

The Morality of Mortality: A Terror Management Explanation for the Immoral Atheist
Stereotype and Anti-Atheist Prejudice

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Abstract

The predominant explanation for anti-atheist prejudice posits that atheists are stigmatized because they are perceived as morally threatening. However, recent work suggests that prejudice against atheists may actually ensue from the ostensible existential threat posed by the group. According to terror management theory, humans have an innate fear of death that is attenuated by religious beliefs. These creeds are reflected and reinforced by specific moral values. Because atheists do not believe in a deity, they may be perceived as concurrently lacking such morals and posing a significant existential threat. The current study tested the impact of priming mortality salience—subtle exposure to death-related stimuli—on perceived atheist immorality and anti-atheist prejudice. Seventy-eight students from an introductory psychology course participated for course credit. Participants were randomly assigned to write about their own death or a control topic. Those in both conditions completed measures of perceived atheist immorality and anti-atheist prejudice. The primary hypothesis that individuals who were primed to think about death would perceive atheists as posing a greater moral threat and, consequently, express greater prejudice against them than those in the control condition would was not supported. Limitations and directions for future research are discussed.

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Religion's power to console doesn't make it true...even if it were conclusively demonstrated that belief in God's existence is completely essential to human psychological and emotional wellbeing...none of this would contribute the tiniest jot or tittle of evidence that religious belief is true. (Dawkins, 2006, p. 394)

Despite contemporary estimates that religiously nonaffiliated individuals compose the world's third largest "religious" group, following Christians and Muslims, and 16% of the global population (1.1 billion people; Pew Research Center, 2012), the stigmatization of atheists remains ubiquitous (Schiavone & Gervais, 2017). Anti-atheist prejudice is especially salient within the United States. For example, a nationwide poll revealed that American citizens are less accepting of atheists in both public and private life than they are of other traditionally marginalized groups, including Muslims, immigrants, gay men, and lesbian women (Edgell, Gerteis, & Hartmann, 2006). Moreover, according to a recent Gallup poll, a majority of citizens would be unwilling to vote for an otherwise qualified atheist presidential candidate, even as the national prevalence of atheists steadily increases (Jones, 2012; Pew Research Center, 2015).

Social psychologists have only recently begun to comprehend anti-atheist prejudice. A notable study revealed that atheists are typified as untrustworthy, a stereotype that engenders discrimination against them (Gervais, Shariff, & Norenzayan, 2011). Distrust of atheists derives from the prevalent misconception that religious belief provides the exclusive cornerstone of morality (Pew Research Center, 2002). Individuals who believe this may, consequently, presume that atheists must lack moral values due to their distinctive lack of faith (Cook, Cottrell, & Webster, 2015; Gervais, 2014). The extant literature explains anti-atheist prejudice using

sociofunctional theory, which posits that the perceived threat posed by a group incites and shapes discriminatory behaviors toward its members (Cottrell & Neuberg, 2005). More specifically, researchers have concluded that prejudice against atheists is a defensive reaction intended to neutralize a group that is perceived as threatening moral values (Cook, Cottrell, & Webster, 2015; Franks & Scherr, 2014).

The current research aimed to test a novel explanation, based on terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986), for the disproportionately high stigmatization of atheists compared to other marginalized identities. According to TMT, humans suffer from an innate fear of death that is attenuated by worldviews because they provide a sense of immortality—either literal (e.g., heaven) or symbolic (e.g., one’s actions having a posthumous effect). Although considerable research has demonstrated that religious belief in a tangible afterlife provides an especially potent buffer against death anxiety (e.g., Alvarado, Templer, Bresler, & Thomas-Dobson, 1995; Dechesne et al., 2003; Jonas & Fischer, 2006; Templer, 1972), only a single study has hitherto investigated the relationship between existential threat and anti-atheist prejudice (Cook, Cohen, & Solomon, 2015). It revealed that priming mortality salience, subtle exposure to death-related stimuli, increases distrust of and social distancing from atheists.

Because atheists denounce the legitimacy of religious beliefs, which attenuate death anxiety, they may be perceived as posing a significant existential threat. Terror management theory states that morals reflect and reinforce worldviews (Kesebir & Pyszczynski, 2011); therefore, religious individuals may be able to assuage the existential terror associated with atheists by disparaging them as immoral. This denigration, in turn, may engender anti-atheist prejudice, as predicted by sociofunctional theory. The current study expanded upon the extant

literature by uniquely combining the sociofunctional and terror management explanations for anti-atheist prejudice. More specifically, it tested whether evoking an existential threat by priming mortality salience increased adherence to the stereotype that atheists are immoral and, consequently, exacerbated prejudice against them.

Religion and Trust

People are more likely to behave in a prosocial manner when they feel as if they are being watched (Bateson, Nettle, & Roberts, 2006; Ernest-Jones, Nettle, & Bateson, 2011; Haley & Fessler, 2005; Nettle et al., 2013). Converging evidence from multiple disciplines suggests that religious belief emerged, in part, to promote social cohesion within large groups (Norenzayan & Shariff, 2008). More specifically, the notion of a supernatural watcher who rewards those who adhere to social mores and punishes those who deviate from them encourages individuals to conform to group values even when others are not present to judge them. Indeed, cross-cultural analyses reveal a positive correlation between the size of a society and its cultural belief in a deity who monitors human behavior (Roes & Raymond, 2003).

Experimental results substantiate the power of religious belief to facilitate prosocial behavior (Shariff, Willard, Andersen, & Norenzayan, 2016). For example, Shariff and Norenzayan (2007) discovered that priming—exposure to a stimulus that influences an individual's response to a subsequent stimulus—religious participants with words associated with God increased their generosity during an economic game. Religious belief also deters individuals from engaging in antisocial behaviors. A subsequent study revealed that individuals who perceived God as punishing and vengeful were less likely to cheat on an anonymous test than those who believed in a lenient deity (Shariff & Norenzayan, 2011). Furthermore, priming individuals to think of God increased their self-awareness of being watched (Gervais &

Norenzayan, 2012a). This finding suggests that the causal relationship between religiosity and prosocial activity occurs due to concerns of supernatural monitoring rather than the mere observance of religious values.

Many people presume that belief in a vigilant deity who is ever-ready to dole out divine retribution upon wrongdoers is necessary to ensure popular adherence to social mores (Pew Research Center, 2002). Consequently, theists are perceived as trustworthy (Tan & Vogel, 2008) whereas atheists are denigrated as narcissistic, self-centered individuals who lack concern for the common good (Dubendorff & Luchner, 2017; Edgell et al., 2006). The stereotype of the immoral, selfish nonbeliever incites distrust of and prejudice toward atheists (Franks & Scherr, 2014; Gervais et al., 2011). Despite the ubiquitous suspicion of atheists, research suggests that such distrust is malleable at the individual level. For example, leading participants to believe that atheists compose a large portion of the population, decreased both their explicit and implicit distrust of atheists (Gervais, 2011). Reminders of the efficacy of secular judicial systems engendered this same effect (Gervais & Norenzayan, 2012b).

Moreover, reminders of secular authority increase prosocial behavior to nearly the same extent that priming religious concepts does (Shariff & Norenzayan, 2007). Religion does not uniquely nor exclusively inspire morality. Ironically, it sometimes incentivizes antisocial behaviors (DeBono, Shariff, Poole, & Murayen, 2017). In summary, both atheists and religious individuals conform to social mores because others—whether natural or supernatural—are watching and judging their actions. Despite this likeness, atheists remain stigmatized as untrustworthy and immoral (Cook, Cottrell, & Webster, 2015; Gervais et al., 2011).

Moral and Cultural Threat

The immoral atheist stereotype is potent and pervasive (Schiavone & Gervais, 2017). Individuals identify immoral acts, ranging from serial murder to bestiality, as more likely to be committed by atheists than by other traditionally marginalized groups (e.g., religious and ethnic minorities; Gervais, 2014). Moreover, even mental representations of atheists are characterized by unpleasantness, untrustworthiness, and depravity (Brown-Iannuzzi, McKee, & Gervais, 2018).

The extant literature has explicated the relationship between the perception that atheists are immoral and prejudice against them predominantly through the lens of sociofunctional theory, which posits that the specific threat associated with a group elicits a specific emotional reaction that, in turn, motivates a specific behavioral response intended to neutralize the danger (Cottrell & Neuberg, 2005). Indeed, prejudice against atheists progresses by this sequence; that is, atheists are stereotyped as threatening moral values, a perception that induces moral disgust (Cook, Cottrell, & Webster, 2015). This abhorrence includes a sense of moral contamination that, similarly to feelings of physical disgust, can be attenuated by physically cleansing oneself (Ritter & Preston, 2011; Zhong & Liljenquist, 2006). The equivalence of these revulsions is readily apparent in that individuals react to moral disgust by attempting to quarantine the immoral malady by politically and socially ostracizing atheists—as predicted by sociofunctional theory (Cook, Cottrell, & Webster, 2015; Cottrell & Neuberg, 2005).

Moreover, because religion serves as the cornerstone of the United States' national identity (e.g., "In God we trust"), atheists are denounced as cultural outsiders who do not support the citizenry's vision for society (Edgell et al., 2006). Indeed, prejudice against atheists is particularly salient within the United States where atheists are perceived as less moral than

Christians, despite atheists and religious individuals being homogeneous in moral judgments and empathy (e.g., Brown-Iannuzzi et al., 2019; Rabelo & Pilati, 2019; Wright & Nichols, 2014).

Atheists are also perceived as posing a greater moral threat than gay men, a group similarly disparaged as jeopardizing traditional moral and cultural values (Cottrell & Neuberg, 2005). The anti-atheist literature (e.g., Cook, Cottrell, & Webster, 2015; Franks & Scherr, 2014; Gervais, 2014; Gervais et al., 2011; Gervais & Norenzayan, 2012b) frequently compares prejudice against atheists with prejudice against gay men as both identities are potentially concealable, and discrimination toward both groups is positively correlated with religiosity (Gervais et al., 2011; Ng & Gervais, 2017). Despite these resemblances, atheists are more stigmatized than gay men within the United States (Cook, Cottrell, & Webster, 2015; Franks & Scherr, 2014). This discrepancy is explainable in that while a group can be perceived as posing multiple threats, one of those threats may be more salient than the others and, consequently, more likely to incite prejudice against the group (Cottrell & Neuberg, 2005). Indeed, although gay men are perceived as threatening moral and cultural values (Cottrell & Neuberg, 2005), prejudice against them is primarily driven by physical disgust and fear of physical contamination (Cottrell & Neuberg, 2005; Franks & Scherr, 2014; Gervais et al., 2011; Golec de Zavala, Waldzus, & Cyprianska, 2014). In contrast, anti-atheist prejudice results from distrust of and moral disgust with nonbelievers (Edgell et al., 2006; Gervais, et al., 2011; Cook, Cottrell, & Webster, 2015). The disproportionately high stigmatization of atheists due to them being typified as immoral suggests that perceived moral violations play an instrumental role in the development of prejudice.

Terror Management Theory

The substantial impact of perceived moral violations on expressions of prejudice corresponds with research demonstrating that moral values are the most deeply held and potentially divisive beliefs (Skitka, 2010). Disagreement over moral convictions results in greater intolerance toward and less cooperation with attitudinally dissimilar others than does disagreement over strongly held amoral beliefs (Skitka, Bauman, & Sargis, 2005). Additionally, individuals express less desire to interact with morally dissimilar others than racially and socioeconomically dissimilar others (Haidt, Rosenberg, & Hom, 2003). Indeed, mutual moral values centrally define group membership and shape intra/intergroup behaviors (Ellemers & Van de Toorn, 2015). Kesebir and Pyszczynski (2011) argue that moral values hold a sacred place among beliefs because they reinforce a worldview that, according to terror management theory (TMT; Greenberg et al., 1986), attenuates death anxiety. TMT posits that humans' distinctive self-awareness and reasoning abilities leads all individuals to conclude that death is inevitable, a macabre realization that conflicts with psychological mechanisms that evolved to promote survival. The resultant dissonance evokes death anxiety that is consigned to unconsciousness by worldviews that provide either a sense of literal immortality (e.g., the promise of an afterlife) or symbolic immortality (e.g., being remembered by others). Worldviews are socially constructed, and their structural integrity is contingent upon widespread and consistent validation by others. Thus, individuals who threaten the ostensible legitimacy of one's worldview by adhering to values espoused by a discrepant worldview are perceived as existentially threatening. Terror management theory explains prejudice as a defensive reaction intended to neutralize this threat (Greenberg et al., 1990; McGregor et al., 1998).

Terror management theory has garnered an abundance of empirical support over the last several decades (see a recent meta-analysis by Burke, Martens, & Faucher, 2010). Evidence derives from the consistent affirmation of two complementary hypotheses: the death-thought accessibility hypothesis and the mortality salience hypothesis.

The death-thought accessibility hypothesis states that if worldviews buffer death anxiety by relegating it to unconsciousness, then undermining individuals' worldviews should increase their death-thought accessibility (DTA), the conscious awareness of death-related thoughts. For example, Christian fundamentalists, who believe that the Bible is immaculate, displayed an increased level of DTA after exposure to inconsistent accounts of the resurrection of Jesus (Friedman & Rholes, 2007). Canadian participants similarly expressed greater DTA after reading an essay criticizing Canada (Schimel, Hayes, Williams, & Jahrig, 2007). Furthermore, threatening people's self-esteem, which TMT frames as an indication that one is upholding the values espoused by their worldview, increases death-thought accessibility; however, this effect is mitigated when individuals are granted an opportunity to reaffirm their worldview (Hayes, Schimel, Faucher, & Williams, 2008).

The mortality salience (MS) hypothesis inversely states that if worldviews assuage death anxiety, then bringing thoughts of death into conscious awareness, via exposure to death-related stimuli, should increase both individuals' support for their worldviews and denigration of opposing worldviews. Indeed, people adhere more strongly to cultural values (Jonas, Schimel, Greenberg, & Pyszczynski, 2002) and display greater reverence for culturally cherished symbols following a MS prime (Greenberg, Porteus, Simon, Pyszczynski, & Solomon, 1995). Moreover, priming mortality salience increases both positive reactions to individuals who uphold cultural values and negative reactions to those who violate them (Greenberg et al., 1990; Solomon,

Pyszczynski, & Lyon, 1989). McGregor et al. (1998) expanded upon these findings by demonstrating that MS evokes aggression against outgroups because the culture and values espoused by their members correspond with opposing worldviews. This phenomenon has been validated cross-culturally as both American and Iranian citizens expressed a greater willingness to sanction violence against the other country following a mortality salience prime (Pyszczynski et al., 2006).

Although death anxiety can be mitigated by cultural worldviews and religious worldviews, the latter provides an especially potent buffer due to its promise of literal immortality. For example, participants who were presented with anecdotal evidence of an afterlife prior to mortality salience priming felt a greater sense of personal hope and expressed less distain toward those who violated cultural values compared to those who were primed without such reassurance (Dechesne et al., 2003; Wisman & Heflick, 2016). This result suggests that belief in an afterlife assuages death anxiety with such efficacy that it renders the comfort of symbolic immortality provided by one's culture superfluous. Consequently, individuals who believe in the afterlife are not compelled to preserve feelings of symbolic immortality by aggressing against those who deviate from cultural norms.

Because many religions posit the existence of a tangible afterlife, religious belief itself mitigates death anxiety through this association. For example, Templer (1972) discovered a negative correlation between the intensity of death anxiety and religious commitment (e.g., frequency of church attendance). Religious belief also helps individuals maintain a sense of meaning in life, despite the inevitability of death (Vail & Soenke, 2018). These outcomes are contingent upon genuine religious conviction; individuals who partake in religion solely as a social endeavor do not experience the full extent of its protection from death anxiety (Jonas &

Fischer, 2006). The inimitable power of religion to buffer death anxiety is further substantiated by findings that priming mortality salience increases belief in God and divine intervention (Norenzayan & Hansen, 2006). Moreover, this change occurs even for those who self-identify as not believing in God. One study revealed that, although MS increases religious individuals' and atheists' explicit support of their respective worldviews, it increased both groups' implicit belief in the supernatural (Jong, Halberstadt, & Bluemke, 2012). Similarly, priming mortality salience increased agnostics' self-reported belief in both the supernatural in general and in specific deities (Vail, Arndt, & Abdollahi, 2012). This effect did not extend to religious individuals, who responded to MS by simultaneously increasing their belief in the deity espoused by their religion and decreasing their belief in the deities of other religions. It seems that while exposure to death-related stimuli encourages people to seek the existential comfort provided by religion, only a person's chosen religion provides the complete buffering effect. Consequently, to achieve the maximum protection from death anxiety, religious individuals must reinforce their beliefs by disparaging alternative doctrines as untrue (Vail et al., 2012).

Current Work

Because religious belief robustly attenuates death anxiety, any opposing worldview that threatens a person's faith may, consequently, evoke death anxiety by undermining the protection sustained by that faith (Dechesne et al., 2003; Jonas & Fischer, 2006; Vail et al., 2012). Atheists are perceived as more immoral and suffer greater stigmatization than other religious minorities (e.g., Muslims, Hindus, and Buddhists; Cook, Cottrell, & Webster, 2015; Edgell et al, 2006; Gervais, 2014). This disparity may be explainable in that opposing religious worldviews, although certainly threatening to one's own, still espouse the palpability of an afterlife. In

contrast, atheists, who are typified by their lack of belief in a deity, do not posit the existential solace of life after death.

A recent study revealed that priming mortality salience increased distrust of and prejudice against atheists and that merely thinking about atheism resulted in greater death-thought accessibility (Cook, Cohen, & Solomon, 2015). This preliminary evidence for a terror management explanation of anti-atheist prejudice is congruous with the substantial literature demonstrating the death anxiety buffering effect of religion (Dechesne et al., 2003; Norenzayan & Hansen, 2006). Moreover, the predominant sociofunctional explanation for anti-atheist prejudice (Cottrell & Neuberg, 2005), which posits that atheists are stigmatized because individuals perceive them as immoral, can itself be explained by terror management theory. TMT posits that morals reflect and reinforce worldviews (Kesebir & Pyszczynski, 2011); therefore, atheists may be perceived as particularly immoral due to the immense existential threat evoked by their lack of belief in a deity.

Prior work (Cook, Cohen, & Solomon, 2015) has not investigated the potential mediating effect of perceived moral threat on the relationship between existential threat and anti-atheist prejudice. The current research bridges the gap by testing a model that uniquely consolidates the threat-based explanations for anti-atheist prejudice of both terror management theory (Greenberg et al., 1986) and sociofunctional theory (Cottrell & Neuberg, 2005). More specifically, the current study tested the impact of priming mortality salience on prejudice against atheists through the previously unexplored indirect pathway of perceived moral threat (see Figure 1). It was predicted that participants primed for mortality salience would perceive atheists as posing a greater moral threat and, consequently, express greater prejudice against them than would participants in the control condition.

A measure of affect and a measure of self-esteem were included to control for these variables while testing the primary hypothesis. More specifically, The Positive and Negative Affect Schedule—Expanded Version (PANAS-X; Watson & Clark, 1994) allowed the researchers to control for the possibility that changes in perceived atheist immorality and anti-atheist prejudice following the MS induction were caused by resultant variance in emotional state rather than by the intended elicitation of death anxiety. The impact of mortality salience on worldview defense occurs only after primed death-related thoughts have returned to outside of conscious awareness (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994); therefore, MS should not influence individuals' conscious awareness of their emotions. Indeed, previous research has consistently demonstrated that priming MS does not engender a self-reported change in affect (e.g., Cook, Cohen, & Solomon, 2015; McGregor et al., 1998; Pyszczynski et al., 2006). The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was included control for self-esteem, which mitigates the impact of mortality salience (Dechesne et al., 2003; Hayes, Schimel, Faucher, & Williams, 2008; Wisman & Heflick, 2016), during analysis.

Finally, the current study also attempted to replicate the finding that mortality salience increases religiosity (Jong et al., 2012). It was predicted that participants in the priming condition would express a significantly higher level of religiosity following the manipulation than they did at prescreening, whereas those in the control condition would not show differences in religiosity.

Method

Participants

Seventy-eight students from an introductory psychology class participated for course credit. Participants who self-identified as nonreligious on the demographic questionnaire ($n = 4$) were removed, resulting in a sample of 74 individuals ranging in age from 18 to 22 ($M = 18.61$,

$SD = 0.93$). The sample was predominantly female ($n = 50$), white ($n = 54$), and Christian ($n = 72$). The frequencies for gender, race/ethnicity, and religion are listed in Table 1. Strength of religious belief was assessed at prescreening using the Religious Spirituality subscale of the Spiritual Beliefs Scale (Cicirelli, 2011). Overall, participants expressed a moderate level of religious belief ranging from 1.00 to 5.00 ($M = 3.38$, $SD = 1.03$).

Measures

Mortality salience (MS) manipulation. Mortality salience (MS) was primed via a writing exercise, the conventional procedure in terror management research (McGregor et al., 1998). Participants were randomly assigned to either a MS priming condition that instructed them to “please briefly describe the emotions that the thought of your own death arouses in you” and “please jot down, as specifically you can, what you think will happen to you as you physically die and once you are physically dead” or a control condition with parallel prompts about taking a difficult exam.

Positive and Negative Affect Schedule—Expanded Version (PANAS-X). The Positive and Negative Affect Schedule—Expanded Version (PANAS-X; Watson & Clark, 1994) assessed participants’ emotional states following the priming exercise. Participants indicated the extent to which they currently felt sixty emotions (e.g., cheerful, sad, afraid) on five-point scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). Prior work established high ranges of internal consistency for both the positive affect subscale ($\alpha = .83$ to $.90$) and the negative affect subscale ($\alpha = .85$ to $.90$) across multiple samples (Watson & Clark, 1994). The current study also demonstrated strong reliability for both the positive affect subscale ($\alpha = .90$) and the negative affect subscale ($\alpha = .86$).

Rosenberg Self-Esteem Scale (RSES). The 10-item Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was used to measure self-esteem. Participants indicated their current level of self-esteem (e.g., “I feel that I have a number of good qualities”) using a four-point scale ranging from 1 (*strongly agree*) to 4 (*strongly disagree*). Prior work established the internal consistency reliability of this scale ($\alpha = .88$; Fleming & Courtney, 1984). The value in the current study was acceptable ($\alpha = .76$).

Perceived Outgroup Threat Measure. The 6-item Perceived Outgroup Threat Measure (Kteily, Bruneau, Waytz, & Cotterill, 2015) was modified by the current researcher to assess the perceived threat posed by atheists across four threat dimensions (general, physical, moral, and economic) using a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Example items included: “atheists, as a group, pose a threat to people like me” and “atheists, as a group, hold values that are morally inferior to those of people like me”. Prior work established a high internal consistency ($\alpha = .94$; Kteily et al., 2015). The reliability was also strong in the current study ($\alpha = .87$).

Anti-atheist prejudice questions. Four questions assessed willingness to discriminate against atheists in various settings (e.g., “How willing would you be to vote for an atheist candidate running for president?”; Cook, Cottrell, & Webster, 2015). Participants responded using a six-point scale ranging from 1 (*very willing*) to 6 (*very unwilling*). The internal consistency reliability was acceptable ($\alpha = .70$).

Spiritual Beliefs Scale (Religious Spirituality subscale only). The Religious Spirituality subscale of the Spiritual Beliefs Scale (Cicirelli, 2011) assessed strength of religious belief following the mortality salience prime. Participants responded to questions (e.g., “I get my strength from loving God”) using a five-point scale ranging from 1 (*strongly disagree*) and 5

(*strongly agree*). Previous work established the internal consistency of the Religious Spirituality subscale ($\alpha = .98$; Cicirelli, 2011). This high reliability was replicated in the current study ($\alpha = .96$).

Demographic questionnaire. Participants indicated their gender identity, religious identification, age, and racial/ethnic identity on a demographic questionnaire.

Procedure

Students from an introductory psychology class were asked to identify their religious affiliation and complete the Religious Spirituality subscale of the Spiritual Beliefs Scale (Cicirelli, 2011) at prescreening. This preliminary assessment ensured that only religious individuals participated in the study and also established a baseline measure of their religiosity.

Eligible participants were told upon recruitment that the purpose of the study was to investigate the impact of self-esteem on perceptions toward outgroups. During the experimental session, the participants were greeted by the researcher and given an informed consent form. After agreeing to participate, they were led to a computer that they used to complete the study materials in the following order: the mortality salience priming exercise (McGregor et al., 1999), the Positive and Negative Affect Schedule—Expanded Version (PANAS-X; David & Clark, 1994), the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), the Perceived Outgroup Threat Measure (Kteily, Bruneau, Waytz, & Cotterill, 2015), the anti-atheist prejudice questions (Cook et al., 2015), the Religious Spirituality subscale of the Religious Beliefs Scale (Cicirelli, 2011), and the demographic questionnaire. Upon completion, participants were debriefed, thanked, and given an opportunity to ask questions.

Analytic Approach

Mortality salience was dummy-coded (1 = priming, -1, = control) prior to performing all statistical analyses. A simple mediation analysis with bias-corrected bootstrap 95% confidence intervals for 10,000 bootstrap samples was conducted to test the primary hypothesis using the PROCESS v3.4 macro for SPSS (Hayes, 2013).

Results

Primary Hypothesis

A simple mediation analysis was conducted to test the primary hypothesis that participants primed for mortality salience would perceive atheists as posing a greater moral threat and, consequently, express greater prejudice against them than would participants in the control condition. As seen in Figure 2, perceived moral threat significantly predicted anti-atheist prejudice; however, neither the direct effect of mortality salience on anti-atheist prejudice nor the indirect effect of mortality salience on anti-atheist prejudice through perceived mortal threat were significant. The model summary information and the 95% confidence intervals for both the direct and indirect effects are reported in Tables 2 and 3, respectively.

Exploratory Hypothesis

The exploratory hypothesis that participants primed for mortality salience would express a significantly higher level of religiosity following the manipulation than they did at prescreening while those in the control condition would not was tested using a 2 X 2 mixed ANOVA. The means and standard deviations are displayed in Table 4. The results revealed a significant main effect of condition, $F(1, 72) = 9.01, p = .004$, such that participants in the priming condition displayed greater religiosity at both measurement times than did those in the

control condition. However, there was neither a main effect of measurement time, $F(1, 72) = .03$, $p > .05$, nor a significant interaction between variables, $F(1, 72) = .87$, $p > .05$.

Auxiliary Analyses

Because the mediation analysis for the primary hypothesis produced nonsignificant results, there was no need to control for affect and self-esteem as preceded by previous research (e.g., Cook, Cohen, & Solomon, 2015; Hayes et al., 2008; McGregor et al., 1998; Pyszczynski et al., 2006; Wisman & Heflick, 2016). Two independent samples *t*-tests were, nonetheless, conducted to determine if the manipulation impacted participants' positive and negative affective states. The results were consistent with established findings (e.g., Cook, Cohen, & Solomon, 2015; McGregor et al., 1998; Pyszczynski et al., 2006) as participants in the priming condition ($M = 31.43$, $SD = 7.88$) did not differ in positive affect from those in the control condition ($M = 31.38$, $SD = 8.75$), $t(72) = .03$, $p > .05$. Similarly, there was no significant difference in negative affect between the priming group ($M = 19.27$, $SD = 7.41$) and the control group ($M = 17.59$, $SD = 5.89$), $t(72) = 1.08$, $p > .05$.

Extant research has not explored the potential relation between anti-atheist prejudice, religiosity, and types of perceived threat other than moral threat (e.g., general, physical, and economic). Thus, a post hoc exploratory correlation analysis was conducted with types of perceived threat (general, physical, moral, and economic), religiosity, and anti-atheist prejudice entered as variables. All of the threat types were significantly correlated with each other; however, only perceived moral threat was positively correlated with religiosity and anti-atheist prejudice. In addition, the positive correlation between religiosity and anti-atheist prejudice demonstrated by previous research was replicated (Gervais et al., 2011; Ng & Gervais, 2017). The descriptive statistics and zero-order correlations are displayed in Table 5.

Discussion

The current work merged the threat-based approaches of terror management theory (Greenberg et al., 1986) and sociofunctional theory (Cottrell & Neuberg, 2005) to test a novel explanation for anti-atheist prejudice. More specifically, it aimed to expand upon preliminary evidence (Cook, Cohen, & Solomon, 2015) for a causal relation between existential threat and prejudice against atheists by investigating the hitherto underexplored mediating effect of perceived moral threat. However, in contrast with a substantial body of literature (Burke et al., 2010), priming mortality salience did not engender greater worldview defense (i.e., greater prejudice against atheists). The MS induction also failed to impact perceived atheist immorality and magnitude of religiosity; thus, both the primary hypothesis and the exploratory hypothesis were not supported.

The ineffectual manipulation may be explained by the sample's moderate religiosity as only individuals with a robust, genuine faith in their religion experience the full extent of its death anxiety buffering effect (Jonas & Fischer, 2006). Participants who lacked such conviction may not have derived existential solace from their chosen creeds and, therefore, did not perceive atheists as existentially threatening. The absence of this ostensible danger may have obviated the need to increase explicit support for one's worldview and, consequently, resulted in the failure of the current study to replicate the findings that MS increases both prejudice toward outgroups and religiosity (Greenberg et al., 1990; Jong et al., 2012; McGregor et al., 1998).

In addition, a religion itself does not attenuate death anxiety; rather, it is that religion's promise of literal immortality that provides existential security (Dechesne et al., 2003). This nuanced finding raises the possibility that the manipulation failed because participants derived this same comfort from alternative (i.e., secular) sources. For example, priming mortality

salience causes those low in religiosity to express increased support for biomedical innovations that offer the potential to prolong life indefinitely (Lifshin, Greenberg, Soenke, Darrell, & Pyszczynski, 2018). Perhaps as religious belief becomes consistently sparser in the United States, especially among individuals in the age range of the current sample (Pew Research Center, 2015), even theists may turn to more immediate secular avenues for existential solace.

Limitations and Future Directions

The main limitation of the current study was its use of convenience sampling, which resulted in a sample that was predominantly homogenous in terms of age, gender, race, and religion. In addition, the Perceived Outgroup Threat Measure and the anti-atheist prejudice questions explicitly asked participants about their perceptions of and prejudice against atheists. Making blatantly prejudicial statements is widely considered to be socially unacceptable (Burridge, 2004; Meertens & Pettigrew, 1997), and individuals suppress expressions of prejudice in accordance with social norms (Crandell, Eshleman, & O'Brien, 2002). Thus, participants may have been motivated to respond in the most socially desirable (i.e., nonprejudiced) manner (Dunton & Fazio, 1997; Plant & Devine, 1998). The experimental setting itself, a college campus with strict standards of student conduct that prohibit the expression of prejudice, may have further incentivized participants to not convey a willingness to discriminate, even when they were guaranteed anonymity.

Future research should aim to recruit a more demographically diverse sample. This outcome could be achieved by conducting a study on Amazon Mechanical Turk (MTurk), an online crowdsourcing platform commonly used by social scientists (Buhrmester, Talafar, & Gosling, 2018).

In addition, future research should utilize an implicit measure of prejudice, which is more resistant to insincere responding than the explicit measures used in the current study (Akrami & Ekehammar, 2005; Banse, Seise, & Zerbes, 2001). More specifically, the perceived moral threat posed by atheists might be assessed with a conjunction fallacy paradigm as versions of this measure have been utilized successfully in previous research to examine implicit attitudes toward atheists (Gervais et al., 2011; Gervais, 2014). The conjunction fallacy betrays people's implicit and intuitive perceptions of a group by triggering the representativeness heuristic, a mental shortcut that causes people to reflexively assume that an individual is a member of a group if that individual is described as having characteristics that are stereotypical of a member of that group (Tversky & Kahneman, 1983). For example, the original conjunction fallacy paradigm described a single, outspoken woman named Linda who is deeply concerned with social justice. Participants were asked to indicate whether it was more likely that Linda was (1) a bank teller or (2) a bank teller and a feminist. Although the first option is more probable because the probability of two events occurring simultaneously is always less than the probability of either event occurring alone, most individuals chose the second option because the description of Linda corresponded with feminist stereotypes. Future research can similarly assess whether atheists are stereotyped as immoral by presenting participants with a description of a depraved individual and asking them whether it is more likely that he is (1) a bank teller or (2) a bank teller who does not believe in God.

Conclusion

The current work investigated whether the perceived moral threat posed by atheists mediated the relation between the existential threat posed by the group and prejudice against its members. Despite the inefficacy of the manipulation and the consequential null results, the

robust evidence for the proposed model's theoretical underpinnings (e.g., Cook, Cottrell, & Webster, 2015; Gervais, 2014; Kesebir & Pyszczynski, 2011; Norenzayan & Hansen, 2006) suggests that these unexpected outcomes may have resulted from flaws in the current study's methodology rather than from deficiencies within the model itself. Indeed, the extant literature has consistently substantiated terror management theory (Greenberg et al., 1986; Burke et al., 2010) and, in particular, the potent death anxiety attenuating effect of religious belief (Templer, 1972; Norenzayan & Hansen, 2006; Vail et al., 2012). Because atheists distinctively reject such faith, they may be perceived as posing an existential threat that religious individuals aim to neutralize by disparaging them and their worldview as immoral (Kesebir & Pyszczynski, 2011), a perception that sociofunctional theory frames as the cornerstone of anti-atheist prejudice (Cook, Cottrell, & Webster, 2016). Due to the congruity of both threat-based approaches to prejudice, future replications are essential to ascertain whether the null results of the current work denote a statistical fluke arising from confounds or a genuine refutation of the proposed model.

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Table 1

Frequencies for Gender, Race, and Religion

	<i>n</i>	%
Gender		
Male	24	32.4
Female	50	67.6
Race/Ethnicity		
White	54	73.0
Black	11	14.9
Hispanic/Latino(a)	5	6.8
Asian/Pacific Islander	1	1.4
Biracial/Multiracial	2	2.7
Other	1	1.4
Religion		
Christian (Catholic)	48	64.9
Christian (Protestant)	24	32.4
Muslim	1	1.4
Other	1	1.4

Table 2

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Simple Mediation Model

	Mediator			Outcome		
	M Moral Threat			Y Anti-Atheist Prejudice		
Antecedent	<i>B</i>	SE	<i>p</i>	<i>B</i>	SE	<i>p</i>
X Mortality Salience	.07	.19	.73	.01	.06	.87
M Mortal Threat				.10	.04	.008
Constant	.19	.19	<.001	.76	.13	<.001
	R ² = .002			R ² = .09		
	<i>F</i> (1, 72) = .12, <i>p</i> = .73			<i>F</i> (2, 72) = 3.72, <i>p</i> = .03		

Table 3

95% Confidence Intervals for the Direct and Indirect Effects for the Simple Mediation Model

	Outcome	
	Discrimination	
Effects	LLCI	ULCI
Mortality Salience	-.11	.14
Mortality Salience to Moral Threat	-.03	.05

Table 4

Means (Standard Deviations) for Prescreening Religiosity and Post-Manipulation Religiosity

	Priming Condition	Control Condition
Prescreening Religiosity	3.73 (.72)	3.03 (1.17)
Post-Manipulation Religiosity	3.65 (.92)	3.14 (.98)

Table 5

Descriptive Statistics and Zero-Order Correlations Between Types of Threat, Religiosity, and Anti-Atheist Prejudice (n = 74)

	<i>M (SD)</i>	Range	1	2	3	4	5	6
1. General Threat	2.55 (1.43)	1.00 - 7.00	1					
2. Physical Threat	2.18 (1.36)	1.00 - 6.00	.60***	1				
3. Moral Threat	3.19 (1.66)	1.00 - 7.00	.51***	.59***	1			
4. Economic Threat	2.33 (1.36)	1.00 - 7.00	.66***	.76***	.54***	1		
5. Religiosity	3.40 (.98)	1.00 - 5.00	.10	.04	.32**	.06	1	
6. Anti-Atheist Prejudice	3.08 (.54)	1.00 - 4.00	.02	.14	.31**	.14	.28*	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

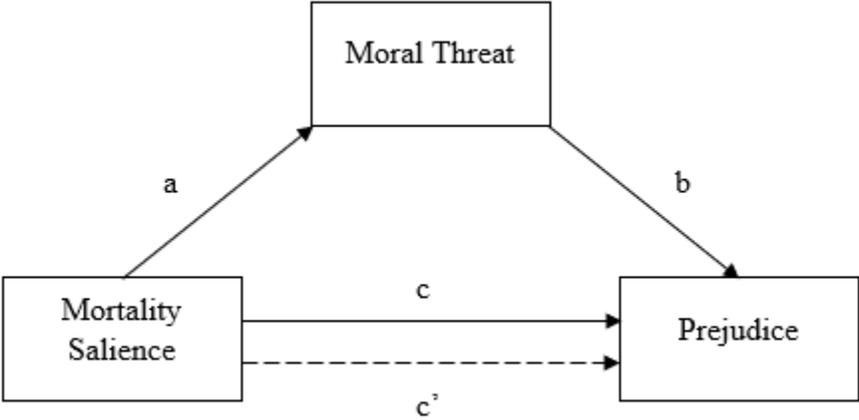


Figure 1. Predicted Simple Mediation Model for Primary Hypothesis

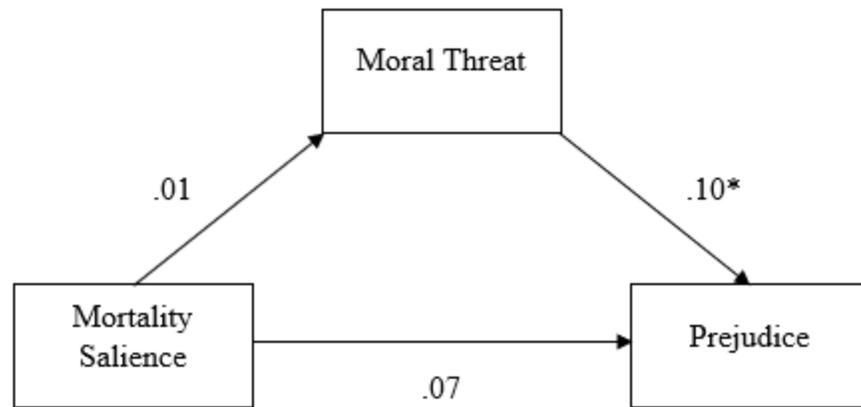


Figure 2. Simple Mediation Model for Primary Hypothesis with Unstandardized Coefficients

* $p < .01$