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Religious Magnanimity: Reminding People of Their Religious Belief System Reduces Hostility After Threat

Karina Schumann
Stanford University

Ian McGregor
York University

Kyle A. Nash
University of Basel

Michael Ross
University of Waterloo

The present research tested the hypothesis that many people's ambient religious beliefs are non-hostile and magnanimous by assessing whether reminding people of their religious belief systems would reduce hostility after threat. Across religious affiliations, participants reported that their religious belief systems encourage magnanimous behavior. In addition, priming their religious belief systems caused them to act more magnanimously, but only when motivated to adhere to salient ideals (i.e., after threats; see Gailliot, Stillman, Schmeichel, Maner, & Plant, 2008; Jonas et al., 2008). Specifically, in Studies 1–5, we found that a general religious belief system prime ("Which religious belief system do you identify with?") reduced the hostility of people's thoughts, behaviors, and judgments following threat. In Studies 6 and 7, we found that the religious belief system prime only reduced hostile reactions to threat among participants who held religious beliefs that oriented them toward magnanimous ideals (Study 6) and who were dispositionally inclined to adhere to their ideals (Study 7). In Study 8, we found support for the role of magnanimous ideals by demonstrating that directly priming these ideals yielded effects similar to those produced by a religious belief system prime. These studies provide consistent evidence that, by invoking magnanimous ideals, a religious belief system prime promotes less hostile responses to threat.

Keywords: religion, threat, hostility, ideals, promotion focus

Few topics evoke greater divergence of opinion than religion. According to some, religion promotes a variety of prosocial behaviors, including compassion, selflessness, cooperation, and generosity (Armstrong, 2006; Irons, 1991; Myers, 2008; Putnam & Campbell, 2010; Shariff, Norenzayan, & Henrich, 2010). Others argue that religion promotes antisocial behaviors, such as violence, intolerance, and the worst of human atrocities (Dawkins, 2006; Harris, 2004; Hitchens, 2007). Although brutalities have been perpetrated in the name of religion and religious zeal can sometimes be violent, we propose that people generally associate their religious belief system with magnanimous ideals.

To be magnanimous is to eschew vengefulness and be generous in forgiving ("Magnanimous," n.d.). In the present research, we

examined the relation between religion and magnanimity by simply reminding people of their religious belief system. We assessed whether these reminders would cause participants to respond with greater magnanimity to threats that tend to elicit hostility when religious beliefs are not salient. We hypothesized that reminding people of their religious belief system would activate their pre-existing magnanimous religious ideals. People facing a threat would then adhere to their religious ideals by reacting to the threat in a more magnanimous, non-hostile manner.

Palliative Reactions to Threat

For decades, social psychologists have studied how people respond to threats they are unable to eliminate. The general finding is that people react to such threats (e.g., mortality salience, personal uncertainty, loss of control) by adhering to other commitments, including their ideals, worldviews, and meanings (e.g., Burke, Martens, & Faucher, 2010; Kay, Gaucher, Napier, Callan, & Laurin, 2008; I. McGregor, Zanna, Holmes, & Spencer, 2001; Proulx & Heine, 2008; van den Bos, 2001). Recent attempts to provide a unifying account of the threat literature construe threats as triggering primal neural processes related to distress, and the reactions as palliative attempts to mute that distress (Jonas et al., 2014; I. McGregor, 2006; I. McGregor, Nash, Mann, & Phillips, 2010; Nash, McGregor, & Prentice, 2011; Proulx & Heine, 2008;

Karina Schumann, Department of Psychology, Stanford University; Ian McGregor, Department of Psychology, York University; Kyle A. Nash, Department of Psychology, University of Basel; Michael Ross, Department of Psychology, University of Waterloo.

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Correspondence concerning this article should be addressed to Karina Schumann, Department of Psychology, Jordan Hall, Building 01-420, Stanford University, 450 Serra Mall, Stanford, CA 94305. E-mail: karinas@stanford.edu

Proulx, Inzlicht, & Harmon-Jones, 2012; Randles, Heine, & Santos, 2013). In other words, when unable to directly remove the source of threat, people can attempt to dispel feelings of distress by increasing their commitment to secure beliefs (I. McGregor, Nash, Mann, & Phills, 2010; Proulx & Heine, 2008; Proulx et al., 2012).

Unfortunately, people often attempt to mute their distress by adhering to other commitments in a rigid, hostile, or self-serving manner. For example, various threats cause hostile worldview defense—the bolstered support of culturally sanctioned values and derogation of those who violate normative ideals (Greenberg, Schimel, Martens, Solomon, & Pyszczynski, 2001; Greenberg, Solomon, & Pyszczynski, 1997; Hart, Shaver, & Goldenberg, 2005). Similarly, threats cause egocentric reactions that demean the relative value and perspective of others (Dechesne et al., 2003; Dunning & Beauregard, 2000; I. McGregor & Marigold, 2003; I. McGregor, Nail, Marigold, & Kang, 2005). Threats even induce militancy and punitive behavior: People experiencing threat are more likely to endorse military aggression against potentially antagonistic nations (Hastings & Shaffer, 2005; Hirschberger, Pyszczynski, & Ein-Dor, 2009; Pyszczynski et al., 2006), are more aggressive toward people who violate their worldviews (H. A. McGregor et al., 1998), and dole out harsher punishments against moral transgressors (Proulx & Heine, 2008). Finally, threats increase people's focus on a principle of justice (Miedema, van den Bos, & Vermunt, 2006; van den Bos, 2001). This focus on justice is not necessarily hostile, but can sometimes result in hostile outcomes such as victim blaming or desire for revenge (Kaiser, Vick, & Major, 2004; Lerner & Miller, 1978; Schumann & Ross, 2010; van den Bos & Maas, 2009).

These hostile reactions to threat typically occur in the absence of constraining cues. However, people's responses to threat can be guided by currently salient ideals (Gailliot, Stillman, Schmeichel, Maner, & Plant, 2008; Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992; Jonas et al., 2008). For example, a mortality salience threat decreases willingness to help following the activation of *pro-self* ideals, but increases willingness to help following the activation of *pro-social* ideals (Jonas et al., 2008).

In light of this past work on salient ideals and our premise that most people's ambient religious beliefs are magnanimous, we reasoned that increasing the salience of people's religious belief system would cause them to act in line with their religious ideals as a palliative reaction to threat. Adhering to religious ideals would be palliative for people experiencing a threat because focusing on ideals and values can mute distress (e.g., Cohen & Sherman, 2014; Creswell et al., 2005; Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999; I. McGregor, 2006).

Although several past studies have examined the consequences of making religious beliefs salient under threat (Golec de Zavala, Cichocka, Orehek, & Abdollahi, 2012; Jonas & Fischer, 2006; Rothschild, Abdollahi, & Pyszczynski, 2009), these studies used primes that activated specific prosocial or antisocial injunctions or religious beliefs. For example, in one set of studies, presenting Christian Americans or Muslim Iranians with compassionate teachings from their respective religions (e.g., "Love your neighbour as yourself"; "Do goodness to others because Allah loves those who do good," respectively) reduced their hostility toward outgroups (Rothschild et al., 2009). In contrast, however, providing participants with vengeful religious passages (e.g., "The LORD commanded Israel to take arms against their brothers and

chasten them before the LORD") caused them to deliver more aggressive noise blasts against their experiment partner (Bushman, Ridge, Das, Key, & Busath, 2007).

In the present studies, we extended this past work by testing whether a mere reminder of one's religious belief system could similarly reduce hostility after threat. Unlike religion primes that explicitly emphasize either prosocial or antisocial religious teachings (e.g., Bushman et al., 2007; Rothschild et al., 2009), the religious belief system prime was stripped of any explicit religious teachings or values that might guide behavior in either a magnanimous or hostile direction. As such, it allowed us to assess whether participants' personal religious beliefs were spontaneously magnanimous. Further, unlike God primes, which activate images of God as an omnipotent, omniscient moral agent (e.g., Preston & Ritter, 2010; Shariff & Norenzayan, 2007), or religious group primes, which activate ingroup protection motives (e.g., Ginges, Hansen, & Norenzayan, 2009; Preston & Ritter, 2010), we expected a religious belief system prime to activate core ideals associated with participants' religious beliefs. This minimal priming procedure thus allowed us to tap the content of participants' pre-existing religious beliefs to test our hypothesis that religious belief salience tends to cause less hostile reactions to threat. This hypothesis was based on the premise that many people's religious beliefs revolve around magnanimous ideals.

Magnanimous Religion?

Religion is a complex, multifaceted phenomenon that has diverse effects on behavior (Galen, 2012; Preston & Ritter, 2010). In support of a prosocial facet of religion, correlational research indicates that religious people tend to be more charitable (Center for Global Prosperity, 2007; Putnam & Campbell, 2010), empathic (Markstrom, Huey, Stiles, & Krause, 2010), forgiving (McCullough & Willoughby, 2009), cooperative (Ruffle & Sosis, 2006), helpful (B. G. Smith & Stark, 2009), and likely to volunteer (Caputo, 2009; Ruiter & DeGraaf, 2006). More religious people are also less aggressive (Landau, Björkqvist, Lagerspetz, Österman, & Gideon, 2002; Saroglou, Pichon, Trompette, Verschuere, & Dernelle, 2005) and less likely to engage in criminal behavior (Baier & Wright, 2001). Importantly, experimental studies have also demonstrated that implicitly primed religious concepts (e.g., God, heaven, holy) decrease revenge (Saroglou, Corneille, & Van Cappellen, 2009) and increase generosity (Ahmed & Salas, 2011; Shariff & Norenzayan, 2007), honesty (Randolph-Seng & Nielsen, 2007), helping behavior (Pichon, Boccato, & Saroglou, 2007, Study 1), and the accessibility of prosocial concepts (Pichon et al., 2007, Study 2).

In contrast to these prosocial associations, research has also identified a dark facet to religion. Some forms of religiosity are associated with prejudice toward various outgroups (Hunsberger & Jackson, 2005; Rowatt et al., 2006), a relation also observed in priming studies (Johnson, Rowatt, & LaBouff, 2010; LaBouff, Rowatt, Johnson, & Finkle, 2012). Several surveys with Palestinians have revealed that frequency of Mosque attendance (but not frequency of prayer) predicts support for suicide attacks (Ginges et al., 2009). Further, implicitly primed religious concepts increase vengeful behavior if revenge is recommended by an authority figure (Saroglou et al., 2009), and priming vengeful religious

teachings increases aggression toward a fellow participant (Bushman et al., 2007).

It is perhaps not surprising that religion is associated with such divergent outcomes. Religion has many different dimensions (e.g., intrinsic vs. extrinsic: Allport & Ross, 1967; coalitional vs. spiritual: Saroglou, 2013), and religious messages are often highly contextualized. In many religious texts, one can find passages that prescribe opposite behaviors. Concerning magnanimity, for example, many religious texts both explicitly endorse revenge (e.g., “If anyone injures his neighbor, whatever he has done must be done to him: fracture for fracture, eye for an eye, tooth for tooth”; Leviticus 24:19–20) and explicitly prohibit it (e.g., “You have heard that it was said, ‘Eye for eye, and tooth for tooth.’ But I tell you, do not resist an evil person. If someone strikes you on the right cheek, turn to him the other also”; Matthew 5:38). These mixed messages may help explain why religion is associated with both magnanimous and hostile behavior (McCullough & Willoughby, 2009; Saroglou et al., 2009).

The apparent contradictions in religious doctrines suggest that people might have mixed religious representations with equally dominant prosocial and antisocial themes. However, various scholars argue that religious endorsements of violence and retribution are surpassed by the more paramount religious theme of compassion and magnanimity (Armstrong, 2009; Myers, 2008; H. Smith, 1986). Indeed, the Golden Rule—the prescription to “do unto others as you would have done unto you”—holds a central position in all major world religions¹ (Armstrong, 2008; Batson, Schoenrade, & Ventis, 1993; Baumard & Boyer, 2013). This maxim is so central to the world’s religions that the Council for a Parliament of the World’s Religions (1993) declared it as a key cross-religion principle.

Reflecting the centrality of the Golden Rule, our preliminary data suggest that people regard the Golden Rule as a chief religious ideal. On a 7-point scale (1 = *not at all*, 7 = *very much*), undergraduate participants (20 Christian, 20 Muslim, 7 Sikh, 5 Hindu, 5 Jewish) indicated that their religious belief system strongly encourages the Golden Rule ($M = 6.11$, $SD = 1.45$), and this perception did not appear to differ as a function of participants’ religious group.² People also regard specific magnanimous ideals as central to their religious belief system. On 5-point scales (1 = *not at all*, 5 = *a lot*), undergraduate participants (34 Christian, 35 Muslim, 36 Jewish) rated the extent to which their own religion encouraged forgiveness, turning the other cheek, and eye

for an eye revenge. All three groups rated their religion as being significantly more supportive of forgiveness and turning the other cheek than of revenge (see Table 1). Together, these findings suggest that people strongly associate their religious beliefs system with magnanimous ideals, such as the superordinate ideal of the Golden Rule and the more specific ideals of forgiveness and refraining from revenge.

Hypotheses

In the present research, we examined the effects of a religious belief system prime under conditions of threat or no threat. We expected this prime to activate participants’ magnanimous religious ideals. Participants with heightened motivation to adhere to these ideals for palliative reasons—those experiencing a threat—would consequently act in accordance with these ideals. In contrast, when religious beliefs were not made salient, we expected participants to respond to threat with the types of hostile reactions that typically occur after threat (Heine, Proulx, & Vohs, 2006; Hirschberger et al., 2009; Proulx et al., 2012; Pyszczynski, Rothschild, & Abdollahi, 2008). We therefore hypothesized that, compared to people receiving no prime, people primed with their religious belief system would respond to threat with less hostility.

Importantly, because we expected people to increase their adherence to ideals as a palliative reaction to threat, we predicted that a religious belief system prime would promote magnanimous behavior only under threatening conditions. This prediction is contrary to evidence from past work demonstrating diverse prosocial effects of religion primes under neutral circumstances (Ahmed & Salas, 2011; Ahmed & Salas, 2013; Gervais & Norenzayan, 2012; Pichon et al., 2007; Randolph-Seng & Nielsen, 2007; Shariff & Norenzayan, 2007). These past studies typically prime participants with religious concepts by using scrambled sentence or lexical decision tasks (e.g., God, heaven, salvation) or by placing participants in a religious context, such as a chapel. Several studies now suggest that such primes increase prosocial behavior, at least in part, by inducing feelings of supernatural surveillance (Gervais & Norenzayan, 2012; Shariff & Norenzayan, 2007; see also Saroglou et al., 2009, in which religion primes increased deference to authority). In essence, these primes might promote prosociality by reminding people that the moral nature of their behavior is being monitored and judged.

Table 1

Means and Standard Deviations for Extent to Which Own Religion Supports Forgiveness, Turning the Other Cheek, and Eye for an Eye Revenge: Preliminary Data

Religious group	<i>n</i>	Forgiveness	Turn other cheek	Revenge
Christianity	34	4.47 (0.66) _a	4.26 (0.93) _a	2.09 (0.87) _b
Islam	35	4.66 (0.64) _a	3.77 (1.09) _c	2.63 (1.29) _d
Judaism	36	4.50 (0.70) _a	3.81 (0.92) _c	2.86 (1.20) _d
Total	105	4.54 (0.67)	3.94 (1.00)	2.53 (1.17)

Note. Higher means indicate greater belief that own religion supports value (5-point scales). Elements with a common single letter subscript represent non-significantly different means, $p < .05$, as determined by relevant simple effects tests.

¹ For example, *Bahá’i Faith*: “Ascribe not to any soul that which thou wouldst not have ascribed to thee,” Bahá’u’lláh 29; *Buddhism*: “Hurt not others in ways that you yourself would find hurtful,” Udanavarga 5:18; *Christianity*: “Therefore all things whatsoever ye would that men should do to you, do ye even so to them,” Matthew 7:12; *Confucianism*: “Do not do to others what you do not want them to do to you,” Analects 15:23; *Hinduism*: “This is the sum of duty: do not do to others what would cause pain if done to you,” Mahabharata 5:1517; *Islam*: “None of you truly believes until he wishes for his brother what he wishes for himself,” An-Nawawi’s Forty Hadith 13; *Jainism*: “Just as pain is not agreeable to you, it is so with others. Knowing this principle of equality treat others with respect and compassion,” Suman Suttam 150; *Judaism*: “That which is hateful to you, do not do to your fellow. That is the whole Torah,” Talmud, Shabbat 31a; *Sikhism*: “If thou desirest thy Beloved, then hurt thou not anyone’s heart,” Guru Devji 259; *Taoism*: “The sage . . . is kind to the kind, he is also kind to the unkind” Tao Teh Ching 49.

² Religious group means are as follows: Christians: $M = 6.20$, $SD = 1.47$; Muslims: $M = 6.05$, $SD = 1.32$; Sikhs: $M = 6.14$, $SD = 2.27$; Hindus: $M = 6.00$, $SD = 1.41$; Jews: $M = 6.00$, $SD = 1.00$.

Because we expected a religious belief system prime to activate core ideals that participants associate with their religious beliefs (rather than feelings of supernatural surveillance), we based our predictions on past research examining the effects of salient norms and ideals after threat. This research has demonstrated that activated norms and ideals often only promote behavior consistent with these norms and ideals when participants have been threatened and are thus motivated to affirm other commitments (Gailliot et al., 2008; Greenberg et al., 1992; Jonas et al., 2008; Rothschild et al., 2009). For example, in four studies using different types of prosocial norm primes (e.g., egalitarianism; helping) and different priming methods (e.g., explicit statements of the norm; situational cues of the norm), Gailliot et al. (2008) found that the salient norms only increased norm-consistent behavior after a mortality salience induction. Jonas et al. (2008) reported a similar pattern in three of four studies on the effects of priming diverse prosocial concepts after mortality salience threats, and Rothschild et al. (2009) demonstrated that salient compassionate religious ideals only reduced support for military force and anti-Western attitudes after mortality salience threats.

These studies provide strong evidence that people are more likely to adhere to salient norms and ideals when they are motivated to dispel the distress caused by threat. We therefore predicted that people would be most likely to adhere to their religious ideals when (a) these ideals were activated by a religious belief system prime, and (b) they were motivated to affirm a secure commitment. In support of this prediction, in a preliminary study we found that people who had been primed with their religious belief system only increased their dedication to their religion when they also experienced a threat. We conducted this preliminary study with 132 undergraduates (72 Christian, 22 Muslim, 15 Hindu, 8 Buddhist, 4 Sikh, 1 Jewish, 10 “other”) and examined the joint effects of a religious belief system prime (“Which religious belief system do you most identify with?”) and a standard mortality salience threat (see Study 1) on a seven-item scale of religious dedication (e.g., “I aspire to live and act according to my religious beliefs”; I. McGregor, Nash, & Prentice, 2010; $\alpha = .90$).³ We found a significant interaction between prime and threat, $F(1, 128) = 4.96, p = .03, \eta_p^2 = .04$. After experiencing the mortality salience threat, participants who had been primed with their religious belief system ($M = 3.89, SD = 0.79$) indicated greater religious dedication relative to participants who had not been primed ($M = 3.29, SD = 0.87$), $F(1, 128) = 7.98, p = .006, d = 0.72$. In the absence of threat, however, participants in the religious belief system prime ($M = 3.50, SD = 0.78$) and no prime ($M = 3.53, SD = 0.80$) conditions did not differ, $F(1, 128) = 0.03, p = .86, d = 0.04$. Further, among participants who had been primed, those in the threat condition indicated greater religious dedication relative to those in the no threat condition, $F(1, 128) = 3.85, p = .05, d = 0.50$. Among participants who had not been primed, those in the threat and no threat conditions did not differ, $F(1, 128) = 1.43, p = .23, d = 0.29$. These findings thus provide evidence that a religious belief system prime increases commitment and adherence to personal religious beliefs, but only in the face of threat.

Research Overview

In eight studies, we examined whether simply reminding participants of their religious belief system would cause them to show more magnanimous reactions to threat. We focused primarily on magna-

nimity in the form of reduced hostility toward offending others. In Studies 1–5, we assessed the combined effect of a religious belief system prime and threat on the magnanimity of participants’ subsequent thoughts, behaviors, and judgments. In Study 1, we assessed the cognitive accessibility of magnanimous words. In Study 2, we assessed magnanimous behavior toward an offending outgroup. In Studies 3 and 4, we assessed magnanimity toward corporate criminals. In Study 5, we assessed magnanimity toward a cultural critic.

Next, in Studies 6–7, we attempted to further explain our effects using pertinent individual difference moderators. In Study 6, we examined whether a religious belief system prime promotes magnanimity under threat particularly for people who associate their religious belief system with the Golden Rule. In Study 7, we examined whether a religious belief system prime promotes magnanimity under threat particularly for people who are dispositionally promotion-focused, and thus especially committed to living up to their ideals. If, as we propose, religious magnanimity is driven by the motivated adherence to religious ideals in threatening circumstances, then the effect should be strongest among participants who hold religious beliefs that orient them toward magnanimous ideals (Study 6) and who are dispositionally inclined to adhere to their ideals (Study 7).

Finally, in Study 8, we sought more direct evidence for our hypothesis that the religious belief system prime activates magnanimous ideals. We manipulated the proposed mediator by replacing the religious belief system prime with a magnanimous ideals prime, and we tested whether this ideals prime showed effects similar to those obtained for the religious belief system prime in earlier studies.

To our knowledge, all existing studies examining the effects of religion in threatening circumstances have used mortality salience manipulations (Golec de Zavala et al., 2012; Jonas & Fischer, 2006; Norenzayan, Dar-Nimrod, Hansen, & Proulx, 2009; Rothschild et al., 2009), as have all studies examining the effects of norm or ideal salience under threat (Gailliot et al., 2008; Greenberg et al., 1992; Jonas et al., 2008; Rothschild et al., 2009). Following a recent review of threat and defense research indicating that any threat should cause similar defensive outcomes (Jonas et al., 2014), we used two different threats (mortality salience and academic uncertainty) to eliminate the possibility of a unique relation between religion and mortality salience, and to broaden the interpretation to threatening circumstances more generally.

Study 1

In Study 1, we used a measure of cognitive accessibility to examine whether magnanimous concepts become more cognitively accessible when people are primed with their religious belief system and threatened. Participants were randomly assigned to one

³ Participants responded to items on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). In addition to religious dedication, participants also responded to items assessing three other facets of religious zeal: extremism (e.g., “I would support a war that defended my religious beliefs”), group-identification (e.g., “I feel strong ties to people who follow the same religion as me”), and belief in a controlling God (e.g., “I believe that a powerful God or Godlike force shapes human destiny”). Although all four facets represent important aspects of religious zeal, we focused on the dedication facet because it signifies intrinsic commitment to religious beliefs and ideals as a fundamental source of meaning in one’s life (I. McGregor, Nash, & Prentice, 2010). No significant interactions emerged for these other components of religious zeal, all $ps > .10$.

of four conditions: religious belief system prime versus no prime crossed with mortality salience threat versus control. Next, participants studied a list of revenge and forgiveness words. They were subsequently asked to recall as many words as possible. We expected threatened participants who had been primed with their religious belief system to recall fewer revenge words and more forgiveness words, as this would represent greater cognitive accessibility of magnanimous concepts (Cameron, Stinson, Gaetz, & Balchen, 2010; Higgins, King, & Mavin, 1982).

Method

Participants. Ninety-six (69 women, 27 men) undergraduate students ($M_{\text{age}} = 21.18$ years, $SD = 4.69$; 55 Christians, 12 Muslims, 8 Hindus, 8 Sikhs, 5 Jews, 2 Buddhists, 6 “other”; no agnostics or atheists) participated in exchange for course credit. The data from seven participants who reported suspicion about the connection between the mortality salience materials and word recall task were excluded from the analyses, leaving a sample of 89 participants (65 women, 27 men; $M_{\text{age}} = 21.18$ years, $SD = 4.85$; 52 Christians, 11 Muslims, 7 Hindus, 7 Sikhs, 4 Jews, 2 Buddhists, and 6 “other”).

Materials and procedure. All materials were completed online. Participants were told the purpose of the study was to examine whether verbal fluency could be determined from various exercises, such as word recall and descriptions of life events. Participants first completed a demographics section, including their age, gender, and university major. Half the participants were randomly assigned to the religious belief system prime, which asked “Which religious belief system do you most identify with?” They were then provided with a list of major religious belief systems from which they chose their own. They also had the option of responding agnostic, atheist, or “other.” The remaining participants were not asked about their religious belief system.

Half of participants then experienced a standard mortality salience threat (Pyszczynski, Greenberg, & Solomon, 1999). Participants randomly assigned to the threat condition described the emotions that thinking of their own death aroused in them and their thoughts about what will happen to their bodies as they physically die. Participants randomly assigned to the control condition described the emotions that a painful visit to the dentist aroused in them and their thoughts about unpleasant or painful experiences at the dentist (Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997). All participants then completed a 5-min thought-record session to provide a delay for the mortality salience manipulation to take effect (Pyszczynski et al., 1999). Participants were told that we were interested in how their personality relates to their style of thinking, and they were asked to record their thoughts as they let their minds wander.

Next, participants completed the word recall task adapted from Cameron et al. (2010). They were told they would have 1 min to study 21 words, after which they would be given a recall test. To assess the accessibility of magnanimous concepts, we included seven revenge words (*retaliate*, *hostility*, *punishing*, *angry*, *vengeful*, *resentful*, *animosity*), seven forgiveness words (*forgiving*, *compassionate*, *kind*, *tolerant*, *generous*, *reconcile*, *merciful*), and seven filler words (*silky*, *reservation*, *watercolor*, *software*, *ponder*, *occupation*, *succulent*). The words from the three categories were matched for both word length ($M_{\text{overall}} = 8.48$ letters, $SD_{\text{overall}} = 2.23$, $ps > .79$) and word frequency per million words ($M_{\text{overall}} = 33.85$, $SD_{\text{overall}} = 128.23$, $ps > .33$). After the words had been presented for 1 min, partic-

ipants were automatically advanced to the next page for the recall test. They were provided with 21 text boxes to input as many words as they could recall and were instructed to click “submit” when they were finished. We summed the number of revenge words recalled to create a *revenge accessibility* score, and we summed the number of forgiveness words recalled to create a *forgiveness accessibility* score. We also summed the number of filler words recalled to create a filler word recall score. After completing the recall test, participants answered an online suspicion check, and then they read a debriefing and thank you letter.

Results

A 2 (religious belief system prime vs. no prime) \times 2 (threat vs. control) analysis of variance (ANOVA) revealed a significant interaction on the accessibility of revenge words, $F(1, 85) = 4.66$, $p = .03$, $\eta_p^2 = .05$ (see Figure 1). After experiencing the mortality salience threat, participants who had been primed with their religious belief system ($M = 2.36$, $SD = 0.85$) recalled fewer revenge words than did participants who had not been primed ($M = 3.23$, $SD = 1.41$), $F(1, 85) = 4.96$, $p = .03$, $d = 0.75$. In the absence of threat, the presence or lack of a religious belief system prime had no effect on recall, $F(1, 85) = 0.67$, $p = .42$, $d = 0.23$ ($M = 3.09$, $SD = 1.24$ and $M = 2.77$, $SD = 1.54$, respectively). This finding suggests that, as predicted, vengeful concepts were less accessible to threatened participants when they had previously been reminded of their religious belief system. Also, among participants who had been primed, those in the threat condition recalled marginally fewer revenge words than did those in the no threat condition, $F(1, 85) = 3.57$, $p = .06$, $d = 0.69$. Among those who had not been primed, those in the threat and no threat conditions did not significantly differ, $F(1, 85) = 1.38$, $p = .24$, $d = 0.31$.

A 2 (religious belief system prime vs. no prime) \times 2 (threat vs. control) ANOVA on the accessibility of forgiveness words did not reveal a significant interaction, $F(1, 85) = 0.04$, $p = .85$, $\eta_p^2 = .00$. No main or interaction effects emerged on the recall of filler words, all $F_s < 1$. The pattern and significance of the findings for the accessibility of revenge or forgiveness words did not change after controlling for participants’ filler word recall scores.

Because we did not measure pre-existing religiosity in this study, we obtained participants’ self-reported religiosity scores (“How religious do you consider yourself?”) from a composite survey collected at the beginning of the term. Religiosity was not significantly associated with the accessibility of either revenge words ($r = -.14$, $p = .30$) or forgiveness words ($r = .03$, $p = .84$), and did not interact with the religious belief system prime or threat to affect recall, $ps > .31$. Measures of pre-existing religiosity also did not moderate the effects of prime and threat in the remaining studies.⁴ We therefore do not report analyses with religiosity in the subsequent studies, but we return to this topic in the General Discussion.

⁴ In the present study, we obtained religiosity scores from the composite survey for 60 participants. In the remaining studies, pre-existing religiosity did not moderate the effects of prime and threat despite using different operationalizations of religiosity (e.g., “How religious are you?”; “I identify with my religion”; “I avoid anything religious”).

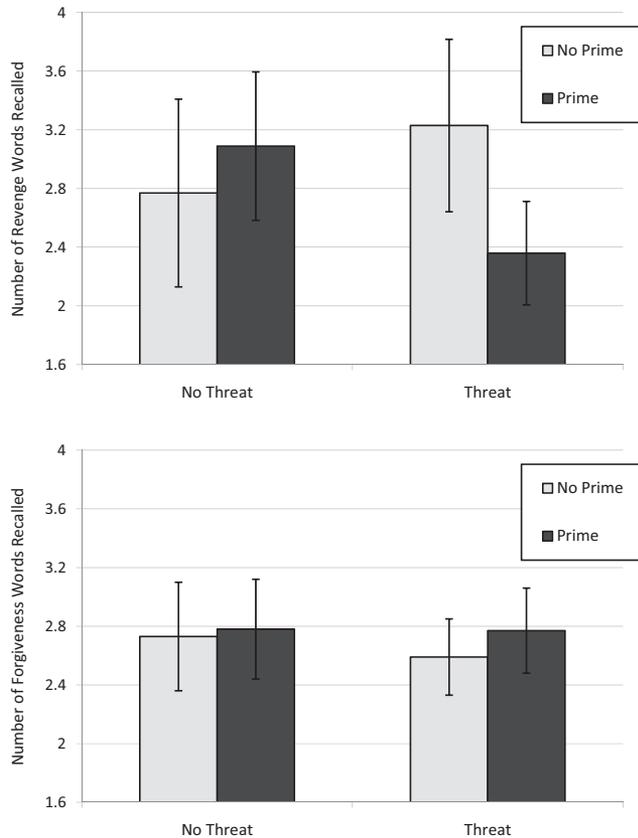


Figure 1. Number of revenge words (top panel) and forgiveness words (bottom panel) recalled as a function of mortality salience threat and religious belief system prime condition, Study 1. Error bars represent 95% confidence intervals.

Discussion

The results of Study 1 supported our hypothesis that a religious belief system prime would decrease the cognitive accessibility of revenge in the context of a mortality salience threat. However, we had also predicted that the prime would increase the cognitive accessibility of forgiveness in the context of threat, a prediction that was not borne out. These findings present the possibility that, in threatening circumstances, the religious belief system prime causes people to withhold hostility, but does not necessarily cause people to act more prosocially toward others. That is, on a continuum of magnanimity, the prime may move people from the hostile end of the continuum (revenge, harm others) to the middle of the continuum (decreased revenge, do no harm), but it may not take them all the way to the opposite end of the continuum (forgiveness, help others). We discuss this possibility more thoroughly in the General Discussion. In the next six studies, we focused on whether a religious belief system prime could promote magnanimity in the form of reduced hostility after threat.

Study 2

In Study 2, we assessed the joint effect of a religious belief system prime and mortality salience threat on hostile behavior toward an offending outgroup. Female students were informed of

an injustice that had occurred against their gender group during the previous year. They were then given an opportunity to take revenge against the offending outgroup (male student clubs) by voting to decrease the outgroup's funding. We predicted that, compared to non-primed participants, threatened participants who had been primed with their religious belief system would act with less vengeful behavior toward the offending outgroup. In this study we also included a manipulation check to test whether the mortality salience threat increased feelings of distress.

Method

Participants. One hundred and fifteen female undergraduate students ($M_{\text{age}} = 20.38$ years, $SD = 3.44$; 43 Muslim, 41 Christian, 28 Jewish, 1 Sikh, 2 "other") completed an online study in exchange for course credit. We recruited only females for this study to simplify the procedure by making one gender the victimized group and one gender the offending group. Two participants reported suspicion about the validity of the Student Association survey (described below); their data were excluded from all analyses, leaving a sample of 113 participants ($M_{\text{age}} = 20.40$ years, $SD = 3.46$; 41 Muslim, 41 Christian, 28 Jewish, 1 Sikh, 2 "other"). The data from eight additional participants who identified as atheist or agnostic were not included in the analyses. We excluded atheists and agnostics from all studies because we did not expect to invoke a religious belief system in people who did not indicate a religious affiliation. Following Study 8, we present an analysis of the findings for atheists and agnostics across all applicable studies.

Materials and procedure. Participants first completed a number of individual difference measures consistent with the cover story that we were investigating the association between people's personalities and their beliefs. Half of participants were then exposed to the same religious belief system prime used in Study 1, and half received no prime. Participants then completed either the threat (mortality salience) or control (dental pain) materials used in Study 1, followed by a 5-min thought-record delay.

Next, participants completed the measure of hostile behavior that we adapted from Haddock, Zanna, and Esses (1993). Participants were told that the Psychology Department had been asked by the Student Association to distribute a survey to a representative sample of students. Participants read that the Association is responsible for allocating funds to student clubs on campus. Last year, members of the Association noticed an unequal distribution of funds to clubs predominantly comprised of men and clubs predominantly comprised of women. Participants (all female) read that male clubs received a greater proportion of the funds (70%) than female clubs received (30%). Upon discovering the inadvertent injustice, the Association tried to right the wrong by requesting that the male clubs return the extra money. Importantly, participants were informed that nearly all of the male clubs rejected this request.

Participants then read that, in light of the unequal distribution that occurred last year, the Association is assigning the decision about how to allocate funds this year to a representative sample of students on campus through the Psychology Department. Participants were asked to select an appropriate distribution of funds between male and female clubs for the current year. Response options ranged from a 50/50 split between female and male clubs to a 100/0 split (with female clubs receiving the advantage),

increasing in intervals of 5% (e.g., 55/45, 60/40, etc.). Participants were assured that their responses would be completely anonymous and confidential.

Finally, participants completed a manipulation check, which consisted of 10 items assessing how they felt while completing the mortality salience or dental pain materials (insecure, uncertain, confused, frustrated, lonely, empty, anxious, out of control, ashamed, stupid; see I. McGregor, Haji, Nash, & Teper, 2008). Items were answered on 5-point scales anchored at 1 (*not at all*) and 5 (*very much*) and were averaged together to create an index of distress ($\alpha = .86$). Participants completed an online suspicion check and then read a debriefing and thank you letter.

Results

Participants experiencing the mortality salience threat ($M = 2.30$, $SD = 0.85$) reported greater feelings of distress than participants in the control conditions reported ($M = 1.83$, $SD = 0.63$), $F(1, 109) = 11.03$, $p = .001$, $d = 0.63$. There was no interaction between threat and prime conditions, $F(1, 109) = 0.33$, $p = .56$.

A 2 (religious belief system prime vs. no prime) \times 2 (threat vs. control) ANOVA on the funds distribution measure revealed a significant interaction, $F(1, 109) = 5.18$, $p = .03$, $\eta_p^2 = .05$ (see Figure 2). After experiencing the mortality salience threat, participants who had been primed with their religious belief system selected a less vengeful distribution of funds ($M = 53.28$, $SD = 6.58$) than did participants who had not been primed ($M = 59.20$, $SD = 12.64$), $F(1, 109) = 5.18$, $p = .03$, $d = 0.59$. In the absence of this threat, however, participants in the religious belief system prime ($M = 57.59$, $SD = 10.23$) and no prime ($M = 55.31$, $SD = 8.32$) conditions did not differ, $F(1, 109) = 0.84$, $p = .36$, $d = 0.24$. In addition, among participants who had been primed, those in the threat condition selected a marginally less vengeful distribution of funds relative to those in the no threat condition, $F(1, 109) = 2.87$, $p = .09$, $d = 0.50$. Among participants who had not been primed, there was a non-significant tendency for those in the threat condition to select a more vengeful distribution of funds than those in the no threat condition, $F(1, 109) = 2.33$, $p = .13$, $d = 0.36$.

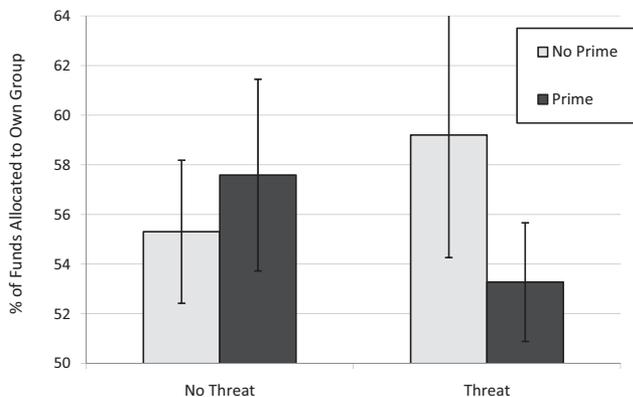


Figure 2. Percentage of funds allocated to own gender group as a function of mortality salience threat and religious belief system prime condition, Study 2. Error bars represent 95% confidence intervals.

Discussion

In this second study, we replicated the pattern observed in Study 1 using a behavioral measure of hostility. Threatened participants selected a less vengeful distribution of funds if they had been previously reminded of their religious belief system. In fact, exposure to the religious belief system prime reduced the number of participants who chose to take some form of revenge (i.e., did not select the 50/50 split) after threat by 38%. This study thus demonstrates that a religious belief system prime can reduce vengeful behavior following threat.

Study 3

Past research has demonstrated that participants behave more aggressively after reading a passage describing God as vengeful (Bushman et al., 2007). However, this effect occurs under neutral circumstances, when participants are not motivated to adhere to their religious ideals. In Study 3, we examined the robustness of the prime effect under threat by pairing the religious belief system prime with either a message of “turning the other cheek,” or a message of taking an “eye for an eye.” We tested whether participants’ religious ideals would be strong enough to override a salient revenge message (“eye for an eye”). We posit that the religious belief system prime causes threatened participants to adhere to the magnanimous ideals they associate with their personal religious beliefs; therefore, we thought these participants might reject messages (such as an “eye for an eye”) that seem contrary to these superordinate religious ideals. We thus expected the effect of the religious belief system prime to hold whether or not participants also received the “turn the other cheek” or “eye for an eye” message.

In this study, we also used a different, more unambiguously hostile measure of revenge, as it could be argued that participants who voted for an uneven distribution of funds (e.g., 70/30) in Study 2 were pursuing a principle of fairness rather than revenge toward an offending outgroup. In March 2009, the American International Group (AIG)—which had recently received \$170 billion in U.S. taxpayer bailouts—was planning to pay \$218 million in bonuses to employees of its financial division. The proposed bonuses sparked public outrage (“AIG Bonus Payments Controversy,” n.d.). Shortly after the bonus payments controversy occurred, we asked participants to indicate their endorsement of revenge against AIG executives who had accepted sizeable bonuses.

Method

Participants. One hundred and twenty-five undergraduate students (77 women, 47 men, 1 not specified; $M_{\text{age}} = 20.13$ years, $SD = 3.98$; 81 Christian, 25 Muslim, 7 Hindu, 4 Buddhist, 3 Sikh, 2 Jewish, 3 “other”) completed an online study in exchange for course credit. The data from eight participants who reported suspicion about the validity of the AIG article or connection between the mortality salience materials, religion, and revenge were excluded from the analyses, leaving a sample of 117 participants (71 women, 45 men, 1 not specified; $M_{\text{age}} = 19.90$ years, $SD = 3.16$; 76 Christian, 23 Muslim, 7 Hindu, 4 Buddhist, 3 Sikh, 2 Jewish, 2 “other”). The data from 14 additional participants who identified as atheist or agnostic were not included in the analyses.

Materials and procedure. Participants read that the study concerned how people with different personalities respond to various life situations. They then completed several individual difference measures consistent with the cover story. Participants were randomly assigned to one of three prime conditions: religious belief system prime paired with a “turn the other cheek” message, religious belief system prime paired with an “eye for an eye” message, and no prime control (containing neither message nor the religious belief system prime). Participants exposed to the “turn the other cheek” message read that we were interested in how religious beliefs, such as “turning the other cheek,” are related to personality. Participants exposed to the “eye for an eye” message read that we were interested in how religious beliefs, such as taking “an eye for an eye” after being harmed, are related to personality. As in Studies 1 and 2, participants in the two conditions receiving the religious belief system prime were then asked to indicate the religious belief system with which they most identified. Participants in the no prime condition were not asked about their religious belief system. Participants then completed either the threat (mortality salience) or control (dental pain) materials identical to those used in the previous studies.

Next, participants read a commentary on the AIG controversy that had ostensibly been taken from a recent news article. Following a summary of the bonus scandal, participants read about actual reactions from the American public and public officials. For example, they read that bonus recipients had been threatened with death by piano wire and guillotine. Participants read that behavioral economists believe that the impulse for revenge is an “important built-in protection that helps keep social cooperation from breaking down,” and that the widespread rage and desire for revenge against AIG executives might be natural. We included this justification of revenge to reduce the likelihood that participants would attempt to impression-manage by responding in a non-vengeful manner. However, the revenge being discussed in the article was clearly hostile revenge rather than retribution in the pursuit of fairness.

Participants then responded to six questions designed to assess their support for revenge in the context of the article (e.g., “To what extent do you agree with those advocating for some form of revenge against executives who received bonuses after their company received bailout funds?”; “To what extent do you agree with the New York Times’ conclusion that revenge is an important built-in protection against those who take more than their fair share?”). Participants indicated their responses on 9-point scales, with higher scores reflecting greater endorsement of revenge. Participants’ responses across the six questions were averaged to create a reliable index of endorsement of revenge ($\alpha = .83$). Finally, participants completed an online suspicion check and then read a debriefing and thank you letter.

Results

A 3 (religious belief system prime plus “turn the other cheek” message vs. religious belief system prime plus “eye for an eye” message vs. no prime control) \times 2 (threat vs. control) ANOVA on endorsement of revenge revealed a significant interaction, $F(2, 111) = 8.62, p < .001, \eta_p^2 = .13$ (see Figure 3). Under threat, the “turn the other cheek” ($M = 3.40, SD = 1.49$) and “eye for an eye” ($M = 3.26, SD = 0.93$) conditions did not differ, $F(1, 111) = 0.13,$

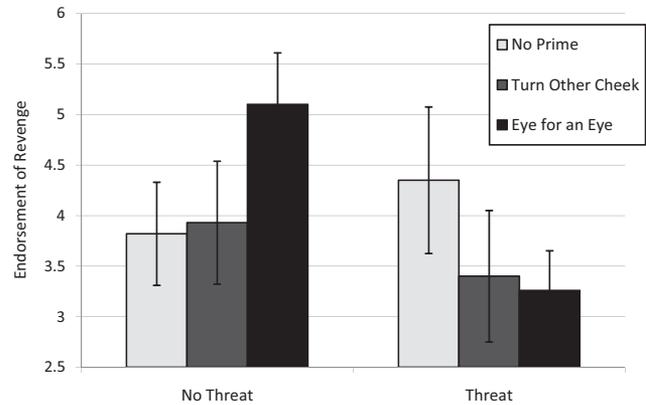


Figure 3. Endorsement of revenge against American International Group executives as a function of mortality salience threat and prime condition, Study 3. Error bars represent 95% confidence intervals.

$p = .72, d = 0.11$. However, participants in both of these conditions endorsed revenge less than did participants in the no prime condition ($M = 4.35, SD = 1.47, F(1, 111) = 5.06, p = .03, d = 0.64$, and $F(1, 111) = 6.77, p = .01, d = 0.89$, respectively).

The findings were quite different in the absence of threat. Participants who had received the “eye for an eye” message ($M = 5.10, SD = 1.18$) endorsed revenge more than did participants in the no prime condition ($M = 3.82, SD = 1.20, F(1, 111) = 10.74, p = .001, d = 1.08$, and the “turn the other cheek” condition ($M = 3.93, SD = 1.32, F(1, 111) = 8.33, p = .005, d = 0.94$). Those who had received the “turn the other cheek” message and those who had not been primed did not differ in their endorsement of revenge, $F(1, 111) = 0.07, p = .79, d = 0.09$.

If we look at the interaction differently, we see that among participants who were in the prime plus “turn the other cheek” message condition, those who had and had not been threatened did not significantly differ, $F(1, 111) = 1.65, p = .20, d = 0.38$. Among participants in the prime plus “eye for an eye” message condition, those who had been threatened endorsed revenge less than those who had not been threatened, $F(1, 111) = 22.18, p < .001, d = 1.73$. Finally, among those in the no prime condition, those who had and had not been threatened did not significantly differ, $F(1, 111) = 1.62, p = .21, d = 0.40$.

Discussion

When confronted with threat, the religious belief system prime reduced endorsement of revenge relative to the no prime condition, regardless of whether it was paired with the “turn the other cheek” or “eye for an eye” message. This finding demonstrates the power of the religious belief system prime to promote less hostile reactions to threat, even when a competing, vengeful message is salient. This finding also provides evidence that people’s personal religious associations—the ones they turn to when searching for meaning in the face of threat—are firmly magnanimous.

It could be argued that the religious belief system prime overpowered the “eye for an eye” message because the prime more immediately preceded the revenge endorsement measure and was consequently more salient than the revenge message. The interaction pattern found in this study suggests, however, that the reli-

religious belief system prime only overpowered the “eye for an eye” message after threat, when participants were more motivated to adhere to their religious ideals. In the absence of threat, participants were influenced by the “eye for an eye” revenge message, suggesting that this message was salient to participants. Consistent with Bushman et al. (2007), in the absence of threat, participants who received the “eye for an eye” message were more endorsing of revenge than were participants in both the “turn the other cheek” and no prime conditions.

Study 4

Many religions promise an afterlife. Consequently, a reminder of one’s religious belief system might be particularly likely to ameliorate the threat caused by thinking of one’s imminent death. The effects found in Studies 1–3 could therefore be partially attributable to a unique connection between a religious prime and a mortality salience threat. To broaden the interpretation of our findings to threats more generally (following Proulx et al., 2012), we turned to an academic uncertainty manipulation in Study 4 to examine the interaction between our religious belief system prime and a different threat. In past research, this academic uncertainty threat has caused distress and adherence to personal, political, and religious values and ideals (I. McGregor & Jordan, 2007; I. McGregor et al., 2005; I. McGregor, Prentice, & Nash, 2013; Nash et al., 2011).

Method

Participants. Fifty-eight undergraduate students (43 women, 15 men; $M_{\text{age}} = 19.29$ years, $SD = 2.20$; 32 Christian, 9 Muslim, 5 Hindu, 3 Buddhist, 3 Jewish, 1 Sikh, 5 “other”) completed an online study in exchange for course credit. Eighteen additional participants who identified as atheist or agnostic were not included in the analyses.

Materials and procedure. Upon arriving at the study website, participants read that the study concerned the association between people’s personalities and their personal beliefs. Consistent with this cover story, they first completed a number of individual difference measures that are not the focus of this study. Half of participants were then exposed to the same religious belief system prime used in Studies 1–3. The remaining participants received no prime.

The threat manipulation was designed to induce uncertainty in the domain of participants’ academic goals. Participants randomly assigned to the threat condition were required to read an extremely difficult statistics passage on LISREL, structural equation modeling. The passage was taken out of context from a graduate statistics textbook and included complicated formulae and statistical terms (from Pedhazur, 1982, pp. 639–640). Key sentences were deleted to render the passage even more confusing. Participants randomly assigned to the control condition read a straightforward introductory statistics passage from an undergraduate textbook. To ensure participants read the passage (and to focus their attention on their level of understanding), participants were asked to indicate how much they understood the information in the passage at seven different points. They then completed a 5-min thought-record session to provide the necessary delay.

Next, participants responded to the AIG controversy by completing the endorsement of revenge measure used in Study 3 ($\alpha =$

.82). Finally, participants completed a manipulation check, which consisted of the same 10 items used in Study 2 assessing how they felt while completing the LISREL or easy materials (insecure, uncertain, confused, frustrated, lonely, empty, anxious, out of control, ashamed, stupid; see I. McGregor et al., 2008). Items were answered on 5-point scales anchored at 1 (*not at all*) and 5 (*very much*) and were averaged to create an index of distress ($\alpha = .88$). Participants completed an online suspicion check and then read a debriefing and thank you letter.

Results

Participants experiencing the academic uncertainty threat ($M = 2.08$, $SD = 0.82$) reported slightly greater feelings of distress than did participants in the control conditions ($M = 1.80$, $SD = 0.63$), but this difference was not significant, $F(1, 54) = 2.23$, $p = .14$, $d = 0.38$. We discuss possible reasons for this non-significant effect on the manipulation check in the General Discussion. There was no interaction between threat and prime conditions, $F(1, 54) = 2.36$, $p = .13$.

On the revenge endorsement measure, a 2 (religious belief system prime vs. no prime) \times 2 (threat vs. control) ANOVA revealed a significant interaction, $F(1, 54) = 6.34$, $p = .02$, $\eta_p^2 = .11$ (see Figure 4). Among participants in the threat condition, those who had been primed with their religious belief system ($M = 3.43$, $SD = 1.22$) endorsed revenge less than those who had not been primed ($M = 4.71$, $SD = 1.11$), $F(1, 54) = 7.37$, $p = .009$, $d = 1.10$. In the absence of threat, participants in the religious belief system prime ($M = 4.20$, $SD = 1.41$) and no prime ($M = 3.77$, $SD = 1.41$) conditions did not differ, $F(1, 54) = 0.78$, $p = .38$, $d = 0.30$. Also, among participants who had been primed, there was a non-significant tendency for those in the threat condition to endorse revenge less than those in the no threat condition, $F(1, 54) = 2.60$, $p = .11$, $d = 0.58$. Among participants who had not been primed, those in the threat condition endorsed revenge marginally more than those in the no threat condition, $F(1, 54) = 3.81$, $p = .06$, $d = 0.74$.

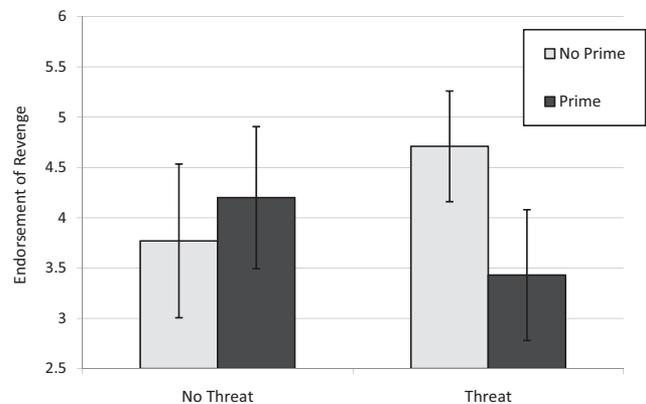


Figure 4. Endorsement of revenge against American International Group executives as a function of academic uncertainty threat and religious belief system prime condition, Study 4. Error bars represent 95% confidence intervals.

Discussion

Study 4 replicated the main findings from Studies 2 and 3 with a threat not obviously related to mortality salience. When confronted with an academic uncertainty threat, the religious belief system prime reduced revenge endorsement relative to the no prime condition. To our knowledge, this is the first study to examine and find effects of a religion prime in the context of a threat other than mortality salience, as well as the first study to examine and find effects of making specific ideals salient after a threat other than mortality salience. Although we did not find a significant effect of the academic uncertainty threat on our manipulation check of feelings of distress, the means were in the predicted direction. In the next study, we found a significant effect of the academic uncertainty threat on the same manipulation check used in this study.

Study 5

The purpose of Study 5 was to examine whether the religious belief system prime would effectively mitigate a different kind of hostile reaction to threat—defense of cultural worldviews. Worldview defense—the tendency to derogate people who criticize or violate one’s own cultural norms, values, or ideals—is one of the most robust hostile consequences of threat reported in the literature. Using a variety of threats (e.g., mortality salience, belongingness, theft salience), researchers have demonstrated that people defend their worldview to gain relief from threat-induced distress (e.g., Arndt & Greenberg, 1999; Greenberg et al., 1992; Heine et al., 2006; for review and mechanism of relief, see Jonas et al., 2014; Proulx et al., 2012). We examined whether the religious belief system prime would decrease the amount of worldview defense exhibited by participants under threat. In past research, worldview defense following mortality salience was mitigated by intrinsic religiosity—an internalized form of religious belief where faith is an end in itself (Jonas & Fischer, 2006, Study 2; see also Norenzayan et al., 2009). In other research, worldview defense following mortality salience was mitigated by salience of highest personal values (Schmeichel & Martens, 2005). In the present study, we assessed whether simply reminding people of their religious belief system could have a similar effect after an academic uncertainty threat. If so, this would suggest that the situational activation of religious beliefs activates the intrinsic, personal ideals that people associate with their religious belief system.

Method

Participants. Fifty-nine undergraduate students (43 women, 16 men; $M_{\text{age}} = 19.56$ years, $SD = 3.26$; 31 Christian, 11 Muslim, 7 Hindu, 3 Jewish, 1 Buddhist, 1 Sikh, 5 “other”) participated in an online study in exchange for course credit. The data from 17 additional participants who identified as atheist or agnostic were not included in the analyses.

Materials and procedure. Participants first completed a number of individual difference measures. Half of the participants were then exposed to the same religious belief system prime as in previous studies, and half were not exposed to this prime. Participants then completed either the same threat (LISREL) or control (easy statistics passage) materials used in Study 4, followed by a 5-min thought-record delay.

To assess worldview defense, we adapted a procedure used by past threat researchers (e.g., Arndt & Greenberg, 1999) to make it appropriate for Canadian participants. Participants read two short essays ostensibly written by recent immigrants to Canada. The first essay conveyed a pro-Canada attitude. For example, participants read,

In this country people have more opportunity for success than in any other and success does not depend on the group belonged to. While there are problems in any country, Canada truly is a great nation and I don’t regret my decision to come here at all.

The second essay conveyed a hostile attitude toward Canada and Canadians, including statements such as “Canadians are spoiled and lazy and want everything handed to them. Canada is a cold country that is insensitive to the needs and problems of foreigners. Canadians think their country is great, but it is not.”

After reading each essay, participants responded to five questions assessing their reaction to the essay and the author (e.g., “I think I would like the person who wrote this essay”; “I agree with this person’s opinion of Canada”). Participants provided their evaluations on 11-point scales (0 = *strongly disagree*, 10 = *strongly agree*). As a manipulation check, participants indicated how they felt while completing the LISREL or easy materials on the same items used in Study 4 ($\alpha = .89$). They then completed an online suspicion check and read a debriefing and thank you letter.

To create an index of worldview defense, we first created a pro-Canada subscale by averaging responses to the five questions regarding the pro-Canada essay, and an anti-Canada subscale by averaging responses to the five questions regarding the anti-Canada essay. We then subtracted the anti-Canada subscale from the pro-Canada subscale to create a difference score that represented our measure of worldview defense (see Arndt & Greenberg, 1999; I. McGregor et al., 2001). A larger positive difference score reflects greater rejection of the anti-Canada essay and author relative to the pro-Canada essay, and thus stronger worldview defense.

Results

Participants experiencing the academic uncertainty threat ($M = 1.90$, $SD = 0.82$) reported greater feelings of distress than did participants experiencing no threat ($M = 1.51$, $SD = 0.54$), $F(1, 55) = 5.08$, $p = .03$, $d = 0.56$. There was no interaction between threat and prime conditions, $F(1, 55) = 3.04$, $p = .09$.

As predicted, a 2 (religious belief system prime vs. no prime) \times 2 (threat vs. control) ANOVA revealed a significant interaction on worldview defense, $F(1, 55) = 14.66$, $p < .001$, $\eta_p^2 = .21$ (see Figure 5). Among participants in the threat condition, those who had been primed with their religious belief system ($M = 1.21$, $SD = 2.03$) demonstrated less worldview defense than did those who had not been primed ($M = 3.73$, $SD = 2.02$), $F(1, 55) = 10.49$, $p = .002$, $d = 1.24$. In the absence of threat, those who had been primed with their religious belief system ($M = 4.04$, $SD = 2.60$) demonstrated more worldview defense than those who had not been primed ($M = 2.15$, $SD = 2.07$), $F(1, 55) = 4.95$, $p = .03$, $d = 0.80$. In addition, among those who had been primed, participants in the threat condition demonstrated significantly less worldview defense than those who had not been threatened, $F(1, 55) = 12.47$, $p < .001$, $d = 1.21$. Among those who had not been

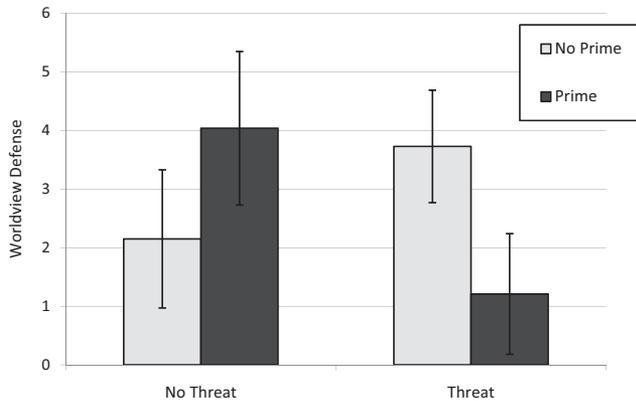


Figure 5. Worldview defense as a function of academic uncertainty threat and religious belief system prime condition, Study 5. Error bars represent 95% confidence intervals.

primed, participants in the threat condition demonstrated marginally more worldview defense than those who had not been threatened, $F(1, 55) = 3.65, p = .06, d = 0.77$.

A comparison of the separate effects for the anti-Canada and pro-Canada essays revealed that the interaction was stronger for the anti-Canada essay, $F(1, 55) = 10.51, p = .002, \eta_p^2 = .16$, than the pro-Canada essay, $F(1, 55) = 3.16, p = .08, \eta_p^2 = .05$. Although the interaction patterns were similar for both essays, the simple effect of the religious belief system prime under threat was significant for the anti-Canada essay, $F(1, 55) = 5.89, p = .02, d = 0.90$, and marginal for the pro-Canada essay, $F(1, 55) = 3.49, p = .07, d = 0.71$. These findings suggest that the religious belief system prime was particularly effective at reducing the vengeful aspect of worldview defense (i.e., derogating an outgroup member who derogated one's ingroup) under threat.

Discussion

Consistent with our previous studies, the religious belief system prime decreased hostile worldview defense reactions to threat. This study thus replicates the effect of our religious belief system prime on an outcome measure that is typically amplified by threat, and is the first study to show mitigation of worldview defense after a threat other than mortality salience. In the absence of threat, however, participants primed with their religious belief system showed more hostile worldview defense reactions than those not primed. A potential cause of this reversal is the nature of the religious belief system prime. Recent work by Preston and Ritter (2010) indicates that religious-group primes enhance ingroup bias by activating moral concerns for ingroup protection. It is thus possible that our religious belief system prime also activates a mild form of ingroup protection. In the absence of threat—when participants were not motivated to affirm their religious ideals—this prime might have caused them to penalize an outgroup member who was challenging their worldview. After the threat, however—when participants were motivated to affirm their personal religious ideals—the prime caused participants to act in line with these ideals and respond more magnanimously.

Study 6

In Studies 1–5, we examined whether a religious belief system prime could promote less hostile reactions to threat. In Studies 6 and 7, we sought to develop a deeper understanding of these effects by exploring potential individual difference moderators. We began by testing whether a religious belief system prime promotes less hostile reactions to threat particularly for people who associate their religious belief system with the Golden Rule. Because we propose that our religious belief system prime activates people's dominant religious associations (such as the Golden Rule), we expected our joint effect of prime and threat on magnanimous behavior to be especially pronounced for people who regard this ideal as central to their religious beliefs.

Method

Participants. We recruited 51 participants (30 women, 21 men; $M_{\text{age}} = 36.41$ years, $SD = 14.34$; 37 Christian, 3 Hindu, 3 Jewish, 2 Buddhist, 1 Muslim, 1 Sikh, 4 “other”) from Amazon Mechanical Turk (see Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis, 2010). Three participants were excluded from analyses for false responding (e.g., answering “5” to all questions), leaving a sample of 48 participants (27 women, 21 men; $M_{\text{age}} = 37.48$, $SD = 14.09$; 37 Christian, 1 Hindu, 3 Jewish, 2 Buddhist, 1 Muslim, 4 “other”). The data from 16 additional participants who identified as atheist or agnostic were not included in the analyses. Participants received 50 cents compensation for completing the study.

Materials and procedure. All participants were first exposed to the same religious belief system prime used in previous studies (“which religious belief system do you most identify with?”). On a 9-point scale (1 = *strongly discourages*, 9 = *strongly encourages*), participants then indicated the extent to which their religious belief system discourages or encourages “the Golden Rule (do unto others as you would have them do unto you).” They also rated the extent to which their religious belief system encourages or discourages 14 other behaviors (e.g., “monogamy”; “lying”), some of which were related to magnanimity (e.g., “forgiveness”; “revenge”). After responding to these items on their religious belief system, participants completed either the threat (mortality salience) or control (dental pain) materials used previously, followed by a 3-min thought-record delay.

In this study we also explored participants' emotions to determine whether the threat and prime affected feelings of magnanimity. They were asked to rate how much they felt 12 emotions “right now” on 9-point scales (1 = *strongly disagree*, 9 = *strongly agree*). Six of these emotions were vengeful (angry, resentful, hostile, hateful, vengeful, judging), and six were forgiving (compassionate, loving, caring, generous, merciful, forgiving). The six vengeful items were combined to create an index of vengeful emotions, $\alpha = .91$; the six forgiving emotions were combined to create an index of forgiving emotions, $\alpha = .90$.

Next, participants completed our dependent measure of magnanimity. Participants read six hypothetical offense scenarios depicting an offending character and a victimized character. For example, one of the scenarios read “Mark is irritable one day and runs into a neighbor. Mark really doesn't feel like talking, so he's very abrupt with him and blows the neighbor off.” After each scenario,

participants indicated their agreement on 7-point scales (1 = *strongly disagree*, 7 = *strongly agree*) with three questions assessing how they thought the victim should respond (e.g., “Mark’s neighbor should . . . be angry with Mark; forgive Mark; get back at Mark”).⁵ All 18 items were combined to create a reliable index of support for hostile responses (forgiveness items reverse-scored; $\alpha = .88$), with lower scores representing less hostile responses.

Finally, participants completed the same manipulation check as in Study 2, which consisted of 10 items assessing how participants felt while completing the mortality salience or dental pain materials. Items were answered on 5-point scales anchored at 1 (*not at all*) and 5 (*very much*) and were averaged together to create an index of distress ($\alpha = .87$). Participants completed an online suspicion check and then read a debriefing and thank you letter.

Results

Participants experiencing the mortality salience threat ($M = 2.31$, $SD = 1.22$) did not significantly differ from participants who experienced no threat ($M = 2.18$, $SD = 1.00$) on feelings of distress, $t(46) = 0.41$, $p = .68$. Although participants in the threat condition reported feeling more lonely, empty, and uncertain ($M = 2.69$, $SD = 1.53$) than did participants in the control condition ($M = 1.88$, $SD = 0.98$), $t(47) = 2.20$, $p = .03$, $d = 0.63$, there was no difference between threat and control conditions on the other seven distress items, $t(46) = -0.46$, $p = .65$. After Study 8, we present a meta-analysis of effects on the manipulation check across studies; we also discuss possible reasons for this null effect on the manipulation check in the General Discussion.

Consistent with our preliminary data, participants indicated that their religious belief system strongly encouraged “the Golden Rule” ($M = 8.27$, $SD = 1.36$). We tested whether our typical effect of more magnanimity after prime and threat would be especially pronounced for people who believe their religious belief system strongly encourages the Golden Rule. To test this, we conducted regression analyses on each of the dependent measures with dummy-coded threat condition (0 = control, 1 = threat), mean-centered “religion encourages the Golden Rule,” and their interaction term. Looking first at effects on participants’ self-reported emotions, we found no effects on vengeful emotions, all $ps > .44$. However, we found a significant interaction on the measure of forgiving emotions,⁶ $B = 0.66$, $SE = 0.32$, $t(44) = 2.08$, $p = .04$, $R^2 = .17$ (see Figure 6). Under threat, believing that one’s religious belief system strongly encourages the Golden Rule was associated with more forgiving emotions, $B = 0.70$, $SE = 0.25$, $t(44) = 2.75$, $p = .009$. In the absence of threat, believing that one’s religious belief system strongly encourages the Golden Rule was not associated with forgiving emotions, $B = 0.04$, $SE = 0.19$, $t(44) = 0.21$, $p = .83$. If we look at it differently, we see that among those who believe their religious belief system strongly encourages the Golden Rule (+1 SD), participants in the threat condition reported feeling more forgiving than those in the no threat condition, $B = 1.22$, $SE = 0.58$, $t(44) = 2.11$, $p = .04$. Among those who believe their religious belief system encourages the Golden Rule to a lesser degree (–1 SD), participants in the threat and no threat conditions did not significantly differ, $B = -0.56$, $SE = 0.61$, $t(44) = -0.92$, $p = .36$.

Turning to our main dependent measure of hostility, we tested and found an interaction on support for hostile responses in the

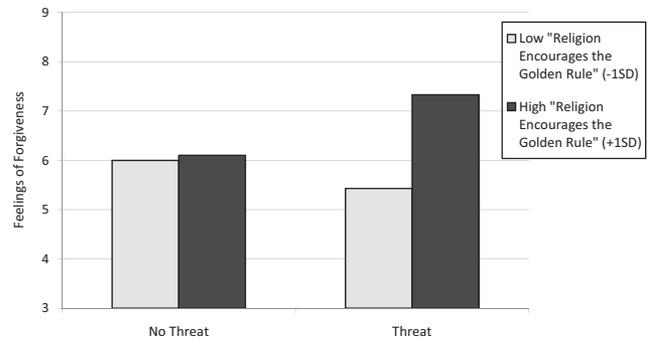


Figure 6. Feelings of forgiveness as a function of mortality salience threat and extent to which religious belief system encourages the Golden Rule, Study 6.

offense scenarios, $B = -0.43$, $SE = 0.19$, $t(44) = -2.25$, $p = .03$, $R^2 = .12$ (see Figure 7). Under threat, believing that one’s religious belief system strongly encourages the Golden Rule was associated with lower scores on the hostility composite of revenge, anger, and forgiveness (reverse-scored), $B = -0.31$, $SE = 0.15$, $t(44) = -2.02$, $p = .05$. In contrast, in the absence of threat, believing that one’s religious belief system strongly encourages the Golden Rule was not associated with the hostility composite, $B = -0.09$, $SE = 0.10$, $t(44) = -0.99$, $p = .33$. Further, among those who believe their religious belief system strongly encourages the Golden Rule (+1 SD), participants in the threat condition reported less hostility than those in the no threat condition, $B = -0.76$, $SE = 0.35$, $t(44) = -2.19$, $p = .03$. Among those who believe their religious belief system encourages the Golden Rule to a lesser degree (–1 SD), participants in the threat and no threat conditions did not significantly differ, $B = 0.40$, $SE = 0.37$, $t(44) = 1.09$, $p = .28$.

Discussion

Study 6 was designed to help us develop a deeper understanding of the effects observed in Studies 1–5. By testing for moderating effects of beliefs about how much one’s religious belief system encourages the Golden Rule, we were able to examine whether people’s religious associations with this ideal play a role in driving our observed effects on magnanimity. Under threat, believing that one’s religious belief system strongly encourages the Golden Rule was associated with feeling more forgiving and endorsing less hostile responses to offenders. These findings suggest that our

⁵ Participants also rated how much they thought the victim should respond by doing nothing. The items assessing “doing nothing” were not included in the analyses because they were positively correlated with both forgiveness and revenge (making them difficult to interpret).

⁶ We found one additional interaction between threat and believing that your religious belief system discourages or encourages being unkind to others on forgiving emotions, $B = -0.47$, $SE = 0.21$, $t(44) = -2.24$, $p = .03$. Under threat, believing that one’s religious belief system strongly discourages being unkind to others was associated with more forgiving emotions, $B = -0.44$, $SE = 0.17$, $t(44) = -2.67$, $p = .01$. In the absence of threat, believing that one’s religious belief system strongly discourages being unkind to others was not associated with forgiving emotions, $B = 0.03$, $SE = 0.13$, $t(44) = 0.23$, $p = .82$.

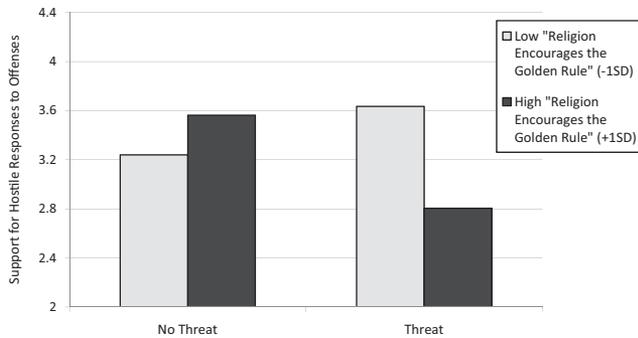


Figure 7. Support for hostile responses in offense scenarios as a function of academic uncertainty threat and belief that religious belief system encourages the Golden Rule, Study 6.

religious belief system prime may primarily promote more magnanimous reactions to threat among people who strongly associate the Golden Rule with their religious belief. Thus, this study supports our reasoning that the religious belief system prime functions by activating magnanimous religious ideals, such as the superordinate ideal of the Golden Rule. In Study 7, we explore dispositional promotion focus as another potential individual difference moderator that can help explain the mechanism of this threat-induced religious magnanimity effect.

Study 7

We have argued that a religious belief system prime causes less hostile reactions to threat by promoting adherence to magnanimous religious ideals. If so, this adherence to ideals should occur primarily among people who are dispositionally inclined toward living up to their ideals, such as people who are high in promotion focus. People who are promotion-focused tend to be guided by their “ideal selves” (Higgins, 1997). They are more motivated by hopes and aspirations, and their focus centers on achieving these ideals (e.g., Higgins, Friedman, & Shah, 1997; Lockwood, Jordan, & Kunda, 2002). Accordingly, in the present study we expected threatened people who are dispositionally promotion-focused to be particularly likely to adhere to the ideals they associate with their primed religious belief system. We tested this prediction in Study 7 by examining whether dispositional promotion focus would moderate the joint effect of prime and threat on the funds distribution measure used in Study 2.

Method

Participants. One hundred and five female undergraduates ($M_{\text{age}} = 19.48$ years, $SD = 2.30$; 56 Christian, 17 Muslim, 6 Hindu, 6 Sikh, 4 Buddhist, 4 Jewish, 12 “other”) participated in an online study for course credit. Five participants reported suspicion about the validity of the Student Association survey; their data were excluded from all analyses, leaving a sample of 100 participants ($M_{\text{age}} = 19.35$ years, $SD = 2.05$; 53 Christian, 16 Muslim, 6 Hindu, 6 Sikh, 3 Buddhist, 4 Jewish, 12 “other”). The data from 14 additional participants who identified as atheist or agnostic, as well as three participants who declined to answer the religious belief question, were not included in the analyses.

Materials and procedure. Participants first completed a number of individual difference measures consistent with the cover story that we were investigating the association between people’s personalities and their beliefs. For the first time in this package of studies, we assessed dispositional promotion focus using the General Regulatory Focus Measure (Lockwood et al., 2002). On a 4-point scale (1 = *not at all true of me*, 4 = *very true of me*), participants responded to nine items assessing their chronic level of promotion focus (e.g., “I see myself as someone who is primarily trying to reach my ‘ideal self’—to fulfill my hopes, wishes, and aspirations”). These nine items were combined to create a reliable index of promotion focus ($\alpha = .83$).

After completing the individual difference measures, half of participants were exposed to the same religious belief system prime used in the previous studies, and half received no prime. Participants then completed either the threat (LISREL) or control (easy statistics passage) materials used in Studies 4 and 5, followed by a 5-min thought-record delay.⁷

Participants then moved on to the measure of hostile behavior. As in Study 2, participants read that the Student Association had noticed an unequal distribution of funds to clubs predominantly comprised of men (70% of funds) and clubs predominantly comprised of women (30% of funds) the previous year. Participants again read that male clubs denied the Association’s request that they return the extra money. Participants were then asked to select an appropriate distribution of funds between male and female clubs for the current year, with response options ranging from a 50/50 split between female and male clubs to a 100/0 split (with female clubs receiving the advantage). Participants were assured that their responses would be completely anonymous and confidential.

Finally, participants completed the same manipulation check used in Studies 4 and 5 ($\alpha = .89$). They completed an online suspicion check and then read a debriefing and thank you letter.

Results

Participants experiencing the academic uncertainty (LISREL) threat ($M = 2.14$, $SD = 0.86$) reported higher scores on feelings of distress than participants in the control conditions reported ($M = 1.68$, $SD = 0.67$), $F(1, 96) = 9.74$, $p = .002$, $d = 0.60$. There was no interaction between threat and prime conditions, $F(1, 96) = 1.86$, $p = .18$.

We first assessed whether our typical interaction effect emerged on the distribution of funds measure. A 2 (religious belief system prime vs. no prime) \times 2 (threat vs. control) ANOVA did not yield a significant interaction, $F(1, 96) = 0.44$, $p = .51$. However, a regression analysis with dummy-coded prime condition (0 = no prime, 1 = religious belief system prime), threat condition (0 = control, 1 = threat), mean-centered promotion focus, and all interaction terms

⁷ Prior to completing the funds distribution measure, participants completed an adapted version of Schwartz’s (1992) values, including benevolence, universalism, power, achievement, tradition, and hedonism. We included this measure to explore whether our experimental manipulations would cause people to affirm certain values, such as benevolence. We found a general main effect of threat across values, such that participants in the threat condition were more likely than participants in the control condition to say the values were important to them, $F(1, 96) = 5.64$, $p = .02$. Dispositional approach motivation was also positively correlated with rating the values as important, $r = .39$, $p < .001$. No significant interactions between threat, prime, or approach motivation emerged, all $ps > .40$.

yielded a significant three-way interaction, $B = -23.59$, $SE = 11.08$, $t(92) = -2.13$, $p = .04$, $R^2 = .08$ (see Figure 8). Decomposing this interaction further, we found a marginal Prime \times Threat interaction among participants who were high in promotion focus (+1 SD), $B = -13.83$, $SE = 7.27$, $t(92) = -1.90$, $p = .06$, but not among participants who were low in promotion focus (-1 SD), $B = 6.45$, $SE = 6.24$, $t(92) = 1.03$, $p = .30$. Examining the simple effects within the interaction among high promotion focus participants, we found our typical pattern of results. After experiencing the academic uncertainty threat, participants who had been primed with their religious belief system selected a less vengeful distribution of funds than did participants who had not been primed, $B = -12.31$, $SE = 6.18$, $t(92) = -1.99$, $p = .05$. In the absence of this threat, however, participants in the religious belief system prime and no prime conditions did not differ, $B = 1.52$, $SE = 3.83$, $t(92) = 0.40$, $p = .69$. Although in the expected directions, the threat and no threat conditions did not significantly differ from each other either when participants had or had not been primed, $B = -5.83$, $SE = 3.73$, $t(92) = 1.56$, $p = .12$, and $B = 8.01$, $SE = 6.24$, $t(92) = 1.28$, $p = .20$, respectively.

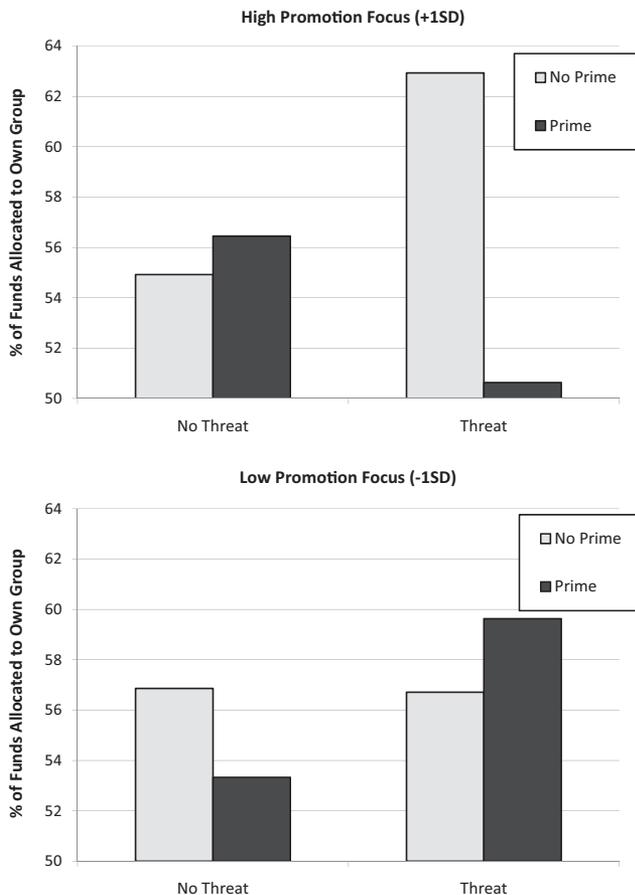


Figure 8. Percentage of funds allocated to own gender group as a function of academic uncertainty threat, religious belief system prime condition, and high (+1 SD ; top panel) versus low (-1 SD ; bottom panel) promotion focus, Study 7.

Discussion

We explored whether the joint effects of prime and threat on hostile behavior would be especially pronounced among participants who were dispositionally promotion-focused and thus especially motivated to adhere to their ideals. Unexpectedly, we did not find our typical Prime \times Threat interaction across the full sample. It is possible that first measuring dispositional promotion focus affected the way participants responded to our funds distribution measure, or that providing participants with an opportunity to affirm other values (see Footnote 7) weakened our experimental manipulations. However, the observed three-way interaction suggests that the combined effect of prime and threat might be most powerful for people who are chronically promotion-focused. Because these people are probably more likely to adhere to salient ideals after threat, they are more likely to act in accordance with them.

Study 8

In Studies 6 and 7, we found support for the role of ideals by demonstrating that increased magnanimity after prime and threat only occurred among participants who hold religious beliefs that orient them toward magnanimous ideals (Study 6) and who are dispositionally inclined to adhere to their ideals (Study 7). In our final study, we sought more direct evidence for our hypothesis that the religious belief system prime reduces hostility after threat by activating magnanimous ideals. Following the approach recommended by Spencer, Zanna, and Fong (2005), we manipulated the proposed mediating variable by replacing the religious belief system prime with a magnanimous ideals prime. In so doing, we were able to test whether an ideals prime produces effects similar to the religious belief system prime, reducing hostility after threat among those who are dispositionally promotion-focused.

Method

Participants. One hundred and fifty-four female undergraduates ($M_{age} = 20.47$ years, $SD = 4.21$; 77 Christian, 29 Muslim, 18 Hindu, 9 Sikh, 6 Buddhist, 4 Jewish, 11 “other”; atheists and agnostics were preselected out of this survey) participated in an online study for course credit. Eight participants reported suspicion about the validity of the Student Association survey; their data were excluded from all analyses. In addition, 12 participants were excluded from analyses for failing to follow instructions: Nine participants did not score above the midpoint on a new five-item compliance check⁸ included at the end of the study (see materials and procedure); three participants did not

⁸ Including participants who scored below the midpoint on the compliance check weakens the three-way interaction, $B = -8.23$, $SE = 5.39$, $t(135) = -1.53$, $p = .13$, $R^2 = .10$, but does not dramatically alter the significance of the Prime \times Threat interaction among participants who were high in promotion focus, $B = -7.06$, $SE = 3.41$, $t(135) = -2.07$, $p = .04$, or the simple effect of prime among threatened participants who were high in promotion focus, $B = -4.10$, $SE = 2.32$, $t(135) = -1.77$, $p = .08$.

complete the survey in a single day (3, 4, and 6 days).⁹ These exclusions left a final sample of 134 participants ($M_{age} = 20.46$ years, $SD = 4.18$; 69 Christian, 23 Muslim, 15 Hindu, 8 Sikh, 5 Buddhist, 4 Jewish, 10 “other”).

Materials and procedure. Participants first completed a number of individual difference measures consistent with the cover story that we were investigating the association between people’s personalities and their beliefs. As in Study 7, we assessed promotion focus using the General Regulatory Focus Measure ($\alpha = .87$; Lockwood et al., 2002).

After completing the individual difference measures, half of the participants received a magnanimous ideals prime, and half received no prime¹⁰ (materials adapted from Jonas et al., 2008). Those in the magnanimous ideals prime condition were asked to unscramble 10 five-word sentences, dropping one word from each to create a grammatical four-word sentence. Five of the sentences made salient magnanimous ideals (e.g., “The people are forgiving”; “Everyone is feeling merciful”). The other five sentences were unrelated to magnanimity and formed no other coherent concept (e.g., “He finished it yesterday”). Participants then completed either the threat (LISREL) or control (easy statistics passage) materials used in Studies 4, 5, and 7, followed by a 3-min thought-record delay. They then completed the same distribution of funds measure used in Studies 2 and 7.

Next, participants completed a manipulation check. They received the same instructions as in earlier studies, but with the following seven items (insecure, uncertain, confused, frustrated, anxious, ashamed, sad), $\alpha = .88$. They then completed a new five-item compliance check, which assessed efforts to complete the survey in an honest and attentive manner (e.g., “I sometimes just clicked random responses in order to get through this survey as quickly as possible”). This compliance check was added in response to an increase in non-conscientious responding by participants in the undergraduate subject pool, which is possibly due to a large surge in the use of online studies since we began collecting data for this article in 2007. Finally, participants completed an online suspicion check, and read a debriefing and thank you letter.

Results

Participants experiencing the academic uncertainty (LISREL) threat reported slightly higher scores on feelings of distress ($M = 3.21$, $SD = 1.53$) than participants in the control condition reported ($M = 2.82$, $SD = 1.26$), but this difference just failed to reach significance, $F(1, 130) = 2.51$, $p = .11$, $d = 0.29$. There was no interaction between threat and prime conditions, $F(1, 130) = 0.14$, $p = .71$.

We first assessed whether the magnanimous ideal prime interacted with threat to affect the distribution of funds measure. A 2 (magnanimous ideals prime vs. no prime) \times 2 (threat vs. control) ANOVA yielded a trending but non-significant interaction, $F(1, 130) = 2.47$, $p = .12$. As in Study 7, however, a regression analysis with dummy-coded prime condition (0 = no prime, 1 = magnanimous ideals prime), threat condition (0 = control, 1 = threat), mean-centered promotion focus, and all interaction terms yielded a significant three-way interaction, $B = -11.57$, $SE = 5.55$, $t(126) = -2.08$, $p = .04$, $R^2 = .13$ (see Figure 9). Decomposing this interaction further, we found

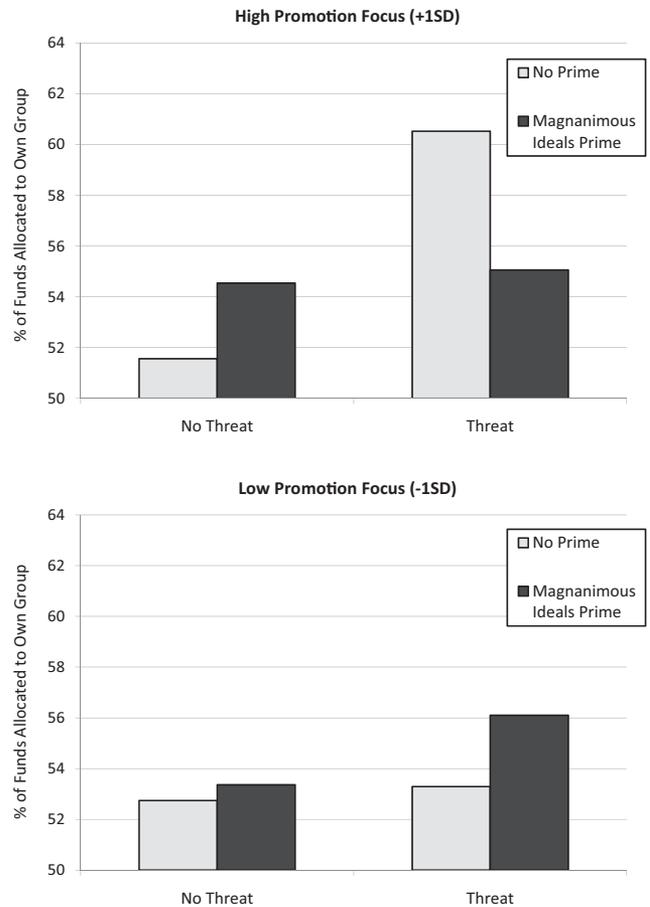


Figure 9. Percentage of funds allocated to own gender group as a function of academic uncertainty threat, magnanimous ideal prime condition, and high (+1 SD; top panel) versus low (-1 SD; bottom panel) promotion focus, Study 8.

a significant Prime \times Threat interaction among participants who were high in promotion focus (+1 SD), $B = -8.40$, $SE = 3.50$, $t(126) = -2.40$, $p = .02$, but not among participants who were low in promotion focus (-1 SD), $B = 2.15$, $SE = 3.61$, $t(126) = 0.60$, $p = .55$. Examining the simple effects within the

⁹ All participants in Studies 1–7 completed the survey in a single day.

¹⁰ To probe a difference between our methodology and other religion priming studies in which religion primes immediately precede the dependent variable, we also collected exploratory data from an additional condition in which the prime came after (instead of before) the threat so that it would occur immediately before the outcome measure. Moving the prime to this position revealed an almost identical pattern, except that when threatened, high promotion-focused individuals who had been primed did not select a less vengeful distribution of funds than those who had not been primed, $B = -1.79$, $SE = 2.85$, $t(121) = -0.63$, $p = .53$; the three-way interaction was also not significant, $B = -3.29$, $SE = 2.88$, $t(121) = -1.14$, $p = .26$. These findings suggest that an ideals prime that occurs after participants have experienced threat might not promote prime-consistent behavior in the same way that a pre-threat ideals prime does, perhaps because threatened participants have already spontaneously invested in other kinds of threat-provoked ideals or reactions, such as justice (Van den Bos, 2001), self-esteem regulation (Tesser, 2000), or worldview defense (Arndt & Greenberg, 1999).

interaction among high promotion focus participants, we found our typical pattern of results. After experiencing the academic uncertainty threat, participants who had been primed with magnanimous ideals selected a less vengeful distribution of funds than did participants who had not been primed, $B = -5.43$, $SE = 2.38$, $t(126) = -2.28$, $p = .02$. In the absence of this threat, however, participants in the prime and no prime conditions did not differ, $B = 2.98$, $SE = 2.57$, $t(126) = 1.16$, $p = .25$. Further, when participants had been primed, the threat and no threat conditions did not differ significantly, $B = 0.53$, $SE = 2.47$, $t(126) = 0.22$, $p = .83$. When participants had not been primed, those who experienced the academic uncertainty threat selected a more vengeful distribution of funds than did participants who had not been threatened, $B = 8.93$, $SE = 2.48$, $t(126) = 3.61$, $p < .001$.

Additional Analyses

Meta-Analyses of Simple Effects

We conducted meta-analyses of the simple effects within our typical Prime \times Threat interaction across Studies 2, 3, 4, 5, and 7.¹¹ These analyses revealed that threatened participants who had received the religious belief system prime responded with less hostile behavior than threatened participants who had not received the prime ($z = 4.64$, $p < .00001$). In the absence of threat, participants who had received the religious belief system prime did not differ from those who had not received the prime ($z = 1.59$, $p = .11$). In addition, non-primed participants who had been threatened responded with more hostile behavior than non-primed participants who had not been threatened ($z = 2.93$, $p = .003$). In contrast, primed participants who had been threatened responded with less hostile behavior than primed participants who had not been threatened ($z = 3.02$, $p = .003$).

Thus, across studies using different threats and measures of hostility, we found that a religious belief system prime with no explicit reference to prosocial behavior exerted a powerful effect on hostile behavior following threat. Further, we found that threat caused non-primed people to respond with greater hostility, an effect that has frequently been found in past research (e.g., Greenberg et al., 2001; Proulx & Heine, 2008; Pyszczynski et al., 2006). In contrast, people who had been primed with their religious belief system showed the opposite response, decreasing rather than increasing their hostility after threat. The religious belief system salience prime thus served a transformational function, supplanting the tendency toward hostility after threat with a tendency toward magnanimity.

Religious Group Differences

Although we recruited participants ascribing to diverse religious belief systems, the sample sizes within each study were insufficient to test for religious group differences. We therefore standardized the main hostility measures in all studies (except Study 6 because all participants were primed and Study 8 because we used a magnanimous ideals prime) and combined all participants to create a sample that included 257 Christians, 103 Muslims, 44 Jews, 30 Hindus, 18 Sikhs, 12 Buddhists, and 30 "other." A 2 (religious belief system prime vs. no prime) \times 2 (threat vs.

control) \times 7 (religious group) ANOVA yielded our typical Threat \times Prime interaction, $F(1, 466) = 16.10$, $p < .001$; there was no three-way interaction with religious group, $F(6, 466) = 0.59$, $p = .74$, or any other significant main effects or interactions with religious group, all $ps > .28$.

Table 2 presents the standardized cell means and primary contrasts for each religious group. Lower standardized means represent less hostility. The pattern of means was similar for each religious group, with less hostile behavior under threat among participants who had been primed with their religious belief system compared to participants who had not been primed. Although future research with larger samples of non-Christian religious groups is needed, these findings suggest that a religious belief system prime functions similarly across diverse religious groups. Consistent with our preliminary data on people's perceptions of ideals encouraged by their religious belief system, it appears that people across diverse religious groups associate their religious belief system with magnanimous ideals, and act in accordance with these ideals when motivated to affirm their salient religious belief system as a palliative reaction to threat.

Atheists and Agnostics

Because we did not expect the religious belief system prime to activate religious ideals among atheists and agnostics, we excluded the data from these individuals from our primary analyses. Although there were too few participants in these categories to analyze their responses in individual studies, their sample size is sufficient across all studies. We standardized the main hostility measures in Studies 2, 3, 4, 5, and 7 ($n = 65$) to examine whether atheists and agnostics were influenced by the threats and religious belief system primes across studies. A 2 (religious belief system prime vs. no prime) \times 2 (threat vs. control) ANOVA on the standardized measure of hostility yielded no significant effects—*threat*: $F(1, 61) = 0.61$, $p = .44$; *prime*: $F(1, 61) = 1.70$, $p = .20$; *interaction*: $F(1, 61) = 0.05$, $p = .82$ (see Table 2 for standardized cell means and primary contrasts).

Meta-Analyses of Manipulation Checks

We conducted meta-analyses of the effects of the mortality salience (Studies 2 and 6) and academic uncertainty (Studies 4, 5, 7, and 8) threats on the manipulation checks. These analyses revealed that, across studies, participants threatened with mortality salience reported experiencing greater distress than did participants in the dental pain control condition ($z = 3.20$, $p < .001$). Participants threatened with academic uncertainty also reported experiencing greater distress than did participants in the easy

¹¹ To conduct the meta-analysis, we used the method of weighted zs from Mosteller and Bush (1954), as described by Rosenthal (1981). We excluded Study 1 because our dependent measure was cognitive accessibility rather than revenge endorsements or behavior, we excluded Study 6 because all participants were primed, and we excluded Study 8 because participants were primed with magnanimous ideals. Results do not change if these studies are included in the analysis. For Study 3, we included the "turn the other cheek" message condition as the religious belief system prime condition. For Study 7, we examined the simple effects across all participants (i.e., including both high and low approach motivation participants) to be as conservative as possible.

Table 2
Standardized Cell Means and Primary Contrasts for
Magnanimity (Low Hostility) by Religious Group

Religious group	<i>n</i>	Condition	Prime	No prime	Contrast
Christianity	257	Threat	-0.38	0.26	$p < .001$
		Control	0.13	-0.05	$p = .31$
Islam	103	Threat	-0.01	0.44	$p = .18$
		Control	0.15	-0.11	$p = .39$
Judaism	44	Threat	-0.28	0.55	$p = .004$
		Control	-0.44	-0.15	$p = .24$
Hinduism	30	Threat	-0.43	0.83	$p = .04$
		Control	0.43	0.16	$p = .32$
Sikhism	18	Threat	-0.91	-0.24	N/A
		Control	0.32	-0.62	N/A
Buddhism	12	Threat	-0.54	1.44	N/A
		Control	0.37	0.11	N/A
Other	30	Threat	-0.72	0.16	$p = .11$
		Control	0.27	-0.40	$p = .37$
Atheists/agnostics	65	Threat	-0.04	-0.30	$p = .50$
		Control	0.21	-0.17	$p = .22$

Note. Lower standardized means indicate greater magnanimity in the form of reduced hostility. Contrasts indicate the effect of religious belief system prime under threat and no threat. We did not compute contrasts for Sikhs and Buddhists because of the small *n* in each cell.

statistics control condition ($z = 3.86$, $p < .0001$). Exploratory item-level analyses across all studies revealed that threat had the strongest effect on feeling “uncertain” ($z = 6.37$), “confused” ($z = 6.19$), and “insecure” ($z = 5.00$).

General Discussion

Across eight studies, we found support for our hypothesis that reminding people of their religious belief system would cause them to react with greater magnanimity in the face of threat. We focused primarily on magnanimity in the form of reduced hostility toward offending others. In Study 1, people responded to a mortality salience threat by recalling fewer hostile words if they had been previously primed with their religious belief system. In Study 2, primed people responded to a mortality salience threat by exhibiting less hostile behavior toward an offending outgroup. In Study 3, primed people responded to a mortality salience threat by reducing their endorsement of hostile revenge, regardless of whether the prime was paired with a message of “turning the other cheek,” or a message of taking an “eye for an eye.” In Study 4, primed people responded to an academic uncertainty threat by reducing their endorsement of hostile revenge. In Study 5, primed people responded to an academic uncertainty threat by exhibiting less hostile worldview defense—an outcome measure that is typically amplified by threatening circumstances. In Study 6, primed people who strongly associated their religious belief system with the Golden Rule felt more forgiving and were less supportive of hostile behavior toward offenders after a mortality salience threat. In Study 7, primed people responded to an academic uncertainty threat with reduced hostility toward an offending outgroup only if

they were dispositionally promotion-focused. Finally, in Study 8, people primed directly with magnanimous ideals responded to an academic uncertainty threat with reduced hostility toward an offending outgroup if they were dispositionally promotion-focused. Together, these studies suggest that people’s religious belief systems may promote less hostile responses to life’s many conflicts and uncertainties.

The present studies used a simple reminder of people’s religious belief system to activate participants’ personal religious ideals, and assessed dependent measures with clear links to magnanimity. This research is thus the first to provide causal evidence that participants’ religious ideals are generally magnanimous, and that a religious belief system prime reduces hostile behavior in personally threatening circumstances. Although past research has provided some evidence for such a conclusion, it has been limited to mortality salience threats, has often focused on worldview defense, and has almost exclusively used primes or measures that activate specific religious beliefs or content (e.g., Jonas & Fischer, 2006; Rothschild et al., 2009). The present research thus contributes to recent efforts to illuminate the effects of religion by demonstrating that in different threatening contexts, a mere reminder of one’s religious belief system can influence behavior in a more magnanimous direction.

We assessed magnanimity with a variety of measures, including cognitive accessibility of hostile revenge concepts (Study 1), hostile revenge behavior (Studies 2, 7, and 8), endorsement of hostile revenge in the context of a real-world event (AIG controversy; Studies 3 and 4), hostile worldview defense (Study 5), and endorsement of hostile revenge in the context of interpersonal offenses (Study 6). Each of these outcome measures has weaknesses. For example, the behavioral voting measure could be measuring adherence to a fairness principle rather than hostile revenge, and the revenge proposed against AIG executives included an element of violence, which is clearly unacceptable under most religious belief systems. Together, however, these measures tell a coherent story about the ability of a religious belief system prime to promote less hostile responses to threat.

Palliative Religion

Why might people adhere to their salient religious belief system when confronting various threats? Recent neural evidence highlights the palliative, anxiolytic function of religion (Inzlicht, McGregor, Hirsh, & Nash, 2009; Inzlicht & Tullett, 2010). In two correlational studies, stronger religious zeal (Study 1) and greater belief in God (Study 2) were marked by reduced amplitude of the error-related negativity (ERN)—a neural “distress signal” that has been source localized to the anterior cingulate cortex (Bush, Luu, & Posner, 2000; Inzlicht et al., 2009). Two additional experiments revealed that conscious (Study 1) and non-conscious (Study 2) religion primes decreased ERN amplitude, but only for theists (Inzlicht & Tullett, 2010). These studies suggest that religious beliefs can insulate people from distress.

Other research suggests that ideals may be a particular effective way to activate approach-motivated states that have been shown to automatically downregulate distress, which may be why people are so motivated to adhere to ideals when under threat (I. McGregor, Gailliot, Vasquez, & Nash, 2007; I. McGregor, Nash, Mann, & Phills, 2010; I. McGregor, Nash, & Prentice, 2010; I.

McGregor et al., 2013; Nash et al., 2011; Proulx et al., 2012; for a review, see Jonas et al., 2014). Indeed, approach-motivation-related brain activity is negatively correlated with self-reported stress and ERN amplitude (Nash, Inzlicht, & McGregor, 2012). Adhering to religious ideals after threat may thus be a particularly effective way of managing the distress caused by threat.

The Role of Pre-Existing Religiosity

The religion priming literature currently does not provide consensus regarding the moderating role of religiosity, with some studies showing significant moderation (e.g., Gervais & Norenzayan, 2012, Studies 1 and 3; Shariff & Norenzayan, 2007, Study 2) and others showing no moderation (e.g., Ahmed & Salas, 2011; Gervais & Norenzayan, 2012, Study 2; Laurin, Kay, & Fitzsimons, 2012; Randolph-Seng & Nielsen, 2007; Shariff & Norenzayan, 2007, Study 1). In the current studies, we included only participants who ascribed to a religion and excluded all participants who identified themselves as atheist or agnostic. Although our sample of atheists and agnostics was small, we found that these non-believers did not show the same pattern of responding as believers. Some religious belief thus seems necessary for the religious belief system prime to activate religious ideals.

However, among believers, the effect of the religious belief system prime after threat occurred irrespective of participants' pre-existing levels of religiosity. We suspect that this null result occurs because most people who ascribe to a religion—regardless of how devout they are—associate their religious belief system with superordinate magnanimous ideals such as the Golden Rule. Instead of pre-existing levels of religiosity, a more relevant pre-existing religious belief appears to be how strongly they associate their religious belief system with such superordinate ideals, as evidenced in Study 6. This is not to say that pre-existing religiosity does not matter. Indeed, as demonstrated in past research showing that intrinsic religiosity moderates the effects of mortality salience threats (Golec de Zavala et al., 2012; Jonas & Fischer, 2006), levels of pre-existing religiosity likely influence whether people spontaneously adhere to their religious beliefs in threatening circumstances when these beliefs have not been experimentally primed.

Origins of the Religion–Magnanimity Link

The present studies provide evidence for an association between religious belief and magnanimity (at least in the form of reduced hostility)—an association that has also been found in past research (e.g., McCullough & Willoughby, 2009; Saroglou et al., 2009). But where might this association have originated? In her book, *The Great Transformation*, historian Karen Armstrong (2006) argues that religions evolved, at least in part, to replace the intuitive impulse toward revenge with an impulse toward magnanimity (Armstrong, 2006). This view is echoed by other scholars, who posit that the religious emphasis on magnanimity evolved against a backdrop of violence (de Botton, 2012; H. Smith, 1986). For example, according to philosopher Alain de Botton (2012), “the origins of religious ethics lay in the pragmatic need of the earliest communities to control their members' tendencies toward violence, and to foster in them contrary habits of harmony and forgiveness” (p. 79; see also Eliade, 1960). A related perspective

has been proposed by social psychologists, who argue that belief in moralizing high Gods—omniscient, omnipotent supernatural policing agents—emerged from a need to promote within-group cooperation in large, genetically unrelated social groups (Shariff et al., 2010; see also Graham & Haidt, 2010). Collectively, these scholars from diverse disciplines suggest that magnanimous religious values originated from a need to curb people's tendencies toward hostility. Although there are certainly aspects of religion that stoke hostility, at a more general level religious ideals might be particularly useful at reducing hostility, as found in the present research.

Limitations and Future Directions

In the present research, we found convergent evidence for our hypotheses across two pilot studies and eight featured studies. However, there are limitations and unanswered questions that should be investigated in future research. One limitation of the current studies concerns the inconsistent effects we found on our manipulation check of feelings of distress (but see the meta-analyses presented in the Meta-Analyses of Manipulation Checks section). One reason for this inconsistency might be that we assessed feelings of distress at the end of the studies, after the thought record delay and dependent measures. It is possible that participants' retrospective reports of their feelings were affected by the measures that came before it. Another possibility is that people are unable to report (or are not consciously aware of) their feelings of distress after threat. Consistent with this possibility, past research indicates that mortality salience inductions do not typically increase self-reports of negative affect that are positioned immediately after the threat (Pyszczynski et al., 1999). Given the cohesive effects we observed across eight studies and the consistency of these studies with the broader threat literature, it is likely that the threats used in the present studies were effective despite the inconsistent results on the manipulation checks. However, the role that distress plays in the effects of threat is a complex issue that should be examined more carefully in future research.

Another limitation of the present research concerns our dependent measures. Although we attempted to demonstrate the generality of our effects by assessing magnanimity in a variety of ways, we did not measure magnanimity in response to severe offenses (e.g., murder or terrorism) that unambiguously violate religious principles of morality. We predict, however, that a religious belief system prime would produce similar effects to those found in the present studies on responses to even severely immoral crimes. Though these crimes violate religious (and non-religious) morality, people who are motivated to affirm their salient religious belief system should still act in accordance with a superordinate principle of magnanimity, especially if they strongly associate their religious belief system with magnanimous ideals. This reasoning finds some support in past research demonstrating that intrinsic religiosity reduces support for aggressive counterterrorism following threat (Golec de Zavala et al., 2012). Future work could thus explore whether religious magnanimity after threat does or does not extend to people who severely violate principles of religious morality.

Future research could also investigate other possible limits to (or perhaps even reversals of) religious magnanimity after threat. Recent research on the effects of religion under neutral circumstances suggests that people's religious prosociality might not

extend to individuals or groups that violate their religious values. For example, both self-reported religiosity or belief in God (Edgell, Gerteis, & Hartmann, 2006; Gervais, Shariff, & Norenzayan 2011; Johnson et al., 2010, Study 1; Rowatt, LaBouff, Johnson, Froese, & Tsang, 2009; Rowatt et al., 2006) and religion primes (Johnson et al., 2010, Study 2) have been associated with less accepting attitudes toward homosexuals, Muslims, and atheists. However, it is possible that the direction of the effects could change under threatening circumstances. The Golden Rule teaches the value of magnanimity toward everyone. When reminded of their religious beliefs, threatened people who hold the Golden Rule as a core religious ideal might extend religious magnanimity to everyone—even those who violate other religious values (for some support for this prediction, see Golec de Zavala et al., 2012; Norenzayan et al., 2009). In light of past research showing an association between religion and hostility toward various outgroups, this is an important question for future research.

An additional question for future research concerns whether a religious belief system prime can promote more prosocial action toward others in the face of threat, in addition to reducing hostility. The current set of studies does not provide a conclusive answer to this question. In Study 1, reminding participants of their religious belief system caused them to recall fewer revenge words under threat, but did not increase their recall of forgiveness words. Because prohibitions and supernatural punishment are central to many religious beliefs (Norenzayan & Shariff, 2008), it is possible that the religious belief system prime may primarily function by curbing hostility. However, because people also associate their religion with prosocial ideals, it seems likely that the prime can directly promote prosocial behavior, such as perspective-taking, helping, and charity. This possibility finds some support in Study 6, where we found that primed participants who strongly associated their religious belief system with the Golden Rule reported more forgiving emotions after threat. Future research assessing different outcomes of the prime in threatening circumstances could provide us with greater understanding of the scope of behaviors that are connected to people's religious beliefs.

Finally, religion is not the only ideology that promotes magnanimous ideals, and thus not the only ideology that can promote less hostile responses to threatening circumstances. We anticipate that the salience of non-religious magnanimous ideals would produce similar effects to the religious belief system prime used in the present research. Indeed, presenting Americans with statements advocating tolerance reduced their likelihood of responding to threat by derogating a foreigner who had criticized the United States (Greenberg et al., 1992), and priming people with prosocial norms (e.g., pacifism, helping) increased prosocial responses to threat (Gailliot et al., 2008; Jonas et al., 2008). In Study 8, we directly primed magnanimous ideals using a sentence-unscrambling task and found that this non-religious prime also reduced hostility under threat among participants who were dispositionally committed to adhering to their ideals. Future research should continue to explore diverse ways to reduce hostility in contexts that typically elicit it, and compare the ability of religious and secular primes to promote more magnanimous responses to threat.

Conclusions

The present research suggests that (a) people generally associate their religious belief system with the Golden Rule and specific magnanimous ideals, and (b) people who have been primed with their religious belief system act in accordance with their magnanimous religious ideals by becoming less hostile after threat. This research thus contributes to the current dialogue on religion by demonstrating that a mere reminder of people's religious belief system—one that is not accompanied by any explicit beliefs or injunctions—can promote more magnanimous, less hostile reactions in threatening contexts. Given that religious belief is an important source of meaning and well-being in so many people's lives (Baumeister, 2002; Heine et al., 2006; Silberman, 2005; Steger & Frazier, 2005), we hope that this dialogue continues so we can further understand the diverse and important effects of religion.

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