



The Existential Quest: Doubt, Openness, and the Exploration of Religious Uncertainty

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ABSTRACT

Terror management theory suggests people can manage existential concerns through faith in their cultural systems, including religious beliefs. It is not clear, however, how people with a religious “quest” orientation manage such existential concerns. The present research explored the intersection between existential concern and religious quest. Quest individuals experience doubt, which comes at the cost of greater death-related anxieties (Study 1, $n = 654$), cognitions (Study 2, $n = 167$), and vulnerability against mortality reminders (Study 3, $n = 226$). Second, mortality salience (MS) led people high in quest to become more culturally open-minded (Study 4, $n = 100$), and less likely to believe-in or commit-to their supernatural agent (Study 5, $n = 120$). These responses were mitigated when quest individuals were first prompted to explore (a step toward resolving) their doubts and uncertainties (Study 6, $n = 462$). Implications for quest orientation and existential defense- vs. growth-motivation are discussed.

The music of composer Gustav Holst illustrates a connection between existential concerns (e.g., ill-health, mortality) and an approach to the world that involves doubts, open-minded exploration of cultural and spiritual ideas, and a willingness to face existential questions in all their complexity. Despite hopeful conservatory training in piano, Holst experienced severe health problems at an early age. By 21, he began exploring a less strenuous career in music composition and – though raised Christian – also began exploring non-Christian spiritual and philosophical ideas, including astrology, Hinduism, and Sanskrit literature (Holst, 1988; Short, 1990). Unsurprisingly, his musical compositions reflect his spiritual quest, including Christian church music (e.g., *Ave Maria*, *The Hymn of Jesus*); Hindu hymns, operas, and tone poems based on the Rig Vedas and the Ramayana (e.g., *Sita*, *Indra*); and his famed orchestral suite based on astrological mysticism (e.g., *The Planets*), which later inspired John Williams's musical scoring for the *Star Wars* films. Although unique and notable, Holst is in many ways representative of many who venture beyond their familiar religious beliefs in an existential quest.

The present research seeks to investigate and better understand the possible connection between existential concerns and religious quest orientation. Research based on terror management theory (TMT; Greenberg et al., 1986) suggests that people can manage their existential anxieties by maintaining faith in their various cultural systems, including religious beliefs. It is not clear, however, how people with a religious “quest” orientation might manage such existential concerns. Research on individual differences in religious orientation has identified that some believers experience their spirituality as a religious quest (Batson et al., 1993; Batson & Ventis, 1982), including: (1) doubts

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and uncertainty; (2) being open to other cultural belief systems; and (3) exploring existential questions in all their complexity. A series of six studies, therefore, explored the intersection of existential concerns and these three aspects of quest orientation. First, Studies 1–2 examine the idea that individuals with high quest orientation may value religious doubt, but at the cost of elevated existential concerns, such as preoccupation with the shortness of life and death-related cognitions. Study 3 similarly tests the idea that people high (vs. low) in quest orientation may be poorly protected against situationally elevated mortality awareness. Second, three studies explore the possibility that increased death salience motivates people high (vs. low) in quest to become more culturally open-minded (i.e., reduced ethnocentrism and authoritarianism, Study 4), and less likely to commit to their supernatural agent/God (Studies 5 & 6). Third, based on the meaning-making literature, Study 6 also tests whether such responses might be mitigated if high quest individuals are first prompted to explore (a step toward resolving) their religious doubts and uncertainties.

TMT and research

Building on the works of cultural anthropologist Ernest Becker (1971, 1973), TMT (Greenberg et al., 1986; Routledge & Vess, 2019) suggests that much of human activity is geared toward managing the potential for anxiety resulting from the awareness of death. From this perspective, people can ameliorate the threat of mortality by (a) subscribing to cultural worldviews, (b) maintaining close relationships with others, and/or (c) striving to become a valuable part of those sociocultural systems (i.e., self-esteem). Cultural worldviews, are socially constructed and validated belief systems that provide some form of permanence via symbolic and/or literal immortality (L. Rothschild et al., 2019). Symbolic immortality comes from having a lasting impact on the world, perhaps through music composition or contributions through family, education, government, science, or any number of other domains that impact the future of one's culture. Literal immortality is the idea of continued existence, either by simply not dying (e.g., via medical advances) and/or via eternal spiritual afterlife (e.g., heaven, reincarnation). Second, effective terror management can involve people's relationships with close others, which forms the basis of sociocultural activity (Mikulincer, 2019; Mikulincer et al., 2003). Finally, the extent to which people meet and/or exceed the standards and values of their permanence-promising cultural belief systems (i.e., self-esteem) helps to provide protection against mortality awareness (L. Rothschild et al.). These ideas have been tested and supported in hundreds of studies, in over 20 countries on at least five different continents (Burke et al., 2010; Routledge & Vess, 2019).

Much of terror management research has focused on testing three general hypotheses. First, according to the mortality salience (MS) hypothesis, if cultural worldviews, self-esteem, and close relationships provide protection against the awareness of death, then activating thoughts of mortality should motivate people to engage in "worldview defense." For example, reminders of death lead individuals to respond more favorably to persons and ideas that support their worldview and more negatively toward anyone and anything that threatens their beliefs (see, e.g., Burke et al., 2010; Greenberg et al., 2014 for reviews). This includes having a greater bias toward the in-group, engaging in aggressive behavior toward opposing others, expressing heightened support for violent solutions to religious and ethnic conflicts, and experiencing increased anxiety when using cultural icons in an inappropriate way (e.g., using one's national flag to sift sand from liquid dye; Pyszczynski et al.). These findings, and many more like them, are consistent with the TMT idea that mortality awareness typically motivates people to more strongly affirm and defend components of their cultural anxiety buffer.

Second, according to the anxiety-buffer hypothesis of TMT, when people are reminded of death, situationally activating one's sociocultural buffer (or chronically relying on it) will buffer against mortality-related cognitions, along with the need for other psychological defenses. Indeed, numerous studies have found that MS increases DTA (i.e., death-thought accessibility) and belief validation, but

not for those who affirm their cultural worldviews (Schmeichel & Martens, 2005; Vail et al., 2018), their close relationships with others (Mikulincer et al., 2003), and/or have increased levels of self-esteem (Harmon-Jones et al., 1997; Schmeichel et al., 2009). Importantly, TMT holds that effectively buffering death awareness is functional and key for psychological well-being because failure to effectively manage existential concerns can potentially cause anxiety and exacerbate anxiety-related symptoms (Juhl & Routledge, 2016). Indeed, when people lack effective anxiety-buffers, mortality reminders can undermine meaning in life, leaving individuals vulnerable to deficits in psychological well-being (Edmondson et al., 2008; Routledge et al., 2010; Simon et al., 1998).

Third, according to the anxiety-buffer disruption hypothesis (Yetzer & Pyszczynski, 2019) and the death-thought accessibility (DTA) hypothesis (Schimel et al., 2019), if one's sociocultural systems function to buffer against existential concerns, then doubts about them should increase mortality-related anxieties and cognitions. Indeed, death anxiety is positively associated with threats to one's worldview belief systems as well as traumatic events that cast doubt on one's assumptions about the world (Janoff-Bulman, 1992; Vail, Courtney et al., 2019; Vail, Reed et al., 2019). Research also finds that participants experience heightened DTA in response to social threats that cast doubt on one's cultural belief systems (Schimel et al., 2007).

TMT and religious belief

From the perspective of TMT, religious beliefs offer an effective means of addressing the awareness of death (Vail et al., 2010; Vail, Soenke et al., 2019), and are unique in that they offer both non-supernatural and supernatural paths to a sense of permanence. In terms of the non-supernatural, believers can take meaningful steps toward contributing to their culture via social means, such as financially supporting their religious organizations, raising children in their faith, and proselytizing or otherwise influencing society through their faith-based activities. But religions are uniquely powerful in addressing existential concerns because they also offer *supernatural* immortality. As just a few examples, Hinduism offers permanent release of one's spirit (*moksa/nirvana*) from the cycle of rebirth and death (*samsara*), Islam offers the eternal gardens of delight (*jannat al-na'im*), and Christianity offers an afterlife (e.g., heaven). Each religion outlines a unique path to that eternal spiritual reward, such that followers can manage their existential concerns by living up to the various standards, values, and practices of one's religious community while striving for literal immortality.

Consistent with this view, research has found that death awareness motivates believers to more ethnocentrically commit to their religious beliefs, defends them against critics, and rejects alternative or "competing" worldviews. For example, Greenberg et al. (1990) found that MS led Christians to ethnocentrically commit to their own death-denying religious worldview by increasing support for a fellow Christian while expressing greater dislike toward a Jewish person. Similarly, reminders of mortality led Indonesian Muslims (but not non-Muslims) to bolster their support for a fellow student who advocated for government adoption of Islamic law (*Sharia*) and derogated the new Ahmadiyya sect as heretics (Iqbal et al., 2016). This is consistent with other work demonstrating that MS increased Iranian students' support for martyrdom missions in defense of Islam (Pyszczynski et al., 2006), and Jewish Israelis' support for retributive violence against groups like Hamas (Hirschberger et al., 2016).

Other research has investigated the role of belief in supernatural immortality in managing existential concerns. For example, religious believers reminded of death have been shown to increase their faith in afterlife (Osarchuk & Tatz, 1973), and that participants with a strong afterlife belief view death as having more positive and fewer negative implications (Schoenrade, 1989). More recent studies have experimentally tested whether affirming supernatural immortality buffers against the effect of MS on worldview defensive responses (Dechesne et al., 2003; Kastenmüller et al., 2011). In these experiments, half of the participants read an article (falsely) claiming that Harvard medical researchers studied out-of-body, near-death experiences and concluded that such experiences could be attributed to the existence of an afterlife. The other half of participants read an article debunking those experiences as a by-product of biological processes (e.g., oxygen deprivation in the brain). Consistent with TMT,

MS led to the typical increase in worldview defensive strivings (e.g., self-esteem striving, Westerners' prejudice against Muslims) in the afterlife-debunked condition, but that effect was eliminated (buffered) when participants read the article affirming the existence of an afterlife.

The presumed existence of Gods, spirits, and other supernatural agents further helps to manage existential concerns by suggesting that immortal spiritual existence does indeed transcend human limitations and is a real possibility. Several studies have tested this idea using the DTA hypothesis. For example, DTA increases among religious believers and creationists if they read a scientific article challenging creationism (supernatural agency) in favor of evolution (Schimmel et al., 2007); when they read an article questioning the divinity of Jesus (Webber et al., 2015); or when prompted to think about atheists (Cook et al., 2015). Other research utilizing the MS hypothesis has found that thoughts of death increase faith in intelligent design (supernatural agency) and discomfort with evolution theory (Tracy et al., 2011), and not only boosts general religious faith but also specifically increases faith in God and divine interventions (Jong et al., 2012; Norenzayan & Hansen, 2006). Further, research has also demonstrated that MS motivates believers to ethnocentric (worldview defensive) expressions of faith (Vail et al., 2012). That is, mortality awareness motivated American Christians to increase faith that Jesus/God exists, answers prayers, and can intervene in the world, and more strongly *reject* faith in Allah and Buddha; likewise, MS led Iranian Muslims to increase faith that Allah exists, answers prayers, and can intervene in the world, and *reject* faith in God/Jesus and Buddha.

Overall, research on the terror management function of religion has found effects similar to secular belief striving following reminders of mortality. In other words, people are likely to turn to their spirituality in response to MS (i.e., MS hypothesis), religion serves an anxiety-buffering function against the awareness of death for its followers (i.e., anxiety-buffering hypothesis), and undermining the integrity of individuals' religious beliefs increases DTA (see, e.g., Vail et al., 2010; 2019 for reviews). These effects, however, can be influenced by variations in religious orientation.

Variation in religiousness: exploring religious quest orientation

Although the above research suggests that religion helps to mitigate existential concerns, individuals vary in their spiritual orientations. One such distinction is between intrinsic and extrinsic religiosity (Allport, 1966; Allport & Ross, 1967). Persons with an extrinsic religious orientation value faith because it can provide personal emotional comforts and instrumental social advantages. Those with an intrinsic religious orientation, in contrast, participate in religion out of deep-seated spirituality, often finding meaning and value in the content/dogma of their religion. Indeed, many studies find that intrinsic orientation is correlated with internalized religious belief and commitment, whereas extrinsic orientation is not (Donahue, 1985). As such, those with stronger intrinsic orientations are more likely to derive terror management benefits from their religious beliefs (Jonas & Fischer, 2006; Van Tongeren et al., 2013). For example, the intrinsically religious report greater meaning in life and reduced death anxiety (Van Tongeren et al., 2017), along with feeling less threatened by Jesus' corporeal nature (e.g., vomiting, sweating) (Arrowood, Cox et al., 2018).

However, Batson (1976, 1993) argued that, although intrinsic and extrinsic religiosity are important, they leave out a critical third orientation. Building on work in theology (Bonhoeffer, 1953; Gandhi, 1948; Niebuhr, 1963; Tillich, 1951) and psychology (e.g., Bertocci, 1958; Fromm, 1950; Maslow, 1964), Batson proposed a religious "quest" orientation characterized by: (1) valuing religious doubt and uncertainty as an important aspect of spiritual maturity; (2) recognizing the tentativeness and incompleteness of any one set of religious or cultural answers to existential questions, and thus remaining open to new ideas and ways of life; and (3) a willingness to both resist simple clear-cut answers and to explore existential questions in all their complexities. As we note below, research has largely supported the validity and importance of each aspect of quest orientation. Such characteristics represent a set of noteworthy deviations from mainstream religiosity and create a number of questions about how people high in quest may be influenced by existential concerns. We turn now to those issues and forecast a series of six studies to address those questions in the present research.

Doubt

First, quest is associated with religious doubts and uncertainties (Klaassen & McDonald, 2002). Although people with high quest orientation may have doubts and uncertainties about religious ideas, it appears to come at some cost to psychological peace. Quest is related to personal distress (Genia, 1996), trait anxiety (Lavrič & Flere, 2010), emotional instability/neuroticism (Francis, 2010; Henningsgaard & Arnau, 2008; Hills et al., 2004), and both a lower perception-of and greater search-for meaning in life (Van Tongeren, Davis et al., 2016), which suggest that quest-oriented religious doubts are uncomfortable and worrisome. From a TMT perspective, there is reason to believe that quest is associated with heightened existential concerns, such as death-related anxieties and cognitions. Henrie and Patrick (2014), for example, found that whereas religiousness was inversely related to death anxiety, religious doubt was positively associated with mortality concerns. In another study, Van Tongeren and colleagues (2016) directly investigated the implication for quest and found that individuals scoring high on this trait experience higher anxieties about death. In Study 1 of the present research, we, therefore, sought to replicate and extend this finding.

Similarly, if doubt undermines or weakens the death-denying religious beliefs, then people high in quest should be vulnerable to increased mortality-related cognitions (i.e., DTA hypothesis). Although no prior work has investigated this hypothesis regarding quest, one can find suggestive evidence with religious fundamentalism, which is negatively associated with religious doubt (Altemeyer & Hunsberger, 2004). One such study (Friedman & Rholes, 2009) found that religious fundamentalism was negatively associated with DTA. In the present context, this might suggest that confident faith helps buffer against death-related thoughts whereas religious doubts and uncertainties, such as those associated with quest, undermine one's existential protections resulting in increased mortality awareness. However, no prior research has directly addressing these ideas. Therefore, the present Study 2 explored whether the quest is associated with increased DTA, and Study 3 similarly tested whether people high in quest might be poorly protected against MS-induced death cognition whereas those low in quest (i.e., lower doubt, more confident faith) might be more effectively buffered.

Open-mindedness and tentativeness

Second, high quest persons recognize the tentativeness of religious ideas and have an open-minded approach to various cultural and spiritual ways of life. For example, quest is associated with general relativism – rejecting the idea of universal moral principles and taking an active/flexible approach to making meaning for oneself depending on situational and personal considerations (McHoskey et al., 1999). In terms of social attitudes, individuals high in quest have a greater empathic concern, perspective-taking, and openness (Ghorbani et al., 2007; Henningsgaard & Arnau, 2008), as well as increased tolerance and acceptance of those with culturally dissimilar ways of life (e.g., Muslims, Buddhists, Hindus, Jewish; Rowatt et al., 2005; Van Tongeren et al., 2016). With respect to religiosity, quest-oriented folks tend to avoid characterizing Gods in specific or agentic ways (e.g., authoritarian, benevolent) and instead think of them as more mystical and ineffable (Johnson et al., 2018). The present work further explored the influence of existential concern upon these aspects of quest orientation.

Regarding social attitudes, several studies have found that MS can motivate people to become less ethnocentric and more open-minded about culturally dissimilar people and ideas when values of empathy, equality, and tolerance are primed (Vail et al., 2012 for review). The present Study 4, therefore, explored the previously untested idea that, among those with high quest orientation, MS might similarly motivate open-mindedness toward culturally novel persons and ideas. Further, regarding religious attitudes and beliefs, quest orientation involves an open-minded approach to other various cultural/spiritual ways of life and yet also recognizes the tentativeness of religious ideas. We thus explored the novel predictions that, among those with high quest orientation, MS would (in Studies 5–6) increase spiritual independence and open-mindedness by avoiding commitment-to or dependence-upon God (avoidant attachment to God).

Engaging complexity

Third and finally, quest is associated with resisting simple clear-cut answers and a willingness to explore existential questions in all their complexities. Religious fundamentalism represents exactly the view that one's faith offers simple clear-cut answers; as Altemeyer and Hunsberger (1992) wrote, fundamentalism is "the belief that there is one set of teachings that clearly contains the fundamental, basic, intrinsic, essential, inerrant truth about humanity and deity . . . [and] that this truth must be followed today according to the fundamental, unchangeable practices of the past" (p. 118). Indeed, many studies have found quest orientation is negatively correlated with religious fundamentalism (e.g., Genia, 1996; Rowatt & Franklin, 2004; Van Tongeren et al., 2016), but also the more general construct of closed-minded ideological dogmatism (Crowson, 2009). Further, in contrast to those high in fundamentalism, when quest believers were prompted to write about religious topics (e.g., the role of religion in morality; life after death), and non-religious topics (e.g., quality of education in the US) (Weeks & Geisler, 2017), they tended to engage in greater integrative complexity of considering two or more competing perspectives and delving deeply into each of those various ideas (Conway et al., 2008; Suedfeld et al., 1992). We suggest that this willingness to explore religious questions and uncertainties is one way that believers high in quest orientation seek to find spiritual meaning and quiet their existential concerns.

Although no such prior work has directly addressed the issue, there are several suggestive areas of research. The first is the religious meaning-making model (Park, 2010, 2020), which posits that when believers experience doubts about their religious beliefs, it can initiate efforts to engage in in-depth reappraisals of the religious landscape – thus potentially helping to restore meaning and quiet existential concerns/stressors. Second, TMT research has examined existential motivations among individuals with a high and low personal need for structure (Vess, Routledge et al., 2009). High need for structure reflects a broad preference for clear-cut and stable information, whereas low need for structure reflects (similar to quest orientation) a broad resistance to simple clear-cut conclusions and an interest in exploring novel possibilities or unfamiliar information (Neuberg & Newsom, 1993). In their research, Vess and colleagues found that MS undermined the sense of meaning in life among those with a low need for structure, but buoyed it if they were first prompted to consider culturally unfamiliar ways of life or novel interpretations of the world. The third is research on uncertainty-identity theory (Hogg, 2014; Hogg et al., 2010), compensatory zeal (I. McGregor, 2006), and uncertainty management theory (van den Bos, 2009). Collectively, these perspectives suggest that considering personal uncertainties can, in response, motivate efforts to bolster religious convictions (I. McGregor et al., 2008, 2010; van den Bos et al., 2006), perhaps reflecting existential "meaning made." In that light, Study 6 not only tested the idea that MS would normally motivate individuals high in quest to increase their tentative avoidance of God (i.e., avoidance), but also whether this effect would be attenuated if we first prompted them to explore their religious doubts and uncertainties.

Overview of the present research

First, Study 1 examines the relationship between quest orientation and death anxiety; Study 2 investigates whether the quest is associated with DTA; and Study 3 similarly tests whether people high in quest might be poorly protected against MS-induced DTA. Second, we explored the idea that, among those with high quest orientation, MS might motivate open-mindedness toward culturally novel people and ideas (Study 4) and increase the desire to maintain spiritual independence from God (i.e., avoidant attachment; Studies 5–6). Third, the latter effect was expected to diminish if we first prompted them to explore their religious doubts and uncertainties (Study 6).

All studies, measures, manipulations, and exclusions are disclosed, and all materials anonymized data, and commented analytic code for each of the present studies is available here: https://osf.io/7g3be/?view_only=273fccbecd46453192ddbe42590c9b4b. Further, in each of the following studies, we used G*Power (Faul et al., 2009) *a priori* power analyses for planning minimum sample sizes required to detect a given effect size (prior to data collection), and sensitivity power analyses to determine the smallest detectible effect size given the final sample sizes (after data collection).

Study 1

Quest is conceptualized as a mature religious orientation that values doubt and uncertainty as an important aspect of spirituality (Batson, 1976; Batson et al., 1993; Batson & Ventis, 1982). From the TMT perspective, that doubt may come at a cost. According to the anxiety-buffer disruption hypothesis (Vail, Reed et al., 2019; Yetzer & Pyszczynski, 2019), doubts about one's death-denying religious worldview would undermine one's anxiety buffer, thereby increasing existential concerns. Indeed, one study found religious doubt was positively associated with death-related anxiety (Henrie & Patrick, 2014), and another demonstrated quest orientation (specifically) was related to death anxiety (Van Tongeren et al., 2016). The present research first sought to replicate and extend this finding. Study 1 measured quest orientation as well as both a direct and indirect form of existential concern – death anxiety and preoccupation with the shortness of life – with the hypothesis that quest orientation would be associated with both forms of existential concern.

Method

Participants

Sample size

The present research adopted the strategy of using an effect size threshold to determine the minimum sample size. Van Tongeren and colleagues (2016) observed a modest association between quest and death anxiety ($b = .17$). Utilizing an *a priori* power analysis for Pearson's r (i.e., G*Power; Faul et al., 2009), with power set to .80 for detecting similarly small effects ($r = .15$) at $p = .05$, the recommended sample size was 346 participants.

Participants

For all experiments reported herein, only data from religious individuals were obtained or analyzed. This is because the quest is a religious orientation, with prior research demonstrating markedly different responses to existential threat between religious and non-religious samples (e.g., atheists, agnostics; Jong et al., 2012; Vail, Arndt, et al., 2012; Vail & Soenke, 2018). A total of 712 participants were recruited from the psychology department research pool and given partial course credit in exchange for their time. Thirteen persons indicated they were atheists, 35 indicated being agnostic, nine did not indicate any religious persuasion, and one religious participant did not complete the death anxiety item. Fifty-eight participants were thus excluded prior to analyses. The final sample consisted of 654 individuals who were predominantly Christian (423 Christian, 26 Protestant, 179 Catholic, 4 Jewish, 3 Muslim, 3 Buddhist, 2 Hindu, 14 Other); were college-age adults ($M_{age} = 19.08$, $SD = 2.17$); included 518 females and 136 males; and were mostly White (514 White, 22 Black, 21 Asian, 60 Hispanic/Latino, 2 Native American, 33 "other/unknown," and 2 who did not report). We further conducted a sensitivity power analysis (Faul et al., 2009) and found that this sample size was capable of detecting effects as small as $r = .08$ or stronger should one be present.

Materials and Procedure

Participants completed various measures as part of the research pool's online mass survey; we obtained data pertaining only to basic demographics and the target measures below. All materials in this and subsequent studies were approved by the Universities' Institutional Review Boards.

Eligibility (i.e., religious identification)

Exclusion was determined via an eligibility screener item, as follows: What religion or philosophy are you affiliated with, if any? 1) Christian; 2) Protestant; 3) Catholic; 4) Jewish; 5) Muslim; 6) Atheist; 7) Agnostic; 8) Buddhist; 9) Hindu; 10) Other _____.

Quest orientation

Participants completed the 12-item Quest Scale (Batson & Schoenrade, 1991a, 1991b). Items were rated on a 9-point scale (1 = *Strongly Disagree*, 9 = *Strongly Agree*). Example statements are: “My life experiences have led me to rethink my religious convictions” and “I am constantly questioning my religious beliefs.” As in previous research (Altemeyer & Hunsberger, 1992; Van Tongeren, Davis et al., 2016), the measure formed a reliable composite ($\alpha = .82$; $M = 4.30$, $SD = 1.28$). Thus, a mean score was calculated such that higher scores indicated greater quest orientation.

Death anxiety

Following prior research (Abdel-Khalek, 1998; Cox et al., 2012), participants completed a single item assessing death anxiety (i.e., “I am bothered by the thought of my mortality”) measured on a 7-point scale (1 = *not at all true*, 7 = *very true*; $M = 3.56$, $SD = 1.88$). Abdel-Khalek (1998) found that this single-item measure accurately and reliably correlated with multiple-item measures of fear of death across time periods was similarly related to other concepts and has the advantage of efficiency.¹

Preoccupation with brevity of life

We also included a single item to measure whether participants “often think about how short life really is” measured on a 7-point scale (1 = *not at all true*, 7 = *very true*; $M = 4.12$, $SD = 1.77$).

Demographics

Participants were asked basic demographic information, such as age, sex, and race.

Results and discussion

A correlation analysis found that quest was positively associated with death anxiety ($r[654] = .12$, $p = .003$, $R^2 = .01$) and a preoccupation with the shortness of life ($r[654] = .15$, $p < .001$, $R^2 = .02$). This finding replicates the effect observed in prior research (Van Tongeren, Davis et al., 2016), which similarly found a modest association between quest orientation and death anxiety. It also converges with previous work suggesting that disrupted or impaired terror management buffers (e.g., low self-esteem, meaning in life) can fail to effectively buffer against existential concerns, thereby leaving people vulnerable to negative affective experiences and reduced well-being (Juhl & Routledge, 2016; Yetzer & Pyszczynski, 2019).

Study 2

Study 2 was designed to test whether quest orientation might also be associated with an increased accessibility of death-related cognition. Prior work has found that a fundamentalist religious orientation, which is inversely related to quest (Van Tongeren, Davis et al., 2016), is associated with lowered DTA (Friedman & Rholes, 2009). Further, other studies demonstrate that challenging creationists’ and religious fundamentalists’ beliefs can increase DTA (Friedman & Rholes, 2007; Schimel et al., 2007). No research has explored the connection between religious quest orientation and death cognition. Because quest is characterized (in part) by religious doubts, potentially undermining the effectiveness as a spiritual buffer, we hypothesized that quest orientation would be associated with greater DTA.

¹Note that we rely on two single-item measures here in Study 1; this is not necessarily a limitation, as single-item measures may often be conceptually suitable and ideally efficient (Brehm, 2004).

Method

Participants

Sample size

In light of prior work (Friedman & Rholes, 2009) showing a medium-sized association ($\beta = -.50$) between religious fundamentalism and DTA, an *a priori* power analysis for Pearson's r with power set to .80 for detecting similarly sized effects ($r = .30$) at $p = .05$ (i.e., G*Power; Faul et al., 2009) recommended at least 84 participants.

Participants

One-hundred and sixty-seven participants were recruited from the psychology research pool and given partial course credit in exchange for their time. Participants were predominantly Christian (98 Christian, 6 Protestant, 49 Catholic, 1 Jewish, 2 Muslim, 1 Buddhist, 3 Hindu, 7 Other); were college-age adults ($M_{\text{age}} = 19.16$, $SD = 2.99$); included 140 females and 27 males; and were mostly White (121 White, 3 Black, 11 Hispanic, 9 Asian, 23 Other). A sensitivity power analysis (Faul et al., 2009) found that this sample size was capable of detecting effects as small as $r = .15$ or stronger should any be present.

Materials and procedure

Target measures

Participants completed an online Qualtrics survey, titled "personality and social judgements." This was comprised of a large set of questionnaires, including the target measures of quest orientation and DTA.

Quest orientation

Participants completed the same 12-item ($\alpha = .84$) Quest Scale used in Study 1, measured again on a 9-point scale (1 = *Strongly Disagree*, 9 = *Strongly Agree*).

Death-thought accessibility (DTA)

To measure DTA, participants were given 25-word stems and asked to complete them with the first word that came to mind. This task presents persons with a series of word fragments, six of which can be completed with a neutral or death-related word. This measure has been used successfully and validated in many prior terror management studies (Greenberg et al., 1994; Schimel et al., 2007; see Hayes et al., 2010 for comprehensive review). The target fragments and death-related answers were: BUR __ D (*buried*), DE __ (dead), GRA __ (grave), KI __ ED (*killed*), SK __ L (*skull*), and COFF __ (*coffin*). Non-death-related word completions were scored 0, whereas death-related word completions were scored 1. Sums were calculated such that higher DTA scores reflected greater accessibility of death-related cognition.

Other measures

The large survey included a broad variety of other measures; some were included for unrelated reasons (i.e., social desirability, fear of public speaking, mood measure) and some were included for exploratory purposes. Analyses of these measures were not critical to the present research and so are not described in the present paper; however, a description of the exploratory goal, materials, and analytic details is available in the online supplement.

Results and discussion

Quest orientation was positively associated with DTA, $r(167) = .15$, $p = .05$, $R^2 = .02$. This result complements prior work showing that a religious fundamentalist orientation (i.e., adopting a strong

faith in one's religion) was associated with lower DTA whereas low fundamentalism (i.e., associated with quest orientation; Van Tongeren et al., 2016) was related to higher DTA (Friedman & Rholes, 2009). The present research is therefore the first to observe the relationship between quest and mortality-related concerns without any prime, under presumably natural/neutral conditions, and found a modest negative relationship.

Study 3

The results of the two previous studies suggest that although people high in quest may value doubt, it comes at a cost. Quest orientation was associated with increased existential concerns, including death anxiety, preoccupation with the brevity of life (Study 1), and an increased accessibility of mortality-related cognition (Study 2). This suggests that people with quest-related doubts and uncertainties may not be well protected from existential concerns. But whereas Studies 1 and 2 relied on correlational methods, Study 3 used an experimental approach to test whether people high in quest might be poorly protected against MS-induced DTA whereas those low in quest (i.e., persons who are more confident in their religious faith) might be more effectively buffered against MS-induced DTA.

Prior studies have found that without a suitable anxiety buffer in place, reminders of death can increase mortality-related concerns and undermine well-being. For example, MS has led to heightened DTA among believers with low intrinsic religious orientation but not among those with high intrinsic religiosity (Jonas & Fischer, 2006). Thus, keeping in mind that quest orientation involves doubt rather than intrinsically internalized religious faith (Klaassen & McDonald, 2002; Rowatt & Franklin, 2004; Rowatt et al., 2005), and that low quest is associated with more confident religious faith (Genia, 1996; Van Tongeren, Davis et al., 2016), in Study 3 we hypothesized that MS (vs. a control topic) would increase DTA among participants high in quest orientation but not among those with low quest.

Method

Participants

Sample size

A meta-analysis of prior research (Steinman & Updegraff, 2015) found that MS manipulations produce a large effect ($g = .70$; $f = .35$) on DTA. An *a priori* power analysis for *F*-family tests² involving a categorical variable (MS vs. control), a continuous variable (quest), and their interactions (G*Power; Faul et al., 2009) indicated that a minimum of 90 participants would be needed to detect a medium effect size of $f = .30$ (or stronger) at $p = .05$ with at least .80 power.

Participants

A total of 226 participants were recruited from Amazon's Mechanical Turk (MTurk) and compensated U.S. 1.00. USD Participants tended to be middle-aged adults ($M_{\text{age}} = 37.71$, $SD = 11.99$), and included 132 females and 94 males, were mostly White (177 White, 26 Black, 8 Asian, 11 Hispanic/Latino, 4 Other), and identified as Christian (152 Christian, 28 Protestant, 46 Catholic). No participants were removed in Study 3. Using the eligibility item from Studies 1 and 2, participants who were not religious were unable to take the survey. That is, a skip-logic was used such that any participant who did not identify themselves as a religious believer was immediately redirected to the end of the survey and no data were collected from them. A sensitivity power analysis (Faul et al., 2009) found the sample size (226) was capable of detecting an effect as small as $f = .187$ (a small effect) or stronger should one be present.

²The G*Power ANCOVA model was selected for sample size planning because the present work involves a Quest (continuous) x 2 (MS vs. neutral) design, and the G*Power ANCOVA model is able to calculate sample sizes needed to detect interactions between a continuous "covariate" (quest) and a categorical variable (MS vs. neutral).

Materials and procedure

The study was hosted on Qualtrics and posted on Amazon's MTurk using the neutral title "personality and social judgments." Participants completed the quest scale amid some filler measures to disguise the true purpose of the study. They were then randomly assigned to either an MS or a neutral condition, followed by the DTA measure. Materials were presented in the following order.

Demographics and eligibility

The study began with a brief demographic survey containing the eligibility item described in Study 1.

Quest orientation

Participants completed two sets of filler items (12-item personal need for structure,³ Neuberg & Newsom, 1993; 36-item experiences in close relationships, Brennan et al., 1998). Following this, everyone completed the same 12-item ($\alpha = .85$, $M = 4.71$, $SD = 1.56$) Quest Scale used in Studies 1 and 2, measured on a 9-point scale (1 = *Strongly Disagree*, 9 = *Strongly Agree*). This was followed by another set of filler items (the Rosenberg self-esteem scale), thus embedding the target quest measure amid a larger set of unrelated scales.

MS manipulation

Participants were randomly assigned to either an MS or control condition, ensuring that any extraneous individual differences (e.g., religiosity, open-mindedness) were equally distributed across the MS and control conditions. Following prior research (Landau et al., 2011; Maxfield et al., 2007), all participants completed a 16×16 word search puzzle which manipulated the subtle presentation of either death-related or neutral words. In both conditions, the task began with instructions to find a set of 10 neutral words (e.g., *computer*, *baseball*) and note them down in the order in which they were found. However, in each condition, the word search also contained nine other "decoy" words (the prime words) that were not listed in the target list of words to be found. In the MS condition, the decoys included death-related word primes (*death*, *dead*, *decay*, *die*, *funeral*, *grave*, *kill*, *burial*, & *corpse*). In the neutral condition, the decoys were instead more neutral words (e.g., *lead*, *scene*). The number of decoy words was equal across conditions. In this and all subsequent studies using this method (Studies 4–6), participants needed to spend at least 30 s on this task.

Also, prior research (Kosloff et al., 2019; Pyszczynski et al., 1999) has found that (a) when death-thought is in conscious attention people may wield their self-regulatory resources to reduce the awareness of death (e.g., effortful suppression, or pseudo-logical attempts to thwart death via health and safety checks); but (b) when death-thought is still active/accessible yet outside conscious awareness, people may cope less rationally with the concept of impermanence by striving for a cultural sense of permanence (adopting worldviews that promise legacy/afterlife, and living up to their relevant standards/values; i.e., self-esteem striving and worldview defenses). So, for research interested in studying the impact of MS on cultural responses (such as the present work), the goal of the manipulation procedure is to activate death-related cognitions and ensure that they're outside focal conscious awareness before measuring the target DV. If we use an explicit MS prime – such as a direct essay prompt (see Study 6) – it will activate conscious death thought and so more distracter/delay tasks are needed to move those thoughts outside conscious awareness before assessing the DV. However, research shows that with subtle MS priming techniques – a subliminal prime or a non-obvious prime,

³In this and the other present studies, we rather unsystematically used personal need for structure measure, the experiences in close relationships measure, and the Rosenberg self-esteem measure as filler items at the beginning of the studies. We are aware, of course, that other research has found such measures are implicated in terror management effects. However, the present research studies are not concerned with these variables; they were included merely as filler items and are beyond the scope of the present hypotheses focused on quest; thus, for the sake of brevity, they are not directly analyzed in the present paper. However, we have made the data for each of the present studies open and permanently available (https://osf.io/7g3be/?view_only=273fccbecd46453192ddb42590c9b4b) so that interested researchers may further examine those variables for future research, as appropriate.

such as a word-search task with hidden “decoy” prime words (Studies 3, 4, 5) – death-related cognitions become active even though participants did not focus their conscious awareness on it, so few or no delay/distracter tasks are necessary before assessing the DV (e.g., Maxfield et al., 2007; see Cox et al., 2019 for methodological review).

DTA

Participants then completed the same measure of DTA ($M = 2.04$, $SD = 1.05$) as described in Study 2.

Results and discussion

Utilizing a hierarchical multiple regression, main effects were examined first, followed by the 2-way interaction between Quest x MS (death vs. neutral) on DTA. Quest scores were mean-centered, the MS manipulation was dummy-coded (e.g., 0 = MS; 1 = Control), and the interaction term was computed by multiplying them. Quest and MS were entered in the first step and the interaction term entered in the second.

There was no main effect of MS, $b = -.12$ ($SE = .14$), 95% C.I. [-.39, .16], $\beta = -.06$, $t = .83$, $p = .406$, $R^2 = .003$, nor a main effect of Quest $b = .07$ ($SE = .05$), 95% C.I. [-.02, .16], $\beta = .10$, $t = 1.47$, $p = .143$, $R^2 = .01$. However, there was a significant Quest x MS interaction, $b = -.20$ ($SE = .09$), 95% C.I. [-.38, -.02], $\beta = -.23$, $t = 2.23$, $p = .027$, $R^2 = .02$. The nature of the interaction was examined by adjusting the quest scores $\pm 1SD$; estimated mean DTA scores are reported in [Table 1](#). Among those with high (+1SD) quest scores, DTA was greater in the MS than the neutral condition, $b = -.43$ ($SE = .20$), 95% C.I. [-.81, -.04], $\beta = -.20$, $t = -2.17$, $p = .031$, $R^2 = .02$. In contrast, among those low in quest (-1SD), there was no significant difference between death and neutral conditions on DTA, $b = .20$ ($SE = .20$), 95% C.I. [-.19, .59], $\beta = .10$, $t = 1.01$, $p = .313$, $R^2 = .004$. Looked at differently, simple slope analyses revealed that quest was unrelated to DTA in the neutral condition, $b = -.02$ ($SE = .06$), 95% C.I. [-.14, .10], $\beta = -.03$, $t = .33$, $p = .744$, $R^2 < .001$. When reminded of mortality, however, quest was positively associated with DTA, $b = .18$ ($SE = .07$), 95% C.I. [.05, .32], $\beta = .27$, $t = 2.66$, $p = .008$, $R^2 = .03$ (see [Figure 1](#)).

The results of Study 3 revealed that MS increased DTA among Christians high in quest orientation, whereas it did not among those low in quest. This finding is broadly consistent with the present analysis and converges with prior research suggesting that those high in quest are poorly protected against reminders of death (Arrowood, Coleman et al., 2018). Together, the results of Studies 1–3 were broadly consistent with the idea that believers with high quest orientation may value religious doubt, but at the cost of elevated existential concerns and ineffective buffering against MS-induced death thoughts. We next explore the possibility that increased death awareness may motivate people high (vs. low) in quest orientation to become more culturally open-minded.

Study 4

In addition to doubt, quest is characterized by an open-minded approach to other various cultural and spiritual ways of life. Research finds that people high in quest orientation reject the idea that there are universal moral principles and instead take a more flexible approach to finding meaning (McHoskey et al., 1999), as well as being more tolerant and accepting of those with culturally

Table 1. Estimated mean DTA scores at $\pm 1SD$ quest orientation in the mortality salience and neutral condition in Study 3.

	-1SD Quest		+1SD Quest		n
	M	SE	M	SE	
Mortality salience	1.81	.15	2.38	.14	114
Neutral	2.01	.13	1.95	.14	112

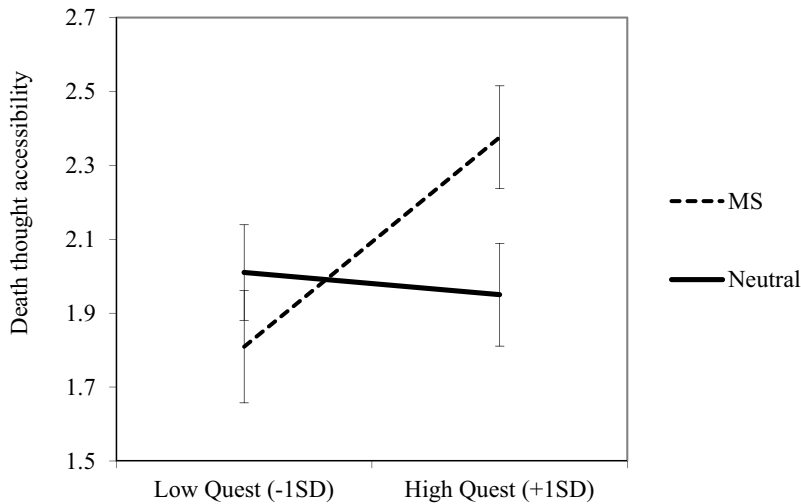


Figure 1. In Study 3, MS increased death-thought accessibility among participants with high, but not low, quest orientation. Note. MS = mortality salience; error bars depict standard error.

dissimilar worldviews (Van Tongeren et al., 2016). This raises the possibility that quest-oriented believers might respond to the increased awareness of death by becoming more open-minded and culturally tolerant, rather than closed-minded and ethnocentric. The lion's share of TMT research testing the MS hypothesis has investigated how thoughts of death contribute to social conflict in the form of worldview defensive ethnocentrism (Greenberg et al., 1990; H. A. McGregor et al., 1998; Norenzayan et al., 2009) and ideological closed-mindedness (Vail, Arndt et al., 2012). A growing body of research, however, suggests that when people hold open-minded belief systems that value empathy, equality, and tolerance, or hold goals oriented toward personal growth and cultural exploration, MS can instead motivate people to become *less* ethnocentric and *more* open-minded, tolerant, and accepting of culturally dissimilar people and ideas (Rogers et al., 2019; Vail, Horner et al., 2019; Vail, Juhl et al., 2012). Although no prior research has addressed such issues as a function of quest, we can turn to some suggestive research on religious fundamentalism, which is inversely related to quest and characterized by ethnocentric prejudice and authoritarian closed-mindedness (Altemeyer & Hunsberger, 1992; Crowson, 2009; Rowatt & Franklin, 2004). For instance, research has found reminders of death lead fundamentalist Christians to adhere to biblical scriptures and to rely on prayer for healing rather than modern science-based medicine (Z. K. Rothschild et al., 2009; Vess, Arndt et al., 2009). In contrast, low but not high religious fundamentalists express greater interest in novel secular practices (e.g., a coordinated etiquette during a college sports game chant) when mortality concerns are salient (Friedman & Rholes, 2008).

Thus, keeping in mind that quest orientation is inversely related to fundamentalism (Altemeyer & Hunsberger, 1992), in Study 4 we explored whether MS would motivate participants high (but not low) in quest to become more open-minded and culturally tolerant, rather than closed-minded and ethnocentric. Participants varying in quest orientation were randomly assigned to either an MS or a control condition, and then completed (a) the U.S. ethnocentrism scale upon which they could express ethnocentrism or cultural tolerance and (b) a measure of right-wing authoritarianism (RWA) upon which they could express more closed-minded emphasis on maintaining (largely religious) traditions or more flexible acceptance of novelty and change. We hypothesized that MS would motivate participants high (but not low) in quest to become more culturally open-minded and tolerant of new and alternative ways of life (i.e., reduced ethnocentrism & RWA scores).

Method

Participants

Sample size

A meta-analysis of hundreds of prior studies (Burke et al., 2010) found that MS manipulations produce large effects ($r = .35$; $f = .37$) across a range of worldview relevant outcomes (e.g., patriotism, sports team affiliation, charitable giving). An *a priori* power analysis for *F*-family tests (Faul et al., 2009), with power at .80 for detecting a medium effect size of $f = .30$ at $p = .05$ with four groups and one degree of freedom in the numerator, recommended a minimum of 90 participants.

Participants

A total of 102 participants were from the psychology research pool and given partial course credit in exchange for their time. Two people were dropped from the study for not completing the MS manipulation or failing to respond to the quest measure. The remaining 100 participants were predominantly Christian (63 Christian, 4 Protestant, 27 Catholic, 1 Jewish, 1 Muslim, 2 Buddhist, 1 Hindu, 1 Other); were college-age adults ($M_{\text{age}} = 18.94$, $SD = 1.75$); included 78 females and 22 males; and were mostly White (81 White, 4 Black, 4 Asian, 4 Hispanic/Latino, 7 Other). A sensitivity power analysis (Faul et al., 2009) found this sample size was capable of detecting an effect as small as $f = .28$ (a medium effect) or stronger should one be present.

Materials and procedure

All participants completed a Qualtrics survey in groups in a quiet setting; materials were presented in the following order.

Filler personality measures

As in the above studies, participants first completed several personality measures, including self-compassion and emotional stability/neuroticism.

MS manipulation

Participants were then randomly assigned to the MS or neutral condition using the same word search task described in Study 3.

PANAS

Next, participants completed the 20-item Positive and Negative Affect Schedule (PANAS, Watson & Clark, 1992). This task provided the task-switching distraction needed to observe the consequences of non-conscious death awareness after participants' conscious attention has been directed to the topic of mortality (Pyszczynski et al., 1999; Routledge & Vess, 2019 for review).

U.S. ethnocentrism

Participants next completed the 16-item ($\alpha = .82$; $M = 3.04$, $SD = .51$) U.S. Ethnocentrism scale (Neuliep & McCroskey, 1997). Example items are, "Countries are smart to look up to the United States," "A lot of other countries are primitive compared to the United States," and "Lifestyles in other countries are just as valid as in the United States" (reversed). All items used a 5-point Likert-type scale (1 = *Strongly Disagree*, 5 = *Strongly Agree*), with higher composite scores (i.e., means) indicating greater ethnocentrism and lower scores indicating greater openness to other cultures.

Right-wing authoritarianism

Participants next completed the 15-item ($\alpha = .76$; $M = 4.72$, $SD = 1.00$) short version of the right-wing authoritarianism scale (Zakrisson, 2005). Example statements included, "People ought to put less attention on the Bible and religion, instead they ought to develop their own moral standards"

(reversed), “The ‘old-fashioned ways’ and the ‘old-fashioned values’ still show the best way to live,” and “Our society would be better off if we showed tolerance and understanding for nontraditional values and opinions” (reversed). Items used a 9-point scale (1 = *Strongly Disagree*, 9 = *Strongly Agree*), with the higher composite mean scores indicating greater ethnocentrism and lower scores indicating greater openness to other cultures.

Quest orientation and filler/delay tasks

To reduce the likelihood that MS would influence response to the quest measure, participants were given several other filler measures amid which the quest scale was embedded. Following the dependent measures (i.e., U.S. ethnocentrism, RWA), participants were asked to complete measures of need-satisfaction, quest orientation ($\alpha = .82$; $M = 4.79$, $SD = 1.40$), and intrinsic/extrinsic religiosity.

Results and discussion

Preliminary analysis

An independent samples *t*-test found quest orientation was not statistically different between death ($M = 5.01$, $SD = 1.35$) and neutral conditions ($M = 4.55$, $SD = 1.43$), $t(98) = 1.66$, $p = .10$, $d = .33$ (95% $CI = -.06, .73$).

Target analyses

Following methods described in Study 3, multiple regression methods examined the Quest x 2 (MS vs. neutral) interaction on (a) ethnocentrism and (b) right-wing authoritarianism.

Ethnocentrism

Although the main effect of MS was non-significant, $b = .05$ ($SE = .10$), 95% *C.I.* $[-.16, .25]$, $\beta = .05$, $t = .47$, $p = .642$, $R^2 = .002$, quest was related to ethnocentrism such that higher scores led to a reduction in a U.S. bias, $b = -.08$ ($SE = .04$), 95% *C.I.* $[-.16, -.01]$, $\beta = -.23$, $t = 2.26$, $p = .026$, $R^2 < .001$. This effect, however, was qualified by a significant Quest x MS interaction, $b = .17$ ($SE = .07$), 95% *C.I.* $[.03, .32]$, $\beta = .34$, $t = 2.49$, $p = .016$, $R^2 = .06$ (see [Table 2](#) for estimated means; [Figure II, Panel A](#) for a visual depiction of the data). Among those with higher (+1SD) quest scores, ethnocentrism was lower in the MS than the neutral condition, $b = .29$ ($SE = .14$), 95% *C.I.* $[.01, .57]$, $\beta = .29$, $t = 2.07$, $p = .041$, $R^2 = .04$. In contrast, among those with lower (−1SD) quest scores, ethnocentrism did not differ between the MS than the neutral condition, $b = -.20$ ($SE = .14$), 95% *C.I.* $[-.48, .08]$, $\beta = -.19$, $t = 1.39$, $p = .167$, $R^2 = .02$. Alternatively, simple slope analyses revealed that, in the neutral condition, quest was unrelated to ethnocentrism, $b = .003$ ($SE = .05$), 95% *C.I.* $[-.10, .10]$, $\beta = .01$, $t = .06$, $p = .956$, $R^2 < .001$. Following thoughts of death, high quest orientation was associated with fewer U.S. ethnocentric beliefs as compared to persons scoring low on quest, $b = -.17$ ($SE = .05$), 95% *C.I.* $[-.27, -.07]$, $\beta = -.47$, $t = 3.37$, $p = .001$, $R^2 = .10$.

Table 2. Estimated mean scores for ethnocentrism and right-wing authoritarianism, at $\pm 1SD$ quest orientation in the mortality salience and neutral condition in Study 4.

	U.S. Ethnocentrism				Right-wing authoritarianism				n
	−1SD Quest		+1SD Quest		−1SD Quest		+1SD Quest		
	M	SE	M	SE	M	SE	M	SE	
Mortality salience	3.27	.11	2.79	.09	5.25	.20	4.13	.17	52
Neutral	3.08	.10	3.08	.10	5.00	.17	4.64	.20	48

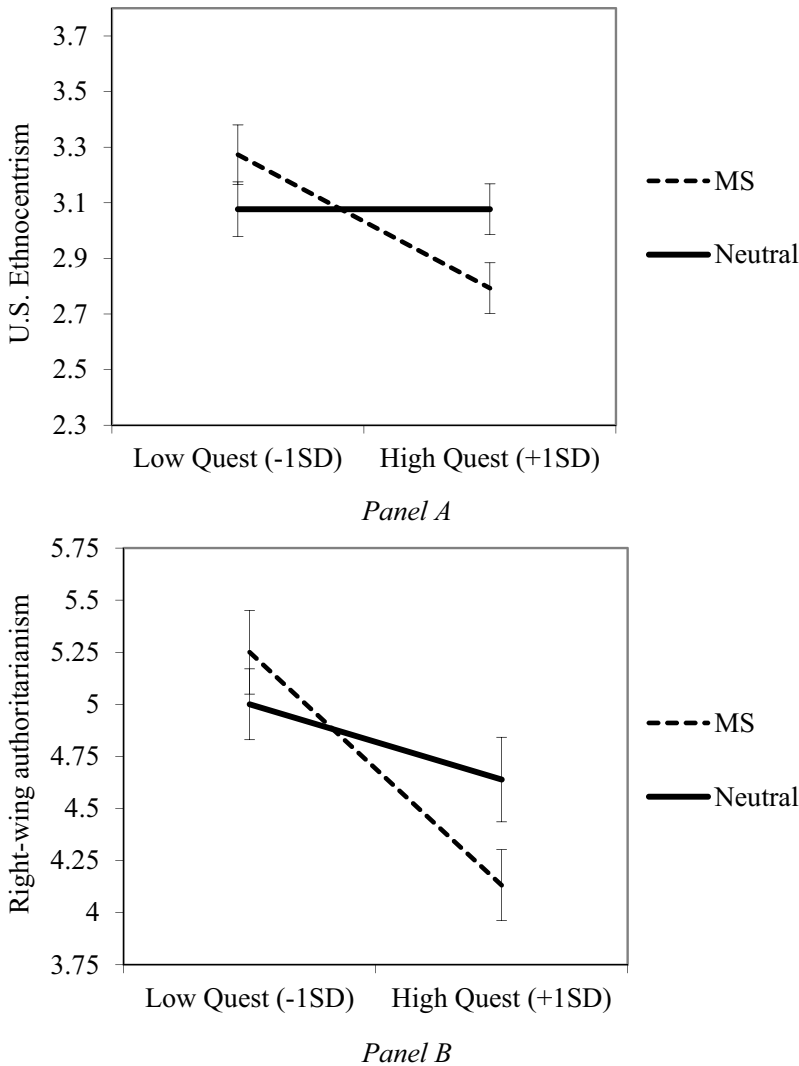


Figure II. In Study 4, MS reduced ethnocentrism and right-wing authoritarianism among participants with high, but not low, quest orientation. Note. MS = mortality salience.

RWA

Similar to ethnocentrism, there was a main effect of quest, $b = -.26$ ($SE = .07$), 95% C.I. $[-.40, -.13]$, $\beta = -.37$, $t = 3.84$, $p < .001$, $R^2 = .13$, but not MS on RWA, $b = .13$ ($SE = .19$), 95% C.I. $[-.25, .50]$, $\beta = .06$, $t = .66$, $p = .509$, $R^2 = .004$. A significant 2-way interaction also emerged, $b = .27$ ($SE = .13$), 95% C.I. $[.01, .54]$, $\beta = .27$, $t = 2.03$, $p = .045$, $R^2 = .03$ (see [Table 2](#) for estimated means; also [Figure II, Panel B](#)). Among those with higher (+1SD) quest scores, RWA was lower, although not significantly, in the MS than the neutral condition, $b = .51$ ($SE = .27$), 95% C.I. $[-.02, 1.03]$, $\beta = .26$, $t = 1.91$, $p = .059$, $R^2 = .03$. Similarly, among those with lower (-1SD) quest scores, there was no difference between the MS and the neutral condition, $b = -.25$ ($SE = .26$), 95% C.I. $[-.78, .27]$, $\beta = -.13$, $t = -.96$, $p = .340$, $R^2 = .008$. Simple slope analyses revealed that there was no relationship between quest and RWA in the neutral condition, $b = -.13$ ($SE = .09$), 95% C.I. $[-.31, .06]$, $\beta = -.18$, $t = 1.37$, $p = .175$, $R^2 = .02$. Following reminders of death, high (vs. low) quest persons reported a reduction in authoritarian beliefs $b = -.40$ ($SE = .10$), 95% C.I. $[-.59, -.21]$, $\beta = -.56$, $t = 4.18$, $p < .001$, $R^2 = .15$.

Discussion

The results of Study 4 found that among those with high (vs. low) quest orientation MS led to reduced ethnocentrism and RWA. This finding is consistent with the idea that quest is associated with a more open-minded approach to the world's various cultural and spiritual ways of life (Batson et al., 1993), and with the presently related idea that quest-oriented believers might manage death awareness by becoming more culturally tolerant and open-minded. These data patterns also appear to mirror prior TMT research on religious fundamentalism. Whereas MS led low (but not high) fundamentalists to become more tolerant of novel secular practices (Friedman & Rholes, 2008), Study 4 observed a conceptually similar response among believers high in religious quest orientation.

Additionally, whereas various previous studies have found quest predicts increased cultural relativism, tolerance, and acceptance, Study 4 replicated these effects demonstrating that overall quest was negatively related to both ethnocentrism and RWA. One small caveat in the current experiment is that quest was not significantly related to ethnocentrism or RWA in the neutral condition while significant effect emerged following thoughts of mortality. In a meta-analysis of 28 different studies, McCleary and colleagues (2011) showed that psychological constructs (e.g., authoritarianism, ethnocentrism, millenarianism, and prejudice) were more strongly related to religious fundamentalism than with quest. Given that quest effects have the potential to be half that as compared to other traits (i.e., fundamentalism, McCleary et al.), associations between quest and ethnocentrism/RWA may remain weak under control conditions but become more strongly activated when existential concerns are salient. In sum, Study 4 supported the idea that existential motivation and quest impact cultural open-mindedness and tolerance. Studies 5–6, in turn, examine outcomes more directly focused on religious attitudes.

Study 5

In addition to an open-minded approach to various cultural and spiritual ways of life, quest involves a recognition of the tentativeness of religious ideas (Batson, 1976; Batson et al., 1993). Therefore, following Study 4, we revisited and reconsidered the roles of doubt and tentativeness in quest-oriented believers' perspectives on faith in their own culturally familiar religious concepts and their ongoing relationship with God. In a supplemental study⁴ of 177 American Christians (see online supplement), quest was associated with increased faith in the culturally unfamiliar Hindu Trimurti (the supreme Gods Brahma, Shiva, Vishnu) and Islamic Allah/Mohammed, but with *lower* religiosity, faith in a higher power, and belief in the culturally familiar God/Jesus. The former pattern is consistent with theory and research suggesting that persons high in quest are more open-minded about unfamiliar cultural and spiritual ways of life (McHoskey et al., 1999; Van Tongeren, Hakim et al., 2016), and the latter is consistent with prior work demonstrating that quest-oriented Christians often doubt their own religious faith (Klaassen & McDonald, 2002; Rowatt & Franklin, 2004; Rowatt et al., 2005). If quest-oriented Christians doubt culturally familiar religious beliefs (e.g., the concept of God as supernatural agent), then this would suggest that MS might lead Christians with high (but not low) quest orientation to more strongly question God's agency.

⁴This supplemental study used a Quest x 2 (MS vs. control) design and asked Christian participants to rate their (1) general religiosity, (2) general faith in a higher power, (3) belief in God/Jesus, (4) belief in Allah/Mohammed, and (5) belief in the Hindu Trimurti (Brahma/Shiva/Vishnu). Participants rated each in terms of faith/belief, and then immediately again in terms of their certainty. The study found significant effects of quest but largely failed to detect any main effects of MS or Quest x MS interactions. However, the dependent variable was not previously validated and peer-reviewers identified methodological flaws in the DV measurement strategy (e.g., participants may have been confused about whether to report faith or certainty, and/or what it would mean to simultaneously self-report strong faith and strong uncertainty on the same item contents). Thus, it is not clear whether the null results of this study reflected a failed theory/hypothesis or a failed methodology. Nevertheless, for the sake of transparency, we report the initial theory/hypotheses, method, and results for this study in the online supplement. We also adjusted our research strategy back to using previously validated measures of religious attitudes and beliefs (belief in God as causal agent; attachment to God) in Studies 5 and 6.

Similarly, research has built upon attachment theory (Shaver & Mikulincer, 2012) to explore believers' ongoing relationship with God (Kirkpatrick, 1992). As Beck and McDonald (2004) explain, *anxious attachment* to God includes, "... fear of potential abandonment by God, angry protest (resentment or frustration at God's lack of perceived affection), jealousy over God's seemingly differential intimacy with others, anxiety over one's lovability in God's eyes, and, finally, preoccupation with or worrying concerning one's relationship with God" (p. 94). In contrast, *avoidant attachment* to God is associated with "a need for self-reliance, a difficulty with depending upon God, and unwillingness to be emotionally intimate with God" (Beck & McDonald; p. 94). For instance, research has found that intrinsically internalized religiosity, doctrinal orthodoxy, and perceived religious symbolic immortality are associated with more secure attachment to God (i.e., negatively related to both anxious and avoidant God attachment) (Rowatt & Kirkpatrick, 2002). In contrast, given that quest-oriented believers recognize the tentativeness of religious ideas and doubt their culturally familiar religious beliefs, prior work has found that quest is associated with a less secure attachment to God (Beck, 2006; Miner, 2009; Rowatt & Kirkpatrick, 2002). Likewise, a poor ability to manage death anxiety, such as was observed among quest-oriented believers in Study 1, is also related to both anxious and avoidant God attachment (Feldman et al., 2016).

Similar to the way that quest orientation is associated with doubt and openness to culturally novel religious beliefs, greater uncertainty about God and open-minded agnosticism are associated with avoidant attachment (Kirkpatrick & Shaver, 1992; Miner, Dowson, & Malone, 2014; Rowatt & Kirkpatrick, 2002). Given that prior work has found that quest is directionally associated (sometimes significantly, sometimes not) with both anxious and avoidant attachment to God (Beck, 2006; Miner, 2009; Rowatt & Kirkpatrick, 2002), heightened existential concern may motivate individuals high in quest to seek closeness to God but also more tenuously avoid commitment to any one concept of God. In that light, and building upon the present analysis, we expected that MS would lead believers with high (but not low) quest orientation to *seek closeness with God* (i.e., anxious attachment to God) yet also more tenuously *avoid commitment to God* (i.e., avoidance). Thus, in Study 5, we recruited Christians varying in quest orientation, manipulated MS (vs. control topic), and measured faith in God as a supernatural agent (Ritzema & Young, 1983) and attachment to God (Beck & McDonald, 2004). We hypothesized that MS would lead persons high in quest (as compared to low questers) to decrease their faith in God as a causal agent and increase both anxious and avoidant attachment to God.

Method

Participants

Sample size

Using the method described in Study 4, an *a priori* power analysis recommended a minimum of 90 participants.

Participants

A total of 120 participants were recruited from the psychology research pool and given partial course credit in exchange for their time. Due to the nature of the attachment to God measure, an eligibility item restricted participants to those who self-identified as Christian ($n = 68$), Protestant ($n = 9$), or Catholic ($n = 43$). No participants were excluded from this study. Participants were college-age adults ($M_{\text{age}} = 19.12$, $SD = 1.24$); included 83 females and 37 males; and were mostly White (80 White, 11 Black, 10 Hispanic, 6 Asian, 1 Pacific Islander, 12 Other). A sensitivity power analysis (Faul et al., 2009) found this sample size was capable of detecting an effect as small as $f = .20$ (a medium effect) or stronger should one be present.

Materials and procedure

The study was hosted on Qualtrics and given a neutral title (“personality and social judgments”). Participants were instructed to complete the materials on an individual basis in a quiet setting. The study began with a few personality measures (i.e., personal need for structure, experiences in close relationships, and self-esteem) to bolster the cover story, after which individuals were randomly assigned to either the MS or control condition. Participants completed the attachment to God inventory, belief in God as a causal agent measure, and quest measure. Materials were presented in the following order.

MS manipulation

Following Study 3, participants were asked to complete either a death-related vs. neutral word search puzzle.

PANAS

The 20-item PANAS (Watson & Clark, 1992) served as a delay between MS and the dependent variables (see, e.g., Pyszczynski et al., 1999).

Attachment to God inventory

Participants completed the 28-item Attachment to God Inventory (Beck & McDonald, 2004). This measure uses 14 items ($\alpha = .90$; $M = 3.54$, $SD = 1.17$) to measure avoidant attachment to God (e.g., “I just don’t feel a deep need to be close to God” and “I prefer not to depend too much on God”) and 14 items ($\alpha = .88$; $M = 3.04$, $SD = 1.02$) to assess anxious attachment to God (e.g., “I worry a lot about my relationship with God” and “I crave reassurance from God that God loves me”). Responses were made on a 7-point scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*), with higher composite mean scores reflecting greater anxious/avoidant attachment.

God as a causal agent

Participants completed the 14-item ($\alpha = .90$; $M = 4.99$, $SD = 1.06$) measure of belief in God as a Causal Agent (Ritzema & Young, 1983). Example items include, “More than once I have felt that God responded specifically to a prayer that I made,” “A close call in a situation where an accident is likely is probably God intervening to protect,” and “Miracles happen much more frequently than most people suspect.” All items used a 7-point Likert-type scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*), with higher mean scores indicating greater faith in God as a causal agent.

Filler/delay tasks

Participants completed the 20-item Dimensions of Religiosity Scale (Joseph & Diduca, 2007) and then gave their impressions of whether a series of 12 biblical passages should be interpreted symbolically or literally. These items were included as exploratory pilot data for an unrelated set of research questions,⁵ they were not analyzed as part of the current research, and so will not be discussed further.

Quest religiosity

Finally, participants completed the quest scale described in the previous studies ($\alpha = .81$; $M = 4.85$, $SD = 1.33$).

⁵We do not have any preconceived ideas about how these passages might be related to quest, but interested readers/researchers are of course welcome to consult the supplemental materials where the specific items and data are available for analysis.

Results

Preliminary analysis

The results of an independent samples *t*-test revealed quest orientation was not different between the MS condition ($M = 4.70$, $SD = 1.35$) and the neutral condition ($M = 5.00$, $SD = 1.30$), $t(118) = -1.24$, $d = -.23$ (95% CI = $-.58, .13$), $p = .22$.

Anxious attachment to God

Following methods described in Study 3, main effects were examined first and multiple regression methods were used to examine the Quest x 2 (MS vs. neutral) interaction on anxious and avoidant attachment to God.

The only effect to emerge for anxious attachment to God was for quest, $b = .21$ ($SE = .07$), 95% C.I. [.07, .35], $\beta = .27$, $t = 3.03$, $p = .003$, $R^2 = .07$. The main effect for MS, $b = .04$ ($SE = .18$), 95% C.I. [$-.33, .40$], $\beta = -.03$, $t = .20$, $p = .854$, $R^2 < .001$, and the 2-way interaction between quest and MS was non-significant, $b = -.03$ ($SE = .14$), 95% C.I. [$-.31, .24$], $\beta = -.03$, $t = .24$, $p = .812$, $R^2 < .001$ (Figure III, Panel A).

Avoidant attachment to God

When analyzing avoidant attachment to God, the main effect for quest was significant, $b = .26$ ($SE = .08$), 95% C.I. [.10, .41], $\beta = .29$, $t = 3.24$, $p = .002$, $R^2 = .08$, but the main effect for MS was not, $b = -.03$ ($SE = .21$), 95% C.I. [$-.45, .38$], $\beta = -.01$, $t = -.15$, $p = .880$, $R^2 < .001$. These effects, however, were qualified by a significant quest x MS interaction, $b = -.38$ ($SE = .15$), 95% C.I. [$-.68, -.07$], $\beta = -.30$,

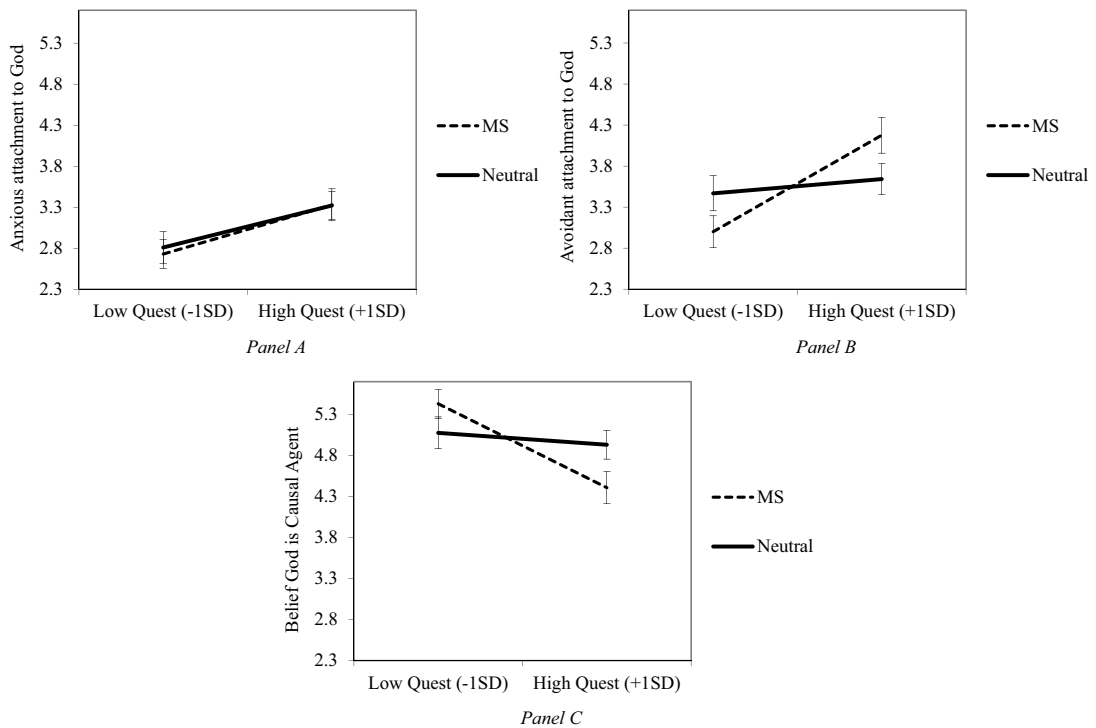


Figure III. In Study 5, MS increased avoidant (but not anxious) attachment to God and reduced belief that God is a causal agent among participants with high, but not low, quest orientation. Note. MS = mortality salience; error bars depict standard error.

$t = -2.45, p = .016, R^2 = .04$ (see *Figure III, Panel B*). The nature of the interaction was examined by adjusting quest scores $\pm 1SD$ (estimated means are reported in *Table 3*). High quest individuals (+1SD) reported greater avoidant attachment to God following reminders of death as compared to the control condition, $b = -.53 (SE = .29), 95\% C.I. [-1.11, .04], \beta = -.23, t = -1.84, p = .068, R^2 = .03$. In contrast, at low levels of quest (-1SD), avoidant attachment to God was non-significantly lower in the MS than the neutral condition, $b = .47 (SE = .29), 95\% C.I. [-.10, 1.04], \beta = .20, t = 1.62, p = .108, R^2 = .02$. Simple slope analyses revealed that, in the neutral condition, quest was unrelated to God avoidance, $b = .07 (SE = .11), 95\% C.I. [-.15, .28], \beta = .07, t = .60, p = .549, R^2 = .003$. After MS, however, quest was positively associated with avoidant attachment to God, $b = .44 (SE = .11), 95\% C.I. [.23, .66], \beta = .50, t = 4.07, p < .001, R^2 = .12$.

God as a causal agent

Quest was negatively related to belief that God is a causal agent, $b = -.22 (SE = .07), 95\% C.I. [-.36, -.08], \beta = -.28, t = 3.10, p = .002, R^2 = .08$, and there was no main effect of MS, $b = .08 (SE = .19), 95\% C.I. [-.29, .46], \beta = .04, t = .44, p = .664, R^2 = .002$. However, there was a significant Quest x MS interaction, $b = .33 (SE = .14), 95\% C.I. [.05, .61], \beta = .29, t = 2.36, p = .020, R^2 = .04$ (*Figure III, Panel C*). Estimated means are reported in *Table 3*. Persons high in quest orientation (+1SD) were less likely to believe in God as a causal agent following reminders of death as compared to the control, $b = .52 (SE = .26), 95\% C.I. [.002, 1.04], \beta = .25, t = 1.99, p = .049, R^2 = .03$. Low quest individuals (-1SD) did not differ in God agency ascription between the MS and control condition, $b = -.36 (SE = .26), 95\% C.I. [-.87, .16], b = -.17, t = -1.36, p = .178, R^2 = .02$. Looked at differently, simple slope analyses revealed that, in the neutral condition, quest was unrelated to belief in God as a causal agent, $b = -.06 (SE = .10), 95\% C.I. [-.25, .14], \beta = -.07, t = -.55, p = .582, R^2 = .002$; but when reminded of mortality, quest was negatively associated with belief that God is a causal agent, $b = -.39 (SE = .10), 95\% C.I. [-.58, -.19], \beta = -.48, t = 3.90, p < .001, R^2 = .12$.

Discussion

Study 5 revealed several important findings. First, quest was inversely related to faith in God as supernatural agent, which is consistent with prior research. Further, and consistent with the present TMT analysis, MS led Christians high (vs. low) in quest to more strongly reject the culturally familiar idea of God as supernatural agent. This finding is consistent with a nuanced understanding of quest, informed by prior research, suggesting that quest-related doubt and tentativeness may involve reducing faith in one's culturally familiar supernatural agent.

Second, replicating numerous prior studies (e.g., Beck, 2006; Miner, 2009; Rowatt & Kirkpatrick, 2002), quest was related to both anxious and avoidant attachment to God. Study 5 did find not the expected interaction on anxious attachment to God, meaning that there was no support for the idea that MS would lead believers with high (but not low) quest orientation to become more concerned about getting close to God. There did emerge, however, the expected interaction on avoidant attachment to God, finding that MS motivated believers with high (but not low) quest orientation to express greater avoidant attachment to God – reflecting more interest in spiritual independence and avoiding commitment-to or dependence-upon God.

Table 3. Estimated mean scores for attachment to God and belief that God is a causal agent, at $\pm 1SD$ quest orientation in the mortality salience and neutral condition in Study 5.

	Anxious attachment to God				Avoidant attachment to God				Belief God is causal agent				<i>n</i>
	-1SD Quest		+1SD Quest		-1SD Quest		+1SD Quest		+1SD Quest		+1SD Quest		
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
Mortality salience	2.73	.17	3.33	.20	3.00	.19	4.18	.22	5.43	.18	4.41	.20	58
Neutral	2.81	.19	3.32	.17	3.47	.21	3.64	.19	5.08	.19	4.93	.17	62

The presence of the interaction on avoidant, but not anxious, attachment to God is an interesting and potentially informative contrast. However, because it was an unexpected difference, we preferred to test the effect on attachment to God again in the next study before becoming confident enough to interpret such a pattern.

Study 6

Study 6 was conducted with two goals in mind. Our first aim was to test a replication of the Study 5 effects on attachment to God. Our second goal was to further explore the existential function of quest-oriented believers' willingness to explore their religious uncertainties. In addition to doubt and tentativeness about familiar religious beliefs, and an open-minded approach to novel/unfamiliar cultural and spiritual ideas, quest is also associated with a resistance to simple answers and a willingness to explore existential questions and religious uncertainties in all their complexity (Batson, 1976; Batson et al., 1993). Quest orientation predicts a desire to consider both belief-supportive and belief-opposing information (McFarland & Warren, 1992), and when quest-oriented believers consider either religious or non-religious topics they tend to engage in greater integrative complexity (i.e., considering perspectives on an issue and doing so in more depth) (Weeks & Geisler, 2017). The perspective offered here is that this willingness to engage in religious questions and uncertainties is one way that believers high in quest orientation try to find spiritual meaning and resolve their doubts and concerns.

At least three lines of research support this possibility. One is the religious meaning-making model (Park, 2010, 2020), which suggests that believers who experience doubts about their spiritual beliefs can initiate efforts to explore their religious landscape to potentially help restore meaning, resolve doubts, and quiet existential concerns/stressors. Second is TMT research focused on individuals with a low personal need for structure (PNS; Vess, Arndt et al., 2009). Similar to quest orientation, PNS involves a resistance to clear-cut conclusions and an interest in exploring novel or unfamiliar information. Whereas MS typically undermines meaning in life among those with low (vs. high) need for structure, it bolstered meaning if they first considered novel ways of life or interpretations of the world. The third is related to uncertainty-identity theory (Hogg, 2014; Hogg et al., 2010), compensatory zeal (I. McGregor, 2006), and uncertainty management theory (van den Bos, 2009), which find that considering personal uncertainties can motivate efforts to strengthen religious convictions (I. McGregor et al., 2008, 2010; van den Bos et al., 2006), potentially reflecting a step toward existential "meaning made."

Based on this reasoning, Study 6 recruited Christians varying in quest orientation, prompted half to explore their religious doubts and uncertainties and half to a neutral topic (describing the room they sat in), then manipulated MS (vs. control), and administered the same measure of attachment to God that was used in Study 5. The present perspective predicts that believers high in quest orientation may be able to mitigate the impact of any elevated existential concerns, at least in part, by exploring the complexities of their existential questions and uncertainties. Thus, in Study 6 the present perspective hypothesized that MS would lead participants high (but not low) in quest orientation to increase both anxious and avoidant attachment in the neutral topic condition, but not if participants were first prompted to explore their religious uncertainties.

Method

Participants

Sample size

Following sample size planning used in Studies 4–6, and with the uncertainty manipulation doubling the design, we aimed to at least double the minimum number of participants (i.e., at least 180 participants).

Participants

A total of 462 participants were recruited from both Amazon's Mechanical Turk (compensated US 1.00 USD) and from the psychology research pool (compensated with partial course credit). An eligibility item restricted participants to those who self-identified as Christian, and tended to be early- to middle-aged adults (age $M = 27.15$, $SD = 12.07$); included 327 females and 134 males (one person did not report); and mostly White (359 White, 34 Black, 27 Hispanic/Latino, 18 Asian, 2 Native American, 18 Other, 4 did not report). A sensitivity power analysis (Faul et al., 2009) found this sample size was capable of detecting an effect as small as $f^2 = .13$ (a small effect) or stronger should one be present.

Materials and procedure

Study 6 materials and procedure were similar to Study 5, with a few exceptions. Following various filler measures, participants were randomly assigned to one of the two conditions that either prompted them to explore their religious uncertainties or to write about the room they were sitting in (the neutral control condition). They were then randomly assigned to either an MS or a neutral condition, rated their attachment to God, completed some filler items unrelated to the present study, and then rated quest orientation. Materials were presented in the following order.

Filler personality measures

As in Study 3, participants first completed several personality measures described in the previous studies (personal need for structure, experiences in close relationships, and self-esteem).

Exploring religious doubts/uncertainties

Participants were randomly assigned to write about religious doubts and uncertainties in one's life or a neutral topic. Specifically, in the uncertain condition, participants were instructed to, "Think about aspects of your religion that make you feel uncertain about yourself, your life, and your future. Write a few sentences, in the space below, about three aspects of your faith that make you feel most uncertain." In the control condition, participants were asked to describe the room that they were currently sitting in. Participants were allowed to take as much time as they needed but were instructed to go with their "first, gut-level response."

Mortality salience

Following widely used methods (see Cox et al., 2019 for a comprehensive review), participants in the MS condition were asked to "please briefly describe the emotions that the thought of your own death arouses in you" and to "jot down, as specifically as you can, what you think happens to you as you physically die and once you are physically dead." Participants in the control condition were asked similar questions about public speaking. This manipulation was chosen so that it could be embedded directly following the uncertain condition and to support the cover story while also increasing methodological generalizability.

Delay and distraction

Next, participants completed the same 20-item PANAS (Watson & Clark, 1992) that was used in the previous studies as well as a neutral word search puzzle that did not include any words related to death, uncertainty, or religion. We included the additional word search to further increase the distraction/delay between the MS manipulation and DVs.

Attachment to God

Following this delay, participants were given the same 28-item attachment to God inventory used in Study 6; 14 items measured anxious attachment to God ($\alpha = .91$; $M = 3.31$, $SD = 1.15$) and 14 items measured avoidant attachment to God ($\alpha = .89$; $M = 3.56$, $SD = 1.14$). Higher mean scores reflected greater anxious/avoidant attachment to God.

Quest scale

Following these items, participants completed the same quest scale used in all previous studies ($\alpha = .81$; $M = 4.84$, $SD = 1.29$).

Results

Manipulation check: uncertainty-complexity

Responses to the “exploring religious doubts/uncertainties” and “describe the room you’re sitting in” prompts were coded for complexity using the web-based automated integrative complexity protocol (www.autoic.org; Conway et al., 2014; Houck et al., 2014), which is a validated protocol that scores overall complexity, dialectical complexity (considering two or more ideas), and elaborative complexity (extent of elaboration of each separate idea). Independent samples *t*-tests found that, compared to the room description prompt, the “explore religious uncertainties” prompt elicited responses with greater overall complexity ($M = 2.27$, $SD = .75$ vs. $M = 1.20$, $SD = .43$; $t[455] = 18.67$, $p < .001$), dialectical complexity ($M = 2.15$, $SD = .74$ vs. $M = 1.12$, $SD = .32$; $t[455] = 19.41$, $p < .001$), and elaborative complexity ($M = 1.57$, $SD = .61$ vs. $M = 1.11$, $SD = .30$; $t[455] = 10.37$, $p < .001$).

Preliminary analysis

An independent samples *t*-test found quest orientation was not statistically different between the MS condition ($M = 4.83$, $SD = 1.23$) and the neutral condition ($M = 4.86$, $SD = 1.35$), $t(460) = .20$, $p = .85$, $d = -.02$.

Anxious attachment to God

Replicating Study 5, quest was related to anxious attachment to God, $b = .26$ ($SE = .04$), 95% C.I. [.18, .34], $\beta = .29$, $t = 6.44$, $p < .001$, $R^2 = .08$. All other main effects, 2-way interactions, and the 3-way interaction between quest, MS, and uncertainty prime was non-significant, b 's $\leq |.20|$ (SE 's $\geq .07$), 95% C.I.'s [$\leq -.07$, $\geq .24$], β 's $\leq .08$, t 's $\leq |1.06|$, p 's $\geq .291$, R^2 's $\leq .002$.

Avoidant attachment to God

There was a main effect such that quest was related to anxious attachment to God, $b = .23$ ($SE = .04$), 95% C.I. [.15, .31], $\beta = .26$, $t = 5.69$, $p < .001$, $R^2 = .07$, but there was no main effect of MS or Uncertainty condition, b 's $\leq |.13|$ (SE 's $\geq .10$), 95% C.I.'s [$\leq -.17$, $\geq .07$], β 's $\leq |.06|$, t 's $\leq |1.21|$, p 's $\geq .225$, R^2 's $\leq .003$, nor were the two-way interactions significant, b 's $\leq |.30|$ (SE 's $\geq .08$), 95% C.I.'s [$\leq -.05$, $\geq .11$], β 's $\leq |.11|$, t 's $\leq |1.44|$, p 's $\geq .152$, R^2 's $\leq .004$. These results were qualified by the anticipated Quest x MS x Uncertainty interaction, $b = -.45$ ($SE = .16$), 95% C.I. [-.77, -.14], $\beta = -.27$, $t = -2.82$, $p = .01$, $R^2 = .02$. Estimated means for the interaction are in [Table 4](#).

Neutral prompt condition. We first unpacked the Quest x MS interaction in the neutral prompt (the “describe the room you’re sitting in”) condition. Among those with higher (+1SD) quest scores, avoidant attachment to God was higher in the MS than the public speaking condition, $b = -.57$ ($SE = .21$), 95% C.I. [-.99, -.15], $b = -.25$, $t = -2.68$, $p = .008$, $R^2 = .01$. In contrast, among those with lower (-1SD) quest scores, avoidant attachment to God was no different in the MS than the public speaking condition, $b = -.01$ ($SE = .20$), 95% C.I. [-.40, .37], $\beta = -.01$, $t = -.07$, $p = .943$, $R^2 < .001$. From another perspective: simple slope analyses revealed that, in the public speaking condition, quest was related to avoidant attachment to God, $b = .18$ ($SE = .08$), 95% C.I. [.03, .33], $\beta = .21$, $t = 2.43$, $p = .016$, $R^2 = .01$; and when reminded of mortality, quest was even more strongly associated with avoidant attachment to God, $b = .40$ ($SE = .08$), 95% C.I. [.24, .56], $\beta = .45$, $t = 4.80$, $p < .001$, $R^2 = .05$ ([Figure IV, Panel A](#)).

Table 4. Estimated mean scores for avoidant attachment to God, at $\pm 1SD$ quest orientation as a function of MS (vs. control) and Uncertainty (vs. neutral) manipulation conditions in Study 6.

	Neutral prompt				Uncertainty prompt				<i>n</i>
	-1SD Quest		+1SD Quest		+1SD Quest		+1SD Quest		
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
Mortality salience	3.20	.14	4.22	.15	3.45	.15	3.61	.14	248
Control topic	3.18	.14	3.65	.15	3.15	.16	3.92	.14	214

Uncertainty condition. We next unpacked the Quest \times MS interaction in the uncertainty prompt condition. Among those with higher (+1SD) quest scores, avoidant attachment to God was no longer significantly different when comparing the MS and public speaking conditions, $b = .31$ ($SE = .20$), 95% C.I. [-.08, .69], $\beta = .13$, $t = 1.55$, $p = .123$, $R^2 = .01$. Similarly, among those with lower (-1SD) quest scores, avoidant attachment to God was not different in the MS versus the neutral condition, $b = -.30$ ($SE = .22$), 95% C.I. [-.72, .13], $\beta = -.13$, $t = -1.38$, $p = .167$, $R^2 = .004$. From another perspective: simple slope analyses revealed that, in the public speaking condition, quest was related to avoidant attachment to God, $b = .30$ ($SE = .08$), 95% C.I. [.13, .46], $\beta = .34$, $t = 3.54$, $p < .001$, $R^2 = .02$; but when reminded of mortality, quest was not associated with avoidant attachment to God, $b = .06$ ($SE = .08$), 95% C.I. [-.09, .22], $\beta = .07$, $t = .82$, $p = .411$, $R^2 = .001$ (Figure IV, Panel B).

Effect of uncertainty prompt. Finally, we also examined the effect of the uncertainty prompt among those with high and low quest orientation in both the MS and control conditions. First, in the public speaking condition, among those with higher (+1SD) quest scores, avoidant attachment to God was not different in the uncertainty and the neutral (room) condition, $b = -.27$ ($SE = .21$), 95% C.I. [-.68, .14], $\beta = -.12$, $t = 1.29$, $p = .196$, $R^2 = .003$. Similarly, among those with lower (-1SD) quest scores, avoidant attachment to God was not different in the uncertainty versus neutral (room) condition, $b = .03$ ($SE = .21$), 95% C.I. [-.38, .44], $\beta = .01$, $t = .14$, $p = .886$, $R^2 < .001$. In the MS condition, among those with higher (+1SD) quest scores, avoidant attachment to God was reduced in the uncertainty condition compared to the neutral (room) condition, $b = .61$ ($SE = .20$), 95% C.I. [.21, 1.00], $\beta = .27$, $t = 2.99$, $p = .003$, $R^2 = .02$. At low quest (-1SD), there was no difference in avoidant attachment to God between the uncertain and neutral (room) primes, $b = -.26$ ($SE = .20$), 95% C.I. [-.65, .14], $\beta = -.11$, $t = 1.27$, $p = .205$, $R^2 = .003$.

Discussion

These findings are important for a variety of reasons. First, replicating the results of Study 5, quest was related to both anxious and avoidant attachment to God. Second, as in Study 5, Study 6 did not find any 2- or 3-way interactions with MS nor uncertainty on anxious attachment to God, meaning that there was no support for the idea that MS would lead believers with high (but not low) quest orientation to become more concerned about getting close to God, and no support for the idea that being prompted to explore religious uncertainty would mitigate that effect had it been present.

Third, there did emerge, however, the expected 3-way interaction on avoidant attachment to God. When participants were first prompted to simply describe the room they were in (neutral condition), the Quest \times MS data patterns replicated those observed in Study 5: MS (vs. control) motivated believers with high (but not low) quest orientation to express greater avoidant attachment to God – reflecting more interest in spiritual independence and avoiding commitment-to or dependence-upon God. But that effect was eliminated when participants were instead first prompted to explore their religious uncertainties. More specifically, the manipulation check found that, compared to the neutral prompt, the religious uncertainties prompt elicited responses high in overall complexity as well as dialectical and elaborative complexity, which is important because we had proposed that the complex exploration of religious doubts and uncertainties is one way that quest-oriented believers could perceive progress toward resolving those doubts, finding spiritual meaning, and quieting their existential concerns.

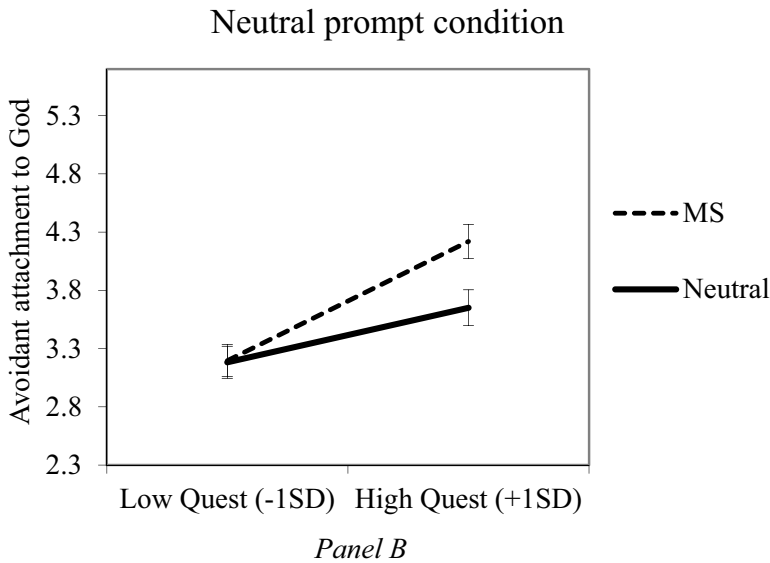
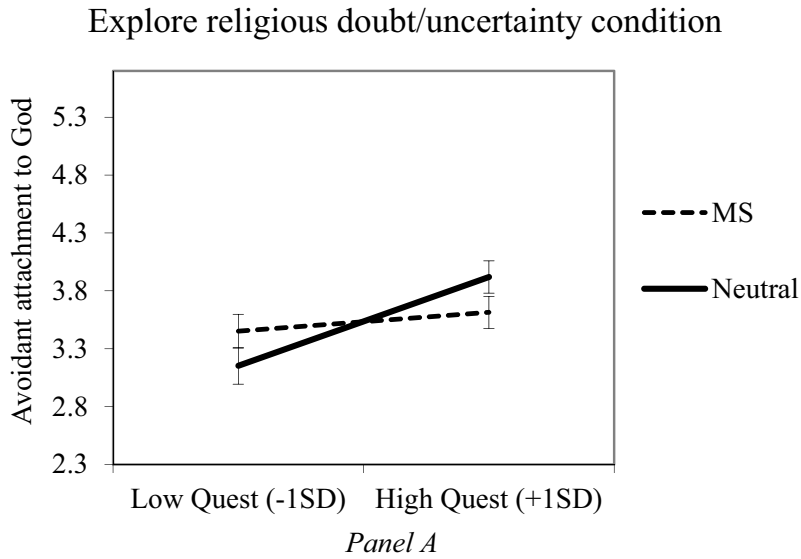


Figure IV. In Study 6, MS increased avoidant attachment to God among participants with high, but not low, quest orientation under neutral conditions; that effect was eliminated when participants first explored their religious doubts/uncertainties. Note. MS = mortality salience; error bars depict standard error.

Indeed, among believers high (not low) in quest in the MS (not public speaking) condition, exploring religious uncertainties (vs. neutral) reduced avoidant attachment to God.

These patterns were consistent with predictions, and support the present perspective that the willingness to engage religious questions and uncertainties is one way that believers high in quest orientation attempt to resolve their doubts and find the spiritual meaning to soothe their existential concerns. The presence of the expected interactions on avoidant, but not anxious, attachment to God was now replicated and observed in both Studies 5 and 6, and is thus likely an informative contrast in observed effects; we consider that issue further in the general discussion.

General discussion

The present work explored how (1) quest-oriented doubt entails a vulnerability to existential concern; (2) existential concerns motivate quest-oriented believers to reject culturally familiar religious beliefs and become open to other cultural and spiritual ways of life; and (3) that exploring their religious uncertainties is one way believers high in quest orientation might take steps toward resolving their doubts and soothing their existential concerns.

Doubt

The first defining characteristic of quest is that it involves religious doubts and uncertainties. Building upon TMT's anxiety-buffer disruption hypothesis and the DTA hypothesis, we anticipated that quest-oriented doubt undermines death-denying religious faith and may therefore be associated with increased existential concerns. Indeed, quest orientation was associated with death-related anxiety and preoccupation with the shortness of life in Study 1 and with death-related cognitions (DTA) in Study 2. Likewise, Study 3 found that MS led to increased DTA among those with high (vs. low) quest orientation, indicating that those with low quest were presumably shielded against the death reminder by their more confident faith whereas more doubtful believers high in quest were not.

Open-mindedness and tentativeness

The second defining characteristic of quest is the recognition of the tentativeness of religious ideas and an open-minded approach to other various cultural and spiritual ways of life. Building on the MS hypothesis, we anticipated that increased death awareness would motivate believers with high quest to become more open-minded about cultural and religious ideas, yet remain tentative/uncertain about them. Indeed, Study 4 found that MS led believers with high (vs. low) quest to more strongly reject both ethnocentrism and RWA – reflecting a flexibility and open-mindedness toward culturally novel people and ideas.

Further, in addition to being interested in novel or unfamiliar cultural and spiritual ideas, those with quest orientation have a tentative relationship with their own culturally familiar religious beliefs. For example, prior findings demonstrate that quest-related doubts are associated with lower intrinsically internalized religious belief and reduced orthodoxy (Rowatt & Franklin, 2004; Rowatt et al., 2005). Converging with that prior work, Study 6 found that MS led believers with high (vs. low) quest to more strongly reduce faith in God as a supernatural agent.

Likewise, in Studies 5 and 6 we hypothesized that MS would motivate individuals high in quest to both seek closeness to God (anxious attachment to God) but also more tenuously avoid commitment to or dependence-upon any one concept of God (avoidant attachment to God). We had based our hypothesis, in part, on prior data showing that quest is associated with both anxious and avoidant attachment to God (Beck, 2006; Miner, 2009; Rowatt & Kirkpatrick, 2002), and that a poor ability to manage death anxiety (such as seen among quest-oriented believers in Study 1) is also related to both anxious and avoidant attachment to God (Feldman et al., 2016). And yet, although both Studies 5 and 6 observed the hypothesized effects on avoidant attachment to God, both failed to find the hypothesized effect on anxious attachment to God. These results were consistent across both studies, and thus demand some nuanced reflection. One possibility is that the avoidant attachment to God measure was sensitive to experimental manipulation of existential concern, whereas the anxious attachment measure was not – in which case future research may fruitfully investigate the issue with other more sensitive measures. The other possibility is, simply, that we got the prediction wrong. Indeed, we noted that quest is characterized by (1) doubt, and (2) open-minded recognition of the tentativeness of belief; and we found that MS led quest-oriented individuals to be more open-minded and tolerant of diverse ideas (Study 4) and we predicted that MS would led them to reduce faith in God's agency (Study 5). In hindsight, it seems that we failed to fully appreciate those points alongside the

prior work finding that quest-oriented people tend to be both avoidantly and anxiously attached to God. That is, perhaps the connection to anxious attachment to God alongside avoidant attachment to God means not simply that they tend to seek God but that they prefer to seek God *elsewhere*. Had we developed that perspective, we might have anticipated that MS would not necessarily increase proximity-seeking (anxious attachment to God) but would increase avoidant attachment to God – similar to the more open-minded attitudes toward cultural novelty observed in Study 4. Future work might further investigate the issue.

Engaging complexity

The third and final defining characteristic of quest orientation is a willingness to explore religious doubts and uncertainties in all their complexity. Building on both prior TMT research (Rogers et al., 2019; Vess, Arndt et al., 2009) and the religious meaning-making model (Park, 2020), we anticipated that this willingness represents one way that believers high in quest orientation attempt to resolve their doubts, make existential meaning, and quiet mortality-related concerns. Consistent with that idea, Study 6 replicated and extended Study 5 by finding that MS amplified quest-oriented believers' avoidant attachment to God, but not if participants were first prompted to explore their religious doubts and uncertainties.

Implications for religious quest and existential growth-motivation

Of the three main religious orientations, intrinsic orientation entails internalized and deeply held faith in religious content and extrinsic orientation entails religious participation for social purposes (Allport, 1966; Allport & Ross, 1967; Donahue, 1985), whereas quest orientation (Batson, 1976; Batson et al., 1993) is thought to be characterized by (a) doubt and uncertainty about one's religious beliefs; (b) tentative openness to other ideas and ways of life; and (c) a willingness to explore existential and religious uncertainties in all their complexities. The present work both converges with and expands upon the prior research on quest orientation and TMT in several ways.

An existential quest

First, prior research has found that quest is associated with doubts and uncertainties (Klaassen & McDonald, 2002) and lower orthodoxy and internalized belief content (Rowatt & Franklin, 2004; Rowatt et al., 2005). And, unsurprisingly, this doubt appears to come at the cost of psychological equanimity, as quest is related to personal distress (Genia, 1996), anxiety (Lavrič & Flere, 2010), emotional instability/neuroticism (Francis, 2010; Henningsgaard & Arnau, 2008; Hills et al., 2004), and both a lower perception of and greater search for meaning in life (Van Tongeren, Davis et al., 2016). The present Studies 1–2 converge with and add to this literature by finding that quest orientation is also associated with heightened death-related anxiety, preoccupation with the shortness of life, and mortality awareness (i.e., DTA).

Second, we also found evidence that individuals high in quest orientation not only doubt but take an open-minded approach to other various cultural and spiritual ways of life while recognizing the tentativeness of various religious ideas. Consistent with this interpretation, Study 4 found that, especially after MS, quest orientation predicted reduced ethnocentrism and greater tolerance for new ideas. These findings converge with prior work showing that quest orientation is negatively related to religious fundamentalism and closed-minded dogmatism (Crowson, 2009; Genia, 1996; Van Tongeren, Davis et al., 2016); and positively related to greater openness, perspective-taking, and empathic concern (Ghorbani et al., 2007; Henningsgaard & Arnau, 2008), and increased tolerance and acceptance of those with culturally dissimilar ways of life (Rowatt et al., 2005; Van Tongeren, Davis et al., 2016; Van Tongeren, Hakim et al., 2016).

Third, both Studies 5 and 6 likewise found that quest-oriented believers worried about becoming close with God (anxious attachment to God) while also wanting to maintain spiritual

independence and open-mindedness by avoiding commitment-to or dependence-upon God (avoidant attachment to God). But additionally, both studies found that existential concerns amplified avoidant attachment to God, and Study 6 further found the effect was eliminated when participants were prompted to explore their religious doubts and uncertainties. Importantly, the latter effect converges with prior work finding, for example, that quest believers are willing to consider both belief-supportive and belief-opposing information (McFarland & Warren, 1992), and engage in greater integrative complexity about various religious topics (Weeks & Geisler, 2017). But Study 6 offers a substantive contribution beyond simply converging with these prior works, supporting the more nuanced idea offered here that quest believers' willingness to explore religious questions and uncertainties is one way they seek to resolve their doubts, find spiritual meaning, and quiet their existential anxieties.

Stress-related existential growth motivation

Prior theoretical work has sometimes portrayed quest as a "more mature" religious orientation (Batson, 1976; Batson et al., 1993), or even considered whether it might be the "best" approach to religion (Hood & Morris, 1985; for response c.f., Batson & Schoenrade, 1991a). Such a view conjures up images of stoics embarking from a secure religious base to boldly explore the religious landscape. That may possibly be the case, but based on the present analysis and findings we suggest also considering the possibility that quest might reflect existential crisis. Certainly, damage to the foundation of one's home (1) crumbles the house, cracks the roof, and ultimately fails to protect against exposure to nature's harsh elements. In such cases, it may become important to (2) leave the house behind to open-mindedly look elsewhere for shelter, and (3) think about what went wrong with it and consider carefully all the relevant issues before making another purchase on the housing market. Consistent with this metaphor, we find that (1) quest-related doubt involves damage to one's existential religious buffer and thus was associated with increased mortality concerns (Studies 1–2) and failure to protect against reminders of death (Study 3); (2) that MS motivates quest-oriented believers to disengage from their extant religion and open-mindedly explore other cultural/spiritual ideas (Studies 4–6); and (3) that considering the issues surrounding one's religious doubts and uncertainties can potentially help to resolve those doubts and quiet those existential concerns again (Study 6).

The present work converges with the general TMT idea that confident faith in one's worldview provides defenses against death awareness, whereas doubt has the potential to increase existential stress. Quest orientation, characterized by doubt about one's religion, was associated with increased death anxiety and preoccupation with the brevity of life, elevated DTA, and a lack of protection against death reminders (Studies 1–3). Indeed, prior research has similarly found that MS led to reduced well-being (self-esteem) among those with high quest orientation (Arrowood, Coleman et al., 2018). These findings are consistent with the anxiety-buffer disruption hypothesis (Yetzer & Pyszczynski, 2019) and the DTA hypothesis (Schimmel et al., 2019), and converges with other work finding, for example, that death anxiety is associated with other symptoms of anxiety-buffer disruption (Vail, Courtney et al., 2019; Vail, Reed et al., 2019), that DTA is elevated when one's beliefs are weakened (Hayes et al., 2010), and that individuals with absent/weakened terror management buffers have poor protection against mortality reminders (Juhl & Routledge, 2016).

Additionally, MS led quest-oriented believers to become less ethnocentric and more tolerant of non-traditional ideas (Study 4). This finding is, on one hand, consistent with a growing body of research finding that when people hold open-minded belief systems that value empathy, equality, and tolerance, or hold goals oriented toward personal growth and cultural exploration, MS can motivate them to live up to those values and become more open-minded and accepting of culturally dissimilar people and ideas (Rogers et al., 2019; Vail, Horner et al., 2019; Vail, Juhl et al., 2012). But it is also consistent with recent suggestions from both the anxiety-buffer disruption perspective (Vail et al., 2018; Vail, Reed et al., 2020) and the religious meaning-making model (Park, 2010, 2020) that when individuals experience thoughts or events that undermine their existential buffers, the death-related stress can motivate efforts to explore ways to either restore or replace them with the goal of achieving existential peace again.

Indeed, prior work has found that MS can motivate tolerance and open-mindedness among, for example, people who are reminded of or chronically aware of their tolerant or compassionate values (Vail, Juhl et al., 2012); individuals who engage in creative activity that promotes open-mindedness or reminded of the value of creativity (Rogers et al., 2019); or persons who explicitly value open-mindedness and personal growth (Boyd et al., 2017; Vail, Horner et al., 2019). But those prior research streams were areas where it was unlikely that participants doubted their worldviews, and were likely areas where individuals held confident faith in a constellation of beliefs that affirmatively valued growth-oriented openness; thus, existential concerns motivated increased tolerance or cultural exploration as a “defense” of those death-denying values. In contrast, quest orientation is *not* an affirmative constellation of religious belief content; rather, it is simply an *approach* to religious belief content and is, notably, one rooted in doubt about that religious content (Batson & Schoenrade, 1991a). Thus, the present work found quest-oriented individuals doubt their religious worldviews and suffer existential stress for it (e.g., death-related anxiety and cognition; Studies 1–3), and further found existentially motivated reduction of faith in God as supernatural agent (Study 5), avoidant attachment to God (Study 5–6), and open-mindedness and tolerance toward unfamiliar and nontraditional cultures and ideas (Study 4), and that these motivations were relieved if participants first explored their religious doubts and uncertainties (Study 6). Thus, we raise here the interpretation that these patterns do not reflect the “defense” of a particular death-denying belief or value, per se, but rather are symptoms of a religious existential crisis – that is, a stress-based existential growth-oriented search for alternative religious beliefs to restore a sense of existential meaning and permanence (Park, 2010, 2020; Vail, Reed et al., 2019; Yetzer & Pyszczynski, 2019). The present work is the first to identify relevant evidence and offer the interpretation of quest as existential-crisis-related growth-orientation; thus, although both present and prior findings are consistent with it, this proposed interpretation demands further investigation.

Strengths, limitations, and future directions

It is of course important to note several strengths and limitations of the present work. First, one strength of this research is that it offers a programmatic/systematic approach balancing innovation and replication, with open/transparent methods (including reporting of unexpected and null results), and sufficiently powered analyses. In sample size planning for each study, we first acknowledged prior relevant effect sizes and then based our sample minimums on power analyses assuming effects equal-to or smaller than previously observed in the literature. Indeed, power-sensitivity analyses conducted in each study found each study had sufficient power to accurately detect small- to medium-sized effects when present. In a field once panned as being plagued by “a vast graveyard of undead theories” (Ferguson & Heene, 2012), such open practices and transparent reporting of results in the context of theory development is of critical importance for a rigorous psychological science (Kitayama, 2017; Tullett & Vazire, 2018).

One limitation of the present work, however, is that the present conclusions are largely restricted to young, White American Christian females, and that of the six present studies most were conducted at the same location with the remaining conducted via MTurk. As has been articulated elsewhere, most people in the world bear little resemblance to these kinds of samples (Henrich et al., 2010), but even within the relatively homogenous American context, there is considerable heterogeneity in psychological processes across regions of the U.S. (Vandello & Cohen, 1999), generation (Twenge et al., 2012), racial and ethnic groups (Markus & Kitayama, 1991), sex (Wood & Eagly, 2002), and religion (Li et al., 2012; Norenzayan et al., 2016). Additionally, we also note that although Christians make up roughly a third of the world’s religious population (Center, 2012), there is of course substantial deviation across various Christian denominations and certainly between Christianity and the other world religions. The generalizability of the present findings, therefore, remains an open question. Yet, presumably, because quest is simply an orientation toward religion rather than a belief system itself, people of any faith may find themselves with a high quest orientation and grappling with existential

concerns. In that light, future research could investigate quest-oriented existential motivation as it takes shape in other demographic and religious contexts.

We also note a couple of interesting complexities in the present research. For example, quest was related to DTA in Study 2 but not in the neutral condition of Study 3. In that regard, it seems worth noting that in Study 2 we did not intervene but instead merely measured the otherwise naturally-occurring quest-DTA relationship ($\beta = .21$). By contrast, in Study 3, we intervened with a manipulation, and it could have been that the neutral prime somehow suppressed the quest-DTA relationship ($\beta = -.03$) whereas the MS prime amplified it ($\beta = .27$).

Another complexity is that there were no main effects of MS in any of the present five present studies that manipulated it. One thing to note is TMT is a culturally sensitive theory, and ever since the first set of MS experiments (Rosenblatt et al., 1989) “the effects of MS [have been] guided by participants preexisting worldviews, showing that MS effects are never really a main effect; they depend on the individual’s belief system” (p. 90; Greenberg et al., 2014). The effect of MS on bond amounts depended on salient moral values (Rosenblatt et al., 1989); its effect on support for political aggression or helping depended on salient norms (Jonas et al., 2008) or the individual’s political ideology (H. A. McGregor et al., 1998; Pyszczynski et al., 2006); and its effect on expressions of religious faith depends on the individual’s extant religious beliefs or disbeliefs (e.g., Christian, Muslim, atheist, or agnostic; Vail, Arndt, Abdollahi et al., 2012). Indeed, Hayes and Hubley (2020) recently found that TMT effects are most robust when individual differences are taken into account and suggest that prior work that showed a main effect of MS may have inadvertently used a homogenous sample that would react similarly to worldview defense measures.

As we mentioned three paragraphs above, the present samples were mostly comprised of young White Christian college-attending females in Texas (and MTurk); it is unclear whether those boundaries are narrow enough to expect main effects or sufficiently broad to allow enough heterogeneity as to suppress main effects to the point where specific moderators (e.g., quest orientation) are necessary to identify conditions for detecting MS effects. For example, it is possible that the MS effect on ethnocentrism and RWA in Study 4 might have only been relevant to political conservatives. However, it does seem to us that in Studies 3 and 5, there should have been overall MS effects; a death reminder should have had a main effect on DTA no matter the sampled population (Study 3), and among Christian samples, one would think MS would produce an overall effect on expressions of faith (e.g., faith in God’s agency, Study 5). The one study likely excused from this puzzle would be Study 6, as we designed the study such that the MS effect was mostly expected to be either absent (among low quest) or attenuated (in the uncertainty condition), and so any MS effect (among high quest) would have had to be exceptionally large to produce an overall main effect. Nevertheless, the lack of main effects in Studies 3 and 5 provides a new set of wrinkles to the TMT literature as the field enters the open-science era.

A final possible limitation is a considerable focus in the present work on the existential motivations of believers high, rather than low, in quest orientation. This emphasis was in large part a response to the almost exclusive emphasis, in the existing terror management literature, on death-related motivations in domains where people presumably confidently adhere to their relevant cultural worldviews (religious or otherwise; see Routledge & Vess, 2019). But it was also the result of the unclear meaning about the low end of the quest measure. That is, the items on the scale are worded such that they reflect the presence of quest, but it is not clear whether low quest entails absence of belief (withdrawal from having given up the quest), confident belief (intrinsic orientation), utilitarian belief (extrinsic orientation), fundamentalist belief, or some other approach. Thus, by focusing on high levels of quest, the present work may not have directly investigated or appreciated any possibly unique existential motivations of low quest believers. Nevertheless, the present research is thus positioned to extend the understanding of mortality awareness in individuals who lack confident faith in their own beliefs and thus adopt perhaps a more growth-oriented response to managing existential anxieties. Future research could directly address the meaning of low (vs. high) quest persons.

Conclusion

Together, these findings help us better understand the experiences of people such as composer Gustav Holst. He, and certainly many others like him, may have roots in a particular religious tradition (e.g., Christianity), yet nevertheless, find themselves doubting that faith, leaving it behind to explore other cultural and spiritual ways of life (e.g., Hindu Rig Vedas, astrology), and exploring those existential issues and religious uncertainties in great depth (e.g., musical devotionals and spiritual meditations, such as *The Hymn of Jesus, Sita and Indra*, or *The Planets*). Indeed, the present research (1) reveals that religious quest orientation is characterized by existential concerns and poor protection from mortality awareness, (2) finds that elevated death awareness motivates quest-oriented believers to leave their religious ideas behind and increase open-minded tolerance of novel cultural ideas, and (3) further finds that these motivations are relieved when individuals are first prompted to explore religious doubts and uncertainties in greater depth.

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Disclosure statement

No potential conflict of interest was reported by the authors.

Data availability statement

The data described in this article are openly available in the Open Science Framework at <https://doi.org/10.17605/OSF.IO/TPA6U>.

Open scholarship



This article has earned the Center for Open Science badges for Open Data and Open Materials through Open Practices Disclosure. The data and materials are openly accessible at <https://doi.org/10.17605/OSF.IO/TPA6U>.

Open practices statement

All studies, measures, manipulations, and exclusions are disclosed; all materials, anonymized data, and commented analytic syntax/code for each of the present studies are available here: https://osf.io/7g3be/?view_only=273fccbecd46453192ddb42590c9b4b.

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