION IN RELIGIOUS ORIENTATIONS

Whereas all the world's religions serve to help mitigate death-related anxieties, there exists a fair amount of variation in the way that people wield religion to serve that function. Some folks may be uncertain or skeptical of religious ideas, whereas others may invest exclusively in their religions' scriptural fundamentals. Some people rely on religion because they truly believe in religious supernatural ideas, whereas others are involved in religion for its nonsupernatural immortality opportunities. And still others might be engaged in a more open-minded search for spiritual enlightenment. We next consider how these differences in religious orientation can impact the ways that religion is used (or not) as a terror management strategy.

Skepticism

Although a large amount of research shows that religious belief can function as a powerful and direct method of managing existential concerns, not all describe themselves as religious. The majority of people globally are religious, but the growing numbers of nonreligious are striking (Pew Research Center, 2015). Some are simply raised without religion, whereas others

actively identify as nonreligious, for one reason or another, and variation exists even among those growing numbers of skeptics describing themselves as "non-religious," ranging from not-religious-but-spiritual, to agnostic, to more strictly atheist.

For example, roughly 50% of those reporting "no religion" believe supernatural/spiritual concepts, yet distance themselves from sometimes objectionable organized religions (Baker & Smith, 2009; Vernon, 1969); and among those identifying as religiously "unaffiliated," 30.26% regarded religion as personally important. Thus, large portions of the so-called "religious nones" may be more skeptical of religious social organizations than that of the supernatural concepts (e.g., gods, souls, heaven) they represent. Research may find that these "spiritual but not religious" individuals, though reluctant to affiliate with religious organizations, still manage death awareness by expressing faith in supernatural concepts. Yet others, such as agnostics and atheists, appear more genuinely skeptical of supernatural ideas, each representing variation in that skepticism.

Agnosticism is characterized by uncertainty about religious claims about the supernatural, pointing out that the supernatural is by definition beyond natural observation, and cannot be known by humans to exist or not-exist (e.g., Russell, 1927/1957, 1947; Stephen, 1893). But, ultimately, one cannot simultaneously believe and not-believe. So, as Blaise Pascal (1669/1995) notoriously argued: although the agnostic may be skeptical, when faced with existential concerns the safe bet is to believe and gain the possibility of eternal life. Indeed, research has shown that although agnostics expressed low religious faith in a control condition, MS led them to "hedge their bets"— reporting stronger general religiosity, faith in a higher power, and faith in Christian, Islamic, and Buddhist supernatural agents (Vail, Arndt, & Abdollahi, 2012). These findings suggest agnostics may be uncertain, yet open-minded when it comes to religious terror management.

Atheism, however, is more strongly skeptical, involving at least the lack of belief in supernatural concepts and at most the outright rejection of the supernatural (Dawkins, 2006). The direct terror managing power of religious belief may indeed be as appealing to atheists as anyone else, but these individuals may override the desire for supernatural concepts (such as gods, souls, afterlife) with a more rational, logical analysis. Indeed, building on research suggesting religious cognition is "naturally" intuitive (e.g., Barrett, 2004; Bering, 2006; Bloom, 2007), emerging evidence shows that believers and unbelievers alike may respond to death awareness by—at least initially— implicitly activating theistic/supernatural concepts (e.g., Jong, Halberstadt, & Bluemke, 2012). However, several other studies show that after MS atheists override that implicit activation, to explicitly reject religion and the various possible supernatural agents (Jong et al., 2012; Vail et al., 2012).

Additional work similarly suggests that atheists may be analytically overriding the implicit activation of religious concepts when aware of death

(Vail & Soenke, 2017). For example, in one study MS caused Christians to increase religious faith after a neutral task, but not after a task designed to promote analytic thinking. Such findings show that even religious samples can look like atheist samples—where MS fails to lead to strengthened faith—when participants are prompted to override intuitions and engage in analytic thinking. Another study (Vail & Soenke, 2017) found that MS caused religious participants to rely more strongly on intuition (reduced need for cognition), whereas MS motivated atheist participants to increase critical thinking (need for cognition). And a third study (Vail & Soenke, 2017) found that MS caused atheists to express greater *desire* for but express reduced *belief* in religious concepts—indicating that atheists acknowledged the intuitive appeal of supernatural concepts but nevertheless rejected them. Each of the findings suggests that atheists may be analytically overriding the implicit activation of religious concepts when aware of death.

Other research has explored the idea that abstaining from religious belief leaves atheists (at least immediately) vulnerable to the negative impacts of existential threat. For example, in one study (Vail & Soenke, 2017) atheists reminded of death-reported lower perceived meaning in life, whereas Christians were unaffected. Such damaging effect of MS among atheists may, in turn, spur them to seek out and affirm death-denying secular worldview beliefs. Indeed, Vail and Soenke (2017) found that MS boosted atheists' certainty about their rejection of religion yet otherwise increased their ideological open-mindedness (reduced dogmatism), perhaps reflecting a search for viable secular beliefs. Future work might discover that instead of using religious beliefs, atheists manage death-related anxiety by relying upon secular beliefs, such as those based on knowledge/science (Farias, Newheiser, Kahane, & Toledo, 2013; Williams, Schimel, Hayes, & Faucher, 2013), love/work (Mikulincer, Florian, & Hirschberger, 2003; Yaakobi, 2015), compassion (Gailliot, Sillman, Schmeichel, Maner, & Plant, 2008), community (Motyl, et al., 2011), and moral progress (Rutjens, van der Pligt, & van Harreveld, 2009).

Colors of Religious Belief

Within the realm of believers, which is the majority of people around the world (Pew Research Center, 2015), variation in religious orientation appears to range along a continuum. The right-wing of the continuum seems to be characterized by strict fundamentalism, the center-wing by a softer yet genuine internalization of religious values and teachings, and the left-wing by a tolerant and open-minded exploration of the world's various religious beliefs.

Close-Minded Orientation

At the right-wing of the continuum are *religious fundamentalists*, believers who are intensely invested in their beliefs. The direct death-denying power

of religious belief can motivate believers to diligently follow their religion's prescriptions for righteous behavior, and fundamentalists believe their religion offers the basic inerrant truth about natural and spiritual issues, including the specific conditions to qualify for eternal spiritual life. Unsurprisingly then, the fundamentalist's approach is that their religion's truth must be strictly followed to the letter, and that deviation from those truths represents evil spiritual corruptions that must be forcefully resisted (Altemeyer & Hunsberger, 1992). From the TMT perspective, fundamentalists essentially put "all their eggs in one basket," focusing on their religion as the one and only correct way of life, strictly adhering to their religion to the exclusion of other worldview belief systems.

Research supporting that idea has shown, for example, that American Christian fundamentalists experience increased DTA when exposed to information that challenges the literal truth of the Bible (Friedman & Rholes, 2007; see also Koca-Atabey & Oner-Ozkan, 2011 for similar findings among Turkish Muslims). Likewise, whereas people low in religious fundamentalism still respond to MS with increased secular worldview defenses, religious fundamentalists do not (Friedman & Rholes, 2008). And when analyzing written responses to MS primes, fundamentalists exhibited less cognitive complexity but more peace, acceptance, and assurance about the afterlife—which statistically explained (mediated) why they did not tend to engage in secular worldview defense.

Instead, fundamentalists tend to adhere, strictly, to their religion's prescribed attitudes and behaviors. As one striking example, when faced with medical problems, fundamentalists may insist on faithfully following their religion's prescribed methods for physical healing through spiritual devotion (e.g., prayer), rather than modern scientific medical treatment. Such was the case for reggae legend Bob Marley, who developed a treatable form of cancer in his toe. However, his strict commitment to his Rastafarian beliefs led him to refuse the standard medical treatment (amputation of the afflicted toe)—a religion conviction that led to his otherwise-preventable death (White, 1983). Research has shown that existential concerns about death may motivate such faith-based medical refusals (Vess, Arndt, Cox, Routledge, & Goldenberg, 2009); when fundamentalists were reminded of death, they were more supportive of prayer over medical treatment and reported being more willing to rely on their faith alone to heal.

Such intense fidelity brings with it the potential for some toxic social relationships, as fundamentalists appear to be particularly hostile toward people of other faiths and sects when defending their own death-denying religion. Indeed, research shows that fundamentalism is associated with greater rejection of people with different sacred beliefs, greater racial prejudice and ethnocentrism, and greater defensive aggression and militarism (e.g., Altemeyer & Hunsberger, 1992; Henderson-King, Henderson-King, Bolea, Koches, & Kauffman, 2004). For example, the so-called Islamic State, a

group following the fundamentalist Wahhabi doctrine of Sunni Islam, insists on its own set of beliefs and rejects other religions—including other more tolerant sects of Islam, such as Sufism. As a result, in the predominantly Sufi region of Pakistan's Sindh province, in the town of Sehwan, Islamic State arranged an attack on Sufi worshipers during a sacred ceremony at the popular shrine to Sufi saint Lal Shahbaz Qalandar, killing at least 72 Sufi devotees and wounding another 250, making it one of the most violent sectarian attacks in years (BBC, 2017).

But, although existential concerns might otherwise motivate fundamentalists toward violent worldview defenses, it is important to remember that many religious beliefs include values like kindness, tolerance, and compassion. Biblical passages highlight Jesus' instruction to "love your neighbor as yourself" (Mark 12:31) and Quranic passages call on Muslims to "do good to others, as god has done good to you" (Sura 28:77). And it turns out that simply priming such prosocial religious passages can encourage similarly charitable and helpful behavior (Pichon, Boccato, & Saroglou, 2007; Shariff & Norenzayan, 2007). The fundamentalists' strict adherence to what they perceive as the inerrant word of god, contained in their religious scripture, then creates an interesting situation where a focus on prosocial scriptural teachings might conflict with fundamentalists' otherwise violent defense of the religion.

A series of studies tested that possibility (Rothschild, Abdollahi, & Pyszczynski, 2009). In the first study, American Christian fundamentalists were first exposed to MS (vs control topic), then presented with compassionate scriptural teachings (vs compassionate secular teaching vs neutral statements), and then asked to rate their support for violent worldview defenses. In the control conditions, fundamentalists supported extreme military actions against worldview threats abroad, including the use of chemical and nuclear arms and the collateral killing of thousands of civilians. When they were instead exposed to compassionate religious scripture, MS motivated them to follow those scriptural injunctions and they substantially reduced their support for violence. The finding was replicated in Iran among Shi'a Muslims (Rothschild et al., 2009). Together, these findings show that in light of fundamentalists' strict commitment to their religious faith and texts, making salient the more compassionate scriptural passages may be the key to promoting peaceful religious terror management even among fundamentalists.

Mainstream Orientations

At the center of the continuum is the difference between intrinsic and extrinsic religiosity. Believers who are *intrinsically religious* have genuinely internalized the teachings and values of their religion, and are focused on the spiritual rewards to be gained through faith. The *extrinsically religious*, however, are involved in religion for the social benefits and focused

on the cultural legacy to be gained through contributions to one's congregation. The contrast can perhaps be illustrated by famed Czech music composers Antonín Dvořák and Leoš Janáček. Consistent with intrinsic religiosity, Dvořák was a devout Christian who played organ for his church and composed sacred music such as his *Requiem*, *Te Deum* (God, we laud You), *Mass in D Major*, and his *Stabat Mater*—a choral piece inspired by the death of his daughter, Josephina, and based on an old church hymn of the same name (Clapham, 1979). In contrast, although Janáček similarly composed "sacred music," such as his *Otčenáš* (Our Father), Ave Maria, and his *Glagolitic Mass*, Janáček was an atheist and—consistent with extrinsic religiosity—is generally considered to have written such "sacred" music not as an affirmation of religious faith but as a celebration the Slavic people's cultural legacy.

Compared to extrinsic religiosity, however, intrinsically religious believers tend to successfully adhere to religious values, reducing anxiety and improving satisfaction and meaning in life (Batson, Schoenrade, & Ventis, 1993). Such intrinsic reliance on religious faith, therefore, may help foster a sense of existential protection—preventing the need for alternative terror management defenses. Consistent with that idea, when the intrinsically religious were made aware of death, affirming their religiosity led them to report an increased sense of self-efficacy, which in turn predicted an increased positive emotional experience (Fischer, Greitmeyer, Kastenmuller, Jonas, & Frey, 2006). In related research, believers high and low in intrinsic religiosity either were, or were not, allowed to affirm their religious beliefs. They were then reminded of death (vs control topic), and then given the opportunity to express allegiance to their hometown as a measure of secular worldview defense. When not first affirming their religiosity, MS led participants to boost secular defenses. However, when first affirming their religiosity, intrinsically religious participants no longer engaged in worldview defenses after MS. Such findings indicate that internalizing one's religious faith and spirituality, to the point of being one's intrinsically dominant orientation, can serve as a useful resource when managing existential concerns about death.

Open-Minded Orientations

At the left-wing of the continuum are the more open-minded orientations toward exploring religious ideas. For example, believers with a *quest orientation* may claim roots in one or another religious tradition, but may not regard any one religious faith as having an inerrant spiritual truth. As but one example, composer Gustav Holst (best known for *The Planets*) emerged from roots in Western Christian culture, yet also actively sought insightful and inspiring truths from the world's various religious and secular wisdom— from the Western literature of Walt Whitman and Thomas Hardy, to

astrology, to the Hindu hymns and epics of the *Rig Veda*, *Ramayana*, and *Mahabarata*. Likewise, formal syncretic religious denominations, such as the Unitarian Universalist church and the Baha'i Faith, draw from the texts and teachings of Christian, Jewish, Muslim, Hindu, Buddhist, Zoroastrian, and other faiths, in their open-minded pursuit of spiritual truth, connection to god, and moral understanding of the world. Accordingly, research shows that quest orientation is correlated with welcoming attitudes toward unfamiliar people and ideas (Batson & Stocks, 2004). And other work (Vess, Routledge, Landau, & Arndt, 2009) shows that people with low need for dogmatic belief structure, perhaps a component of quest orientation, renders people particularly likely to seek existential comfort through the exploration of novel ideas.

Related phenomena are the emergence of programs aimed at *ecumenical outreach* or *interfaith fellowship*. Open-minded religious orientations frequently offer the idea that believers of all faiths share common cause and are all, in a sense, children of god. And classic research, such as the Robber's Cave study (Sherif, Harvey, White, Hood, & Sherif, 1961), illustrated that although "us-them" competition can spin intergroup relations into a whirlwind cycle of violence, peace can be restored through the awareness of common cause—of superordinate goals. Building on that idea, and the common in-group identity model (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993), some work suggests that fostering common cause among religious groups through ecumenical or interfaith programs can help promote a more open-minded and more peaceful social orientation when managing death-related concerns.

For example, in one set of studies (Motyl et al., 2011), American participants read vignettes about people's favorite childhood experiences (e.g., playing at the beach, camping) and then recalled their own similar childhood experiences. In one condition, those vignettes were supposedly authored by fellow Americans (e.g., Michael, from Orlando); but in a second condition, they were supposedly authored by a diverse range of people from around the world (e.g., Miguel, from Cuernavaca). After MS, participants primed with common in-group identity became more tolerant of immigrants, accepting of Arabs, and supportive of international peace-building. A similar set of studies (Pyszczynski et al., 2012) found that after reminders of a common cause (combatting global climate change), compared to localized problems (flooding), MS led to reduced support for militaristic attitudes and increased support for international peacebuilding. Additional studies replicated that finding among samples of Israeli Arabs and Israeli Jews during the 2009 Israeli military incursion into Gaza; MS motivated greater support for peaceful coexistence among those who imagined global warming and had high perceptions of common humanity. Thus, when ecumenical outreach or interfaith fellowship fosters a sense of common cause, with all faiths as children of god, then existential motivation may lead believers to express mutual care

and concern, support cooperation and peace, and avoid the continued infliction of sectarian violence both at home and abroad.

HOW THE HUMAN BODY SHAPES RELIGIOUS TERROR MANAGEMENT

> *There is a doctrine about the nature and place of the mind, which is prevalent among theorists, [to which] most philosophers, psychologists, and religious teachers subscribe with minor reservations, [that] every human being has both a body and a mind...The body and mind are ordinarily harnessed together, but after the death of the body the mind may continue to exist and function... Such in outline is the official theory, 'the dogma of the ghost in the machine.'*
>
> Gilbert Ryle (1949, pp. 11−16)

The commonly held idea that the body is a temporary home to the immortal soul, characterized by Gilbert Ryle as "the dogma of the ghost in the machine," was articulated and championed by figures like Thomas Aquinas (1266/1981) and René Descartes (1641/1984). But the idea stretches back to the beginnings of human culture—from Ancient Egyptians' belief in an "eternal self" termed *ba* (Redford, 2004) to descriptions of a soul on ancient (c.700 BCE) funerary monuments in southeastern Turkey (University of Chicago, 2008). Indeed, the dualistic view of body and soul appears to be intuitive and developmentally natural (Bloom, 2004).

But why would anyone contrive that their mind is separate from their body? From a TMT perspective, the tendency toward dualism represents a psychological solution to the existential problem of humans' awareness of their body's physical, mortal limitations. Indeed, research shows that inner mental qualities are often perceived as living on after death while physical traits are not (Bering & Bjorklund, 2004), and that a dualistic view of body and soul is positively associated with afterlife belief (Preston, Ritter, & Hepler, 2013; Riekki, Lindeman, & Lipsanen, 2013; Thalbourne, 1996). TMT research also shows that existential motivation can only lead to religious belief—to death-denying faith in supernatural concepts such as souls, gods, and the afterlife—when people hold sufficient mind-body dualism beliefs (Heflick, Goldenberg, Hart, & Kamp, 2015). In that light, we first consider why people would view body and soul through the lens of dualism—as a ghost in the machine—believing in an immortal soul capable of flowing beyond the boundaries of its physical container.

The Ghost in the Machine

Since the beginnings of their awareness of mortality, we humans would have been witness to the eventual death of nearly every living being they found. And, equipped with that awareness, we would have been faced with

the realization that—despite now being primates able to put plasma screen TVs in every corner of our treehouses—we are still essentially walking, talking meat-bags, no more or less substantial than a lizard, lion, or ladybug. Like these other animals, we are creatures compelled to eat, drink, and have sex; and like other animals, we excrete all manner of fluids, discharge waste, catch diseases, age, wrinkle, warp, and eventually die. Such "creaturely" characteristics of our physical bodies serve as constant reminders of our natural limitations and impending demise. In that light, it is little surprise that research (Cox, Goldenberg, Pyszczynski, & Weise, 2007; Goldenberg, Cox, Pyszczynski, Greenberg, & Solomon, 2002) finds increased DTA when people are reminded of creaturely aspects of human nature, such as vulnerability to disease and injury, and basic body functions like peeing, pooping, and having sex.

The existential minefield of our physical vessels, then, creates the motivation to view ourselves as more than just another base, mortal animal. For example, in Buddhist legend the Shakya prince Siddhartha Gautama, who until age 29 had supposedly been shielded from suffering, repeatedly ventured by chariot beyond the walls of his palace to meet his subjects. On these trips, he witnessed for the first time aging, disease, and death. When his charioteer informed him that such vagaries await everyone, the future Buddha immediately absconded to adopt the life of an ascetic, attempting to overcome the body through yogic meditation and extreme purification rituals, including a fast that nearly killed him. In that regard, religious ideas often represent efforts to overcome the body—to rise above one's debauched physical nature.

Such renunciation of base, animal urges can be seen in religious restrictions on bodily functions, such as prolonged fasting, mandated celibacy, or proscriptions against masturbation; or seen in religious modifications to one's physical appearance, including head- or hair-coverings, full-coverage clothing, tattoos, and/or piercings, symbolically shrouding the physical ignobility of the body; or various religious body-purification rites, such as ritual ablutions (washing), baptism, circumcision, genital mutilation, and self-flagellation, highlighting some of the more extreme efforts of believers to distance themselves from the body's corporeal nature. Research supports the idea that religious efforts to overcome the body are driven by motivation for death-denial. Death awareness increases support for information that places humanity above other animals (Goldenberg et al., 2001), and motivates committed believers to feel more strongly disconnected from the natural world (Vess & Arndt, 2008). Such motivation to distance from one's body is consistent with the emergence of the dualist idea that we humans have souls separable from our bodies, and that there is an unseen spiritual realm in which these and other spirits exist.

Further, religions also offer that the soul is not subject to the limitations of the natural world. Through the purity of their souls, various religious

figures have supposedly performed miraculous feats, transcending the natural limitations of the body, from resurrection, to exorcism, telekinetic healing, and transfiguration. Believers are routinely struck with awe that Buddha could walk on water, fly through space, multiply himself into a million and back again, grow and shrink at will, and produce fire from his upper body and water from his lower body; that St. Joseph of Cupertino could fly; that Moses parted the Red Sea; that Mohammad ascended directly to heaven; and that Jesus healed the sick, died and rose again, and changed water into wine. Truth to such claims would be evidence that dualism-based concepts like souls and gods and afterlife exist, and that by following in the footsteps of such figures one's own soul can become so pure that it can similarly break beyond the otherwise natural limitations of the body to enjoy eternal life.

If such expressions of spiritual power over nature are existentially comforting, then religious believers would likely be bothered by the thought that their sacred religious figures are confined to the same carnal bodily functions as other mortal animals. Death-denying faith in the Buddha's spiritual purity might be undermined, for example, by thinking that he had to interrupt his holy meditations, at least occasionally, to poop; or likewise by thinking that the prophet Mohammad occasionally got sick and puked up his lunch. Indeed, research has found (Beck, 2008) that participants with greater death anxiety reported being more uncomfortable while reading about a series of body problems Jesus may have experienced, such as gross-looking teeth, disgusting breath, or diarrhea during illness. Similarly, when fundamentalist Christians were first reminded that Jesus likely sometimes puked, had disgusting body odor, or got hungry/thirsty, among other bodily functions, MS actually reduced their faith in god, religion, and literal afterlife (Cox, Heflick, Goldenberg, & St. Arnaud, 2017). Together, these findings suggest that death anxiety motivates people to avoid thinking about the creatureliness of their religious figures, because being faced with their creaturely characteristics makes it difficult to maintain faith in death-denying spiritual concepts.

Similar research supports the idea that belief in one's own supernatural forces can serve a death-denying function (Cohen et al., 2017). For example, flying is a unique upward supernatural gesture representing a dualistic ability to literally rise toward the "heavens," above the body's otherwise natural boundaries. Accordingly, death reminders led participants to report more fantasies about flying; and MS did not increase worldview defense and DTA when participants first engaged in fantasies about flying. Further, the palliative effect of flight fantasies after MS was explained (mediated) by the heightened perception that flying freed participants from the limits of the human body. This existential motivation to literally rise above one's bodily limitations is consistent with the development of the dualist perception that the self is in fact a soul—a ghost in the machine—a purely nonphysical

spirit, temporarily inhabiting one's body yet destined to forever inhabit an eternal spiritual realm.

The Machine in the (Holy) Ghost

'the dogma of the ghost in the machine'... is not merely an assemblage of particular mistakes. It is one big mistake...

Gilbert Ryle (1949, pp. 15–16)

Although Cartesian dualism—the idea that the self is an eternal soul, separate from the body—may be appealing, as it supports death-denying religious concepts, it does not hold up to scientific scrutiny. The emergence of modern neuroscience and psychophysiological research demonstrates that body and soul are not separate and equal entities metaphysically harnessed together (dualism), but are instead—to borrow the computer metaphor—the cybernetic "hardware" and "software" components of a single complex system (monism). We therefore refer the reader to Chapter 16 (this volume) to consider some of the emerging research revealing the machine in the ghost—how the "hardware" of the body/brain may implement terror management processes, including the "religious software" of the mind.

CONCLUSION

The human motivation to manage the awareness of mortality helps provide a more complete understanding of why religious belief has been such a stable and wide-reaching force in human culture. Terror management processes fuel the dualistic belief that the self is an immortal soul, separate from the mortal body, and motivates religious faith in the spiritual purity of sacred religious figures and in the power of souls to conquer the limits of the natural world. Similarly, the awareness of death fuels faith in supernatural immortality (e.g., afterlife), supporting myths about supernatural agency (gods, spirits, creation), and social behaviors designed to bolster and protect the perceived legitimacy of such religious beliefs. Thus, although there is of course variation in particular religious orientation, the motivation to manage the awareness of death drives the vast and colorful landscapes of religious pursuit of supernatural immortality.

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