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Research article

Intrinsic religiosity reduces intergroup hostility under mortality salience

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Abstract

Results of three studies indicate that intrinsic religiosity and mortality salience interact to predict intergroup hostility. Study 1, conducted among 200 American Christians and Jews, reveals that under mortality salience, intrinsic (but not extrinsic or quest) religiosity is related to decreased support for aggressive counterterrorism. Study 2, conducted among 148 Muslims in Iran, demonstrates that intrinsic religiosity predicts decreased out-group derogation under mortality salience. Study 3, conducted among 131 Polish Christians, shows that under mortality salience, priming of intrinsic religious concepts decreases support for aggressive counterterrorism. Copyright © 2012 John Wiley & Sons, Ltd.

The terrorist attacks of 9/11 inspired the belief that religion motivates and encourages political violence. In 2006, a Gallup Poll found that 33% of Americans believed that mainstream Islam promotes violence against non-Muslims. In a recent paper, Hogg, Adelman and Blagg (2010) explained why, when, and how religious zeal can encourage political violence. They argue that a religion can be understood as a social group and that individual religiosity reflects the extent to which people identify with the religious group and follow its norms. Religions provide consolation and authoritative answers to most important existential questions. This feature makes them appealing in times of uncertainty and mortality threat. At the same time, because of their fundamental claims, religious beliefs inspire unquestioning obedience and ideological zeal that can blind people to morally questionable aspects of their actions (Hogg et al., 2010).

Yet, religiosity is not inevitably related to intergroup hostility. For example, the 2009 Gallup Poll confirms that people who *practice* their (non-Muslim) religions report the lowest prejudice against Muslims and Islam (Gallup Inc, 2009). Intrinsic religious commitment is related to decreased prejudice (e.g., Hall, Matz, & Wood, 2010), and frequent meditative, personal prayer reduces hostility (e.g., Butler, Stout, & Gardner, 2002). In addition, religions are associated with norms of benevolence and compassion that mitigate intergroup hostility among religious fundamentalists under mortality salience (Rothschild, Abdollahi, & Pyszczynski, 2009).

In three studies, we explore the idea that distinguishing between different ways of being religious allows us to more adequately understand the role of individual religiosity in intergroup context under mortality threat. We propose that mortality salience strengthens the relationship between *intrinsic* religious commitment and *decreased* intergroup hostility. We test this prediction in the context of what is often referred to as the "conflict between the Muslim and the Western world" (e.g., Pyszczynski et al., 2006). Before we outline our hypotheses in more detail, we will discuss the findings regarding intergroup hostility under mortality threat and the relationships between individual religious orientations and intergroup negativity.

EXISTENTIAL THREAT AND INTERGROUP HOSTILITY

Mortality salience seems to increase the likelihood of cognitive and emotional functioning that escalates intergroup hostility (e.g., Niesta, Fritsche, & Jonas, 2008; Pyszczynski, Rothschild & Abdollahi, 2009). Under mortality salience, group membership becomes important, group identification increases, and people are more likely to act on behalf of their groups (e.g., Castano & Dechesne, 2005; Jonas, Schimel, Greenberg, & Pyszczynski, 2002). On a more destructive end, under mortality salience, individuals are more likely to reject cultural out-groups (see reviews Greenberg, Solomon, & Pyszczynski, 1997); express in-group bias (Castano & Dechesne, 2005); display prejudice (Greenberg, Schimel, Martens, Solomon, & Pyszczynski, 2001); and become more prone to intergroup aggression (McGregor et al., 1998). The threat of terrorism functions as a mortality reminder and leads to support for belligerent political leaders and confrontational international politics (Landau et al., 2004), increased

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Islamophobia, and other forms of prejudice (Das, Bushman, Bezemer, Kerkhof & Vermeulen, 2009; Sheridan, 2006).

However, whereas some studies find the main effect of mortality salience on intergroup hostility, other studies indicate that intergroup hostility under mortality salience occurs only when negative out-group attitudes and aggressive intergroup stances are allowed or desirable within the dominant worldview (e.g., among authoritarians, Greenberg et al., 1990; or political conservatives, Pyszczynski et al., 2006; Hirschberger & Ein-Dor, 2006). In several research programs that examined support for political violence in the Western and Muslim contexts, the main effect of mortality salience on intergroup hostility was found only among Iranians but not among Americans (Pyszczynski et al., 2006; Rothschild et al., 2009). Crucial to the understanding of these findings is the fact that the anti-Western attitudes are quite unanimously held and seem to be normative in Iran, whereas support for aggressive counterterrorism is not anymore widespread and seems to be limited to certain segments of American and European societies (Rothschild et al., 2009; Weise et al., 2008).

Thus, at least in some contexts, the readiness to support intergroup hostility seems to be significantly reduced by another important motivation that arises under mortality salience: the need to live up to standards and values embedded in the dominant worldviews along with the values they promote and the behaviors they prescribe (e.g., Pyszczynski et al., 2006; see also Greenberg, Simon, Pyszczynski, Solomon & Chatel, 1992). Moreover, when peaceful normative prescriptions become salient, the tendency to follow them seems to become more important than a need to protect the in-group and reject or aggress against the out-group (e.g., when dominant worldviews and salient norms prescribe tolerance, Greenberg et al., 1992; making concessions, Abdollahi, Henthorn & Pyszczynski, 2010; or peacemaking, Jonas et al., 2008). Intrinsic religiosity seems to be chronically associated with a commitment to live according to the peaceful and compassionate values and prescriptions of one's religion (at least in the Judeo-Christian and Muslim contexts, Hall et al., 2010; Rothschild et al., 2009). We predict that this commitment is enhanced in the times of existential threat and leads to reduced intergroup hostility.

RELIGIOSITY AND INTERGROUP HOSTILITY

Past studies indicate that general religiosity is related to intolerance and prejudice (e.g., Jackson & Hunsberger, 1999; Rowatt, LaBouff, Johnson, Froese, & Tsang, 2009). However, other studies clarify that people who frequently practice personal prayer do not support intergroup violence in contrast to people who attend places of worship (Ginges, Hansen, & Norenzayan, 2009). This suggests that understanding the way people approach their religiosity is important in predicting whether they will display prejudice and support intergroup violence.

The psychology of individual religiosity differentiates between intrinsic religiosity, extrinsic religiosity, and quest religiosity. In *intrinsic religiosity*, religious faith is the end in itself; religious beliefs and guidance are internalized and "lived." In *extrinsic religiosity*, religion is used as a means of social differentiation and coalition building, source of social

support, status, and prestige (Allport & Ross, 1967; see for critical analysis Cohen, Hall, Koenig & Meade, 2009). *Extrinsic religiosity* is not related to religious commitment (Donahue, 1985), and extrinsically religious people do not internalize religious beliefs (Wenger, 2004; 2007). The *quest religiosity* focuses on spiritual search for meaning and critical reflection over problems and tragedies of societies and individual lives (Batson, 1976; Batson, Schoenrade, & Ventis, 1993). It is a personal pursuit of existential understanding not tied to any religion and, as such, should be differentiated from participation in the beliefs and activities of a particular religion (e.g., Hill & Pargament, 2000; Moberg, 2002).

We argue that intrinsic religiosity specifically should reduce intergroup hostility under mortality threat. Intrinsically religious people seem to treat the prosocial and peacemaking religious prescriptions seriously. They tend to be tolerant (Allport & Ross, 1967; Fulton, Gorsuch, & Maynard, 1999, Kirkpatrick, 1993), helpful (Hansen, Vandenberg, & Patterson, 1995), and forgiving (Greer, Berman, Varan, Bobrycki, & Watson, 2005; for review see Donahue, 1985; Hall, et al., 2010; Hunsberger & Jackson, 2005; although see Herek, 1987 and Jackson & Hunsberger, 1999 for the relationship between intrinsic religiosity and prejudice towards homosexuals, and Fulton et al., 1999; explaining why this relationship becomes negative, in line with earlier findings, when religious fundamentalism is controlled). Other religious orientations are less likely to be associated with commitment to follow the religious teachings regarding social interaction and therefore less likely to affect intergroup attitudes and behavior under mortality threat.

Extrinsically religious people, typically less tolerant and more prejudiced (e.g., Allport & Ross, 1967; Hall et al., 2010), are also less interested in the content of their religious beliefs and more focused on ritualistic and community and coalition building aspect of religiosity (Cohen, et al., 2009). Under mortality salience, they may be prone to follow temporarily most accessible norms of their community rather than unvarying religious values. The quest religious orientation is related to open-mindedness, less prejudice, and more tolerance (e.g., Batson, et al., 1993; Hall, et al., 2010). However, quest religiosity is not likely to be associated with decreased intergroup hostility under mortality salience because it does not provide any definite suggestions for desirable behavior in intergroup context.

PRESENT STUDIES

In the present studies, we test the hypothesis that mortality threat moderates the relationship between intrinsic religiosity and intergroup hostility. We test this hypothesis in Studies 1 and 2 by using a self-report measure of intrinsic religiosity and test it in Study 3 by subtly priming intrinsic religiosity.

Some evidence already exists to support our predictions. These findings fit our moderation hypothesis; however, they fall short of providing direct support for the expected effects. For example, studies show that people who define themselves as religious show *less* tendency to derogate religious out-groups when their mortality is salient (Norenzayan, Dar-Nimrod, Hansen, & Proulx, 2009). We argue that although important

and informative, these studies do not provide a precise understanding of the role of individual religiosity in intergroup context under mortality salience. They do not consider the possibility that in a cultural context that is permissive of political violence, different ways of being religious may be related to quite different intergroup attitudes under mortality salience.

Rothschild and colleagues (Rothschild et al., 2009) showed that priming the value of religious compassion among religious fundamentalists reduced support for political violence in the conflict between the Western and the Muslim world. We argue that it is important to look also at forms of religiosity that are associated with *chronic* accessibility of non-violent norms and promise more lasting decrease in support for intergroup hostility in times of threat.

With regards to the role of intrinsic religiosity under mortality salience, Jonas and Fischer (2006) have already demonstrated that intrinsically religious people under mortality salience strive for internal consistency of their beliefs to a lesser extent than people who are not intrinsically religious. However, these authors did not examine the interactive effects of intrinsic religiosity and mortality salience on intergroup hostility in the context of the intergroup conflict. Importantly, Jonas and Fischer (2006) explained the mitigating role of intrinsic religiosity under mortality salience arguing that intrinsic religious commitment serves a fear of death alleviating function. This suggests that mortality threat may affect the relationship between intrinsic religiosity and intergroup hostility not only because it motivates people to live up to their religious values but also because intrinsically religious people are less susceptible to the effects of existential fear.

In all studies presented here, we examined the moderating effect of mortality salience on the relationship between intrinsic religiosity and intergroup hostility only among participants who define themselves as religious and indicate their religious denomination. We followed the argument that assessing individual religious orientation makes sense only among people who can be, by some other criteria, categorized as religious because religious orientations represent different ways of being religious. Asking non-religious people to respond to religious orientation scales may provide data that are difficult to interpret (Batson et al., 1993; Francis, 2007). In all studies, we invited participants to define their religious affiliation and assessed their general religiosity asking *How religious are you?* ("1" = "not at all" to 7 = "very much"). We excluded from the analyses all people who did not state their religious affiliation, defined themselves as atheists or answered "Not at all" to question about their religiosity. In all studies, we controlled for age and gender of participants because age-related and gender-related differences in death anxiety, religiosity, and dominance and aggressiveness were reported by earlier studies (e.g. Harwood, White, & Benshoff, 2009; Pierce, Cohen, Chambers, & Meade, 2007; Whitley, 1999).

STUDY 1

In Study 1, we investigated the interactive effects of mortality salience and individual intrinsic religiosity on preferences for counterterrorist actions among American participants.

We assessed the relationship between religiosity (intrinsic, extrinsic and quest) and support for intergroup hostility both when mortality was made salient and in a control condition.

Method

Participants

Study 1 was conducted among 200 American undergraduate students. Participants were asked to indicate their religious denomination and religious involvement. The data from participants who described their religion as Islam ($n = 6$) were excluded from further analyses because this religious identification might have influenced participants responses regarding actions against Islamic terrorist organizations. The data from participants who defined themselves as agnostic or atheist ($n = 9$) did not answer the question about professed religion ($n = 12$) or answered "not at all" to a question "How religious are you?" were not included in the analyses. The final sample contained 158 participants: 116 women and 42 men. Their mean age was 18.70 years ($SD = 1.01$). The participants represented mostly Judeo-Christian religious tradition: 115 identified themselves as Christian (40 described themselves as Christian, 48 as Catholic, 27 as Protestant) and 43 as Jewish.

Procedure

Participants were first asked to respond to demographic questions and questions identifying their religious affiliation and level of religiosity ($M = 3.84$; $SD = 1.48$). Then, religious orientations were measured. Next, participants were randomly assigned to research conditions: increased mortality salience ($n = 80$) versus control ($n = 78$). After answering the standard questions regarding thoughts aroused by their own death versus a visit to the dentist, participants performed a distraction task (Greenberg, Pyszczynski, & Solomon, 1999). Next, they were asked to perform the word-stem completion task that measures accessibility of death-related thoughts (Greenberg, Pyszczynski, Solomon, Simon & Breus, 1994). In a final step, participants were asked to respond to a questionnaire measuring their evaluations of counterterrorist actions.

Experimental Manipulation

Participants were asked to think about their own death and report the first thoughts that came to their mind when they reflected on their mortality (*Please briefly describe the emotions that the thought of your own death arouses in you* and *Jot down, as specifically as you can, what you think will happen to <u>you</u> as you physically die and once you are physically dead*). In the control conditions, participants were asked to think about a visit to the dentist with a toothache. Afterwards, as a distraction task, participants were asked to read and evaluate a fragment of a short story about a person traveling in a car pre-tested for its neutral content (*How do you feel about the overall descriptive qualities of the story?* and *Do you think the author of this story is male or female?*) (Greenberg et al., 1994).

Measures

Death thought accessibility was assessed by the shortened word-stem completion task adopted from Greenberg et al. (1994). The participants were given a list of eight uncompleted words, three of which could be completed to form either a death-related word: (*d*)*ead*; (*g*)*rave*; *corp*(*se*) or a neutral word: (*h*)*ead*; (*b*)*rave*; *corp*(*us*). The completion of the strings of letters so they form death-related, rather than neutral words, was scored 1, and completion in death unrelated way was scored 0.

Religious orientations were measured by the 18 items forming the New Indices of Religious Orientation (Francis, 2007). This is an improved Religious Life Inventory (Hill, Francis & Robbins 2005) including scales of extrinsic, intrinsic, and quest religious orientation and updating them to be more adequate to contemporary understandings of religiosity (see Cohen et al., 2009; Francis, 2007). The six items measuring intrinsic religious orientation refer to embracing religious commitment, welcoming religion's influence in all aspects of one's life, and using religion for guidance in daily life choices (e.g., "My religious beliefs really shape my whole approach to life") ($M = 2.87$; $SD = .87$; $\alpha = .80$). The six items assessing extrinsic religious orientation pertained to social aspect of religious life and instrumental use of religion (e.g., "I participate in public religious practices because it helps me to feel at home in my neighbourhood") ($M = 2.56$; $SD = .94$; $\alpha = .81$). The six items measuring quest religious orientation refer to the role of spiritual search and religious uncertainty (e.g., "I am constantly questioning my religious beliefs") ($M = 2.92$; $SD = .83$; $\alpha = .72$). Participants marked their responses by using a 5-point, Likert-type scale (1 = "not true at all" to 5 = "exactly true").

Intergroup hostility was assessed as preference for coercive over non-coercive counterterrorist measures with items adopted from Pronin, Kennedy, and Butsch (2006). Participants were given a list of counterterrorist actions and assessed whether they would choose each action as a potentially effective way of fighting terrorists. Participants provided their answers on 7-point Likert-type scale (1 = "not effective at all" to 7 = "extremely effective"). The aggressive actions included *air strikes against terrorist weapons and supply storage*, *assassination of terrorist leaders responsible for attacks*, and *Sentencing terrorist leaders to death*. ($\alpha = .88$; $M = 3.88$; $SD = 1.32$). The non-aggressive counterterrorist actions included *diplomatic efforts to improve relations with terrorist groups*, *negotiations with the leadership of terrorist groups*, *group discussions with terrorists to find areas of agreement*, and *requiring both sides to agree to a binding mediated resolution* ($\alpha = .89$; $M = 4.79$; $SD = 1.41$).

The two indices were negatively correlated (r (156) = −.44, $p < .01$). There are however reasons to think that support for coercive counterterrorism and support for mediation, negotiation, and diplomatic means in dealings with terrorist organizations do not form one dimension where the choice of one type of strategies excludes the choice of the strategies of the other type (e.g., Pronin et al., 2006). Thus, in order to construct the measure of preference for aggressive actions over non-aggressive counterterrorist actions, we regressed the scores of support for diplomatic counterterrorism onto the scores of support for aggressive counterterrorism. The residuals were re-coded to run from 1 to 7, as in the original measures ($M = 3.21$; $SD = 1.41$). In effect, this procedure generates a corrected difference score that overcomes problems associated with traditional difference scores (e.g., Cronbach & Furby, 1970).

Results

There were no significant differences between participants with different religious affiliations with reference to the preference of counterterrorist actions, $F < 1$. Intrinsic religiosity was positively correlated with extrinsic religiosity (r (156) = .69; $p < .01$). Extrinsic religiosity and quest religiosity positively correlated (r (156) = .19; $p = .02$). The religious orientations were not significantly associated with preference for hostile counterterrorism. General religiosity was positively associated with extrinsic (r (156) = .63; $p < .01$) and intrinsic (r (156) = .79; $p < .01$) religiosity. It was not significantly correlated with preference for coercive counterterrorism (r (156) = −.06; $p = .46$).

The inspection of mean scores on the word completion task indicates that participants completed the words in a death-related way significantly more often in the mortality salience condition ($M = .45$; $SD = .25$) than in control condition ($M = .38$ $SD = .20$; $F(1, 157) = 3.85$; $R^2 = .04$; $p = .05$). This effect was qualified by an interaction of mortality salience and intrinsic religiosity, $b = −.04$; $SE = .02$; $\beta = −.44$; $p = .052$; $F(5, 153) = 2.5$; $p = .04$; $\Delta R^2 = .02$. The simple slopes analyses employed to test this interaction revealed that the relationship between intrinsic religiosity and the accessibility of death-related thoughts was positive and non-significant in the control condition ($b = .02$; $SE = .03$; $\beta = .06$; $p = .47$), and negative and significant in the mortality salience condition ($b = −.07$; $SE = .04$; $\beta = −.16$; $p = .05$). This suggests that death-related thoughts were less accessible among intrinsically religious people under mortality salience.

In order to test the hypothesis predicting the moderating effect of mortality salience on the relationship between intrinsic religiosity and preference for hostile counterterrorism, we performed a hierarchical multiple regression analysis according to the procedure proposed by Aiken and West (1991). The experimental conditions (0 = control; 1 = experimental) and religious orientations were entered as predictors in Step 1. Three interaction terms (research conditions × each religious orientation) were entered in Step 2. All continuous variables were centered before the analyses.

The results revealed a significant main effect of gender, indicating that men more than women prefer aggressive counterterrorism. The results of Step 2 reveal a significant interaction of experimental condition and intrinsic religiosity. The addition of the interaction terms in Step 2 significantly increases the amount of variance explained by the model (Table 1).[1] The same pattern of results emerged when extrinsic and quest religious orientations and their interactions with mortality salience were not included in the equation. Only the main effect

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[1]A similar pattern of results was obtained when only the data from Christian participants were analyzed. The main effect of gender ($b = −1.34$; $SE = .41$; $\beta = −.24$; $p < .01$) and the significant interaction effect of research conditions and intrinsic religiosity were found, $b = −.35$; $SE = .19$; $\beta = −.13$; $p = .05$; $F(5, 109) = 3.86$; $p = .01$; $\Delta R^2 (1,109) = .02$; $p = .05$.

Table 1. Multiple regression analysis of effects of intrinsic religiosity and mortality salience on coercive counterterrorism (Study 1, $N = 158$)

Variable	B	$SE\ B$	B
Step 1			
Gender	−1.41**	.41	−.27
Mortality salience	.02	.18	.01
Intrinsic religiosity	−.22	.30	−.09
Extrinsic religiosity	−.35	.30	−.15
Quest religiosity	.02	.19	.01
Step 2			
Gender	−1.38**	.41	−.27
Mortality salience	−.03	.18	−.02
Intrinsic religiosity	−.26	.30	−.18
Extrinsic religiosity	−.42	.30	−.18
Quest religiosity	.01	.19	.01
Condition × intrinsic	−.60*	.30	−.25
Condition × extrinsic	.37	.30	.16
Condition × quest	.14	.19	.06

Note: $R^2 = .085$; $p = .02$; $F(5, 151) = 2.78$; $p = .02$ for Step 1; $\Delta R^2 (3, 148) = .04$; $p = .05$; $F(8, 148) = 2.52$; $p = .02$ for Step 2.
* p < .05
** p < .01

of gender and an interaction of intrinsic religiosity and research conditions were significant ($b = -1.36$; $SE = .41$; $\beta = -.26$; $p < .01$ and $b = -.31$; $SE = .17$; $\beta = -.42$; $p = .05$ respectively, $R^2 = .07$; $p = .05$; $F(5, 153) = 3.35$; $p = .02$; $\Delta R^2 = .02$; $p = .05$).

In order to interpret the conditions × intrinsic religiosity interaction, we computed the simple slopes for each research conditions according to the procedure proposed by Cohen, Cohen, West, and Aiken (2003). These analyses revealed that the relationship between intrinsic religiosity and preference for aggressive counterterrorism was positive but non-significant in the control condition ($b = .20$; $SE = .37$; $\beta = .05$; $p = .58$). It was negative and significant in the mortality salience condition ($b = -.77$; $SE = .35$; $\beta = -.21$; $p = .03$) (Figure 1).

Finally, we examined whether the decrease in the accessibility of death-related thoughts among intrinsically religious people under mortality salience mediated the relationship between intrinsic religiosity and a preference for violent counterterrorism. According to the procedure proposed by Preacher, Rucker, and Hayes (2007) to assess moderated mediation, we specified a model in which mortality salience condition
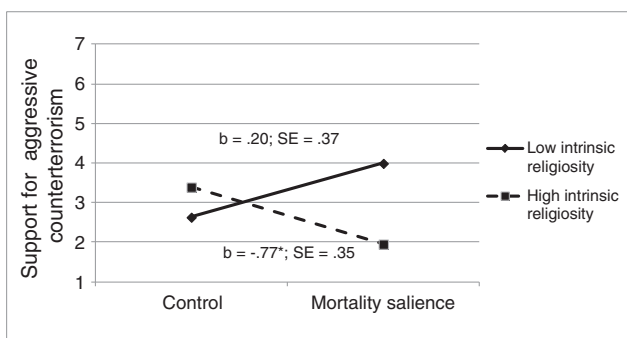

Figure 1. The interaction between mortality salience and intrinsic religiosity in predicting support for aggressive counterterrorism: Study 1 ($N = 158$)

moderated the effects of religiosity on death-related thoughts accessibility, which in turn was a predictor of intergroup hostility. Although the effect of intrinsic religiosity on death thought accessibility was marginally moderated by the experimental condition, the indirect effects of intrinsic religiosity on intergroup hostility conditional on the levels of mortality salience was not significant (the 95% bootstrap bias corrected CIs were −10 to 01 in control condition and −.02 to .17 in mortality salience condition).

Discussion of Study 1

The results of Study 1 confirm that under mortality threat, intrinsic religiosity predicts less support for intergroup hostility. No other religious orientation interacted with mortality salience in predicting preference for hostile counterterrorism. Corroborating previous studies (Pyszczynski et al., 2006; Rothschild et al., 2009), the results of Study 1 do not indicate a main effect of mortality salience on intergroup hostility American religious participants.

Results of Study 1 suggest that intrinsically religious people may be less affected by mortality threat. We found a negative relation between intrinsic religiosity and death-related thoughts under mortality salience. A similar effect was found by Jonas and Fischer (2006). These authors propose that the alleviating terror of death effect of intrinsic religious commitment drives the decrease in the need to assert personal convictions under mortality salience. Our results do not confirm that decreased accessibility of death-related thoughts mediates the relationship between intrinsic religiosity and intergroup hostility under mortality salience.

STUDY 2

In Study 2, we examined the effects of mortality salience and intrinsic religiosity on intergroup hostility among Muslims in Iran. Although religious orientations are not as well researched by psychologists among Muslims as they are among Christians, several studies indicate that assessing intrinsic religiosity makes theoretical and empirical sense in the context of Islam. Moreover, patterns of relationships between religious orientations and their predictions are analogous among Christians and Muslims. Specifically, previous studies indicate that especially intrinsic religiosity has a similar meaning among Christians in the USA and Muslims in Iran (e.g., Ghorbani, Watson, Ghramaleki, Morris & Hood, 2002; Ghorbani, Watson & Rostami, 2007). To our knowledge, no previous studies examined the relationships between religious orientations and intergroup attitudes under mortality salience in the Muslim context.

Method

Participants

Study 2 was conducted among 148 undergraduate students in Iran. All participants reported Islam as their religious affiliation; 25 participants described themselves as *not at all*

religious. Their data was excluded from further analyses. The final sample contained 123 participants: 54 women and 69 men. The mean age was 23. 54 (*SD* = 4.34).

Procedure

Participants were first asked to respond to demographic questions and questions regarding their religious affiliation and self-defined religiosity (*M* = 4.80; *SD* = 1.34). Next, they responded to the measure of intrinsic, extrinsic, and quest religious orientations. Then, they were randomly assigned to experimental condition: increased mortality salience (*n* = 66) versus control (dental pain; *n* = 57). We used the mortality salience manipulation that was found to be effective in earlier studies in Iran (Pyszczynski et al., 2006; Rothschild et al., 2009). Next, the same distraction task was used as in Study 1. Finally, we measured participants' attitudes toward a religious out-group: Christians. Following previous studies, we treated negative feelings toward this group as an expression of out-group negativity (e.g., Butz, Plant & Doerr, 2007).

Measures

Religious orientations were measured by the New Indices of Religious Orientation (Francis, 2007) as in Study 1. The items were translated to Persian and then back translated by an independent, bilingual translator, expert in social psychology. Only the items measuring the intrinsic religiosity formed a reliable scale (*M* = 3.85; *SD* = .79; α = .73). The reliability of scales measuring extrinsic and quest religiosity were not acceptable and could not be improved by shortening the scales (α = .48 and α = .49, respectively). Problems related to reliable measurement of extrinsic religiosity have been reported in the literature (e.g., Jonas & Fischer, 2006). In addition, it has been suggested that intrinsic religiosity is the one that best generalizes across different religious contexts (Khan, Watson, & Habib, 2005; cf. Cohen et al., 2009).

Out-group negativity was measured following the procedure proposed by Wright, Aron, McLaughlin-Volpe, and Ropp (1997). Participants were asked to indicate their feelings toward Christians (α = .80, *M* = 5.27, *SD* = 1.61) by using six semantic differentials describing emotions (e.g., *warm–cold*, *friendly–unfriendly*). Scores could range from 1 to 8. The higher scores indicate greater out-group negativity.

Results

General religiosity was positively related to intrinsic religiosity, *r* (121) = .46; *p* < .01. It was negatively correlated with out-group derogation, *r* (121) = −.19; *p* = .05, whereas the relationship between intrinsic religiosity and out-group negativity, although also negative, was not significant, *p* = .24.

A hierarchical multiple regression analysis was performed in order to test the hypothesis predicting the interaction of mortality salience and intrinsic religiosity on negative attitudes toward the religious out-group. The experimental conditions (0 = control; 1 = experimental) and intrinsic religious orientations were entered as predictors in Step 1. The interaction of experimental condition and intrinsic religiosity was entered

in Step 2. All continuous variables were centered prior to the analyses.

The results revealed a significant first-order effect of research condition. In the mortality salience condition (*M* = 5.56; *SD* = 1.37), participants expressed significantly more negative feelings toward Christians than in the control condition (*M* = 4.95; *SD* = 1.79). The results of Step 2 revealed that this effect is moderated by the interaction of experimental condition and intrinsic religiosity. The addition of the interaction terms in Step 2 significantly increases the amount of variance explained by the model (Table 2).

Simple slopes analyses revealed that the relationship between intrinsic religiosity and negative attitudes toward religious out-groups is positive and not significant in the control condition (*b* = .28; *SE* = .27; *β* = .10; *p* = .30) and is negative and significant in the mortality salience condition (*b* = −.43; *SE* = .22; *β* = −.18; *p* = .05) (Figure 2).

Discussion of Study 2

The results of Study 2 revealed that negative attitudes toward the out-group are reduced among intrinsically religious people under mortality salience. This pattern of results corroborates the findings of Study 1 conducted in a different religious and cultural context. In Study 2, we found evidence of increased out-group negativity under mortality salience, corroborating previous findings in Muslim samples (Pyszczynski et al., 2006, Rothschild et al., 2009).

Table 2. Multiple regression analysis of effects of intrinsic religiosity and mortality salience on out-group derogation (Study 2, *N* = 123)

Variable	*B*	*SE B*	*B*
Step 1			
Mortality salience	.27*	.14	.20
Intrinsic religiosity	−.15	.17	−.08
Step 2			
Mortality salience	.27*	.14	.24
Intrinsic religiosity	−.12	.17	−.04
Condition × intrinsic	−.36*	.17	−.20

Note: $R^2 = .04$, $F(4, 119) = 2.45$; $p = .08$ for Step 1; $\Delta R^2 (1, 118) = .04$; $p = .04$; $F(5, 118) = 3.11$; $p = .03$ for Step 2.
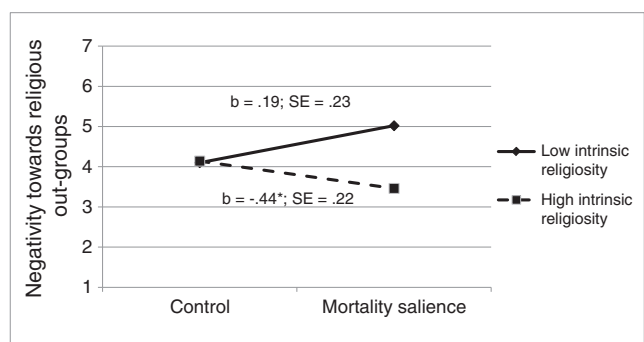* $p < .05$

Figure 2. The interaction between mortality salience and intrinsic religiosity in predicting out-groups derogation: Study 2 (*N* = 123)

In Studies 1 and 2, we measured intrinsic religiosity as an individual difference variable before mortality salience was manipulated and intergroup negativity assessed. However, these data do not answer whether it is the salience of intrinsic religious commitment that affects intergroup hostility under mortality salience. Previous studies indicate that religious beliefs form a cognitive-motivational structure that is partially unconscious and can be activated outside people's attention or awareness and influence their cognition and behavior (McIntosh, 1995). Priming religious concepts influences behavior consistent with religious prescriptions for social interaction. For example, it increases generosity and the propensity to help (Pichon, Boccato & Saroglou, 2007; Shariff & Norenzayan, 2007), decreases cheating (Randolph-Seng & Nielsen, 2007), and increases submissiveness (Saroglou, Corneille, & Van Cappellen, 2009). To our knowledge, no previous studies have experimentally examined the effects of priming intrinsic religious commitment under mortality salience.

STUDY 3

Method

Participants

Study 3 was conducted among 131 Polish undergraduate students. The data from 31 participants who declared that they were atheists, did not profess any religion, or were *not at all* religious were excluded from analysis. The remaining 100 participants (90 women and 10 men, the mean age, 21.27; $SD = 1.98$) defined their religion as either Christianity (26) or Catholicism (74). Religious participants were randomly assigned to conditions formed by the orthogonal manipulation of two independent variables: mortality salience and intrinsic religious concepts.

Procedure

Participants were asked to take part in two allegedly unrelated studies: a study on the relationship between verbal skills in recognizing and creating words and a short survey of opinions about the threat of terrorism. First, the participants answered demographic questions, including self-defined religiosity and intensity of religious beliefs ($M = 3.41$; $SD = .76$). Next, they responded to the mortality salience manipulation ($n = 51$ vs. control, $n = 49$) as in previous studies. Next, intrinsic concepts were primed ($n = 52$; vs. control, $n = 49$). A lexical decision task was used to prime the intrinsic religious concepts. Next, participants performed the word-stem completion task assessing effectiveness of mortality salience manipulation and the word-matching exercise to assess the effectiveness of the priming of intrinsic religious concepts. In the allegedly unrelated study run by a different researcher, participants were asked to respond to several questions regarding the threat of terrorism in Poland, among them two questions assessing their support for aggressive versus diplomatic counterterrorist actions. Funnel debriefing was used, and there were no cases of participants guessing that intrinsic religiosity was primed.

Experimental Manipulations

Mortality Salience

Mortality salience was manipulated following the same procedure as in previous studies.

Intrinsic Religiosity

A lexical decision task was used to prime intrinsic religious themes (e.g., Pichon et al., 2007; Wenger, 2003). Participants were informed that they would perform a word recognition task on a computer. They were instructed to press the key "X" when the stimulus presented on a computer screen was a meaningful word and press the key "M" when it was a meaningless string of letters. Each stimulus appeared on the screen for approximately 200 milliseconds and was then backward masked. The entire task took about 5 minutes to complete. In order to familiarize participants with the procedure, we presented four practice trials, which consisted of two words unrelated to religion (*door* and *window*) and two random letter strings. The procedure for the lexical decision task was adapted from Wittenbrink, Judd, and Park (2001) and was programmed using HOUSELAB software (IQS and QUANT Group, Warsaw, Poland).

The task presented 12 words mixed with 12 non-words. In the experimental condition, six out of 12 words were related to intrinsic religiosity: *decalogue*, *church*, *commandment*, *communion*, *sacrament*, *gospel*. In the control condition, those six words were similar length and neutral (e.g., *floor*, *building*). They were mixed with the same set of additional six neutral words (e.g., *jar*, *corridor*).

The words for intrinsic religiosity priming were generated by a group of 20 trained judges, who read the detailed descriptions of intrinsic, extrinsic, and quest religiosity and were instructed to "list words associated with each religious orientation." A list of 30 words was created, 10 words representing each religious orientation. This list was pre-tested in a group of 67 students. Participants read a detailed description of intrinsic, extrinsic, and quest religiosity and indicated on the 10-point scale how much each of the 30 words was associated with each religious orientation. The six words that were indicated as representative for intrinsic religiosity significantly more than for extrinsic religiosity or quest religiosity were used in the priming procedure.

Measures

Death thought accessibility was assessed by using the word-stem completion task like in Study 1.

Accessibility of intrinsic religiosity was assessed by a word-matching exercise constructed for the purpose of the study based on Wenger (2004). Participants read 18 words forming two columns. They were asked to match words from the right column to words on the left column to construct a meaningful phrase. The left column contained three religious words that could be matched to the words in the right column to form a phrase reflecting a concept or activity related to intrinsic religiosity. The left column contained also three neutral words that could be used to form non-religious phrases. For example, a right column verb "to confess" could be matched with a left

column word "sins" to form a phrase pre-tested for association with intrinsic religiosity. Alternatively, it could be matched with a left column word "love" to form a phrase not related to intrinsic religiosity. In addition, the columns contained words that could form a phrase related to quest religiosity (*spiritual search* vs. *road search*) and extrinsic religiosity (*religious group* vs. *work group*).

The phrases were generated in a similar procedure as target words for the lexical decision task used to prime intrinsic religiosity. When the words were matched to form a phrase associated with intrinsic religiosity, a score of 1 was given (vs. 0). Scores were computed for intrinsic, extrinsic, and quest religiosity-related phrases.

Intergroup hostility was measured as in Study 1 ($M = 4.20$; $SD = .90$).

Results

The results of the two-way, mortality salience × intrinsic religiosity priming ANOVA on the word-stem completion task revealed the significant main effect of the mortality salience manipulation ($F(1, 99) = 4.14$; $p = .05$). Under mortality salience, participants completed more words in the death-related way ($M = .18$; $SD = .18$) than in the control condition ($M = .11$; $SD = .13$). The interaction between research conditions is not significant, $F < 1$.

The same two-way ANOVA using the mean score on the words-matching exercise as the dependent variable revealed a marginally significant main effect of the intrinsic religious themes manipulation ($F(1, 99) = 3.53$; $p = .05$). When intrinsic religious concepts were primed ($M = .39$; $SD = .42$), participants matched more words to form the intrinsic religious phrases than in control conditions ($M = .26$; $SD = .25$). The interaction of research conditions was not significant, $F < 1$. No significant effects of religious priming were found on the words-matching exercise when the two-way ANOVA was performed using the mean score for the phrase associated with quest religiosity or extrinsic religiosity, both F's < 1. These results suggest that we primed intrinsic (vs. quest or extrinsic) religious concepts.

General religiosity was positively associated with support for aggressive counterterrorism. This relationship was not significant ($r(98) = .13$; $p = .21$).

In order to test the moderation hypothesis, we performed a two-way mortality salience × intrinsic religiosity priming ANOVA. Age, gender, and individual religiosity were included as covariates.[2] The analysis revealed a significant interaction effect, $F(1, 99) = 6.51$; $p = .01$ (model, $F(6, 94) = 2.41$; $p = .03$). There was also a marginally significant main effect of religious priming, $F(1, 99) = 2.46$; $p = .10$. When intrinsic religious concepts were primed, participants supported intergroup hostility less ($M = 4.05$; $SD = .95$) than when religiosity was not primed ($M = 4.36$; $SD = .78$).

In order to probe the interaction, we performed planned pairwise comparisons. They revealed that under mortality salience, when the intrinsic religiosity was primed, participants preferred aggressive actions significantly less ($M = 3.86$; $SD = 1.05$) than when intrinsic religiosity was not primed ($M = 4.54$; $SD = .83$), simple ($F(1, 50) = 6.07$; $p = .02$). Priming intrinsic religiosity did not affect intergroup hostility in control condition, $F < 1$.

When intrinsic religiosity was primed, mortality salience decreased support for aggressive counterterrorism ($M = 3.86$; $SD = 1.05$) in comparison with control conditions ($M = 4.33$; $SD = .72$), simple $F(1, 51) = 4.40$; $p = .04$. With no intrinsic religiosity primed, participants supported military counterterrorism more in the mortality salience condition ($M = 4.54$; $SD = .83$) than in the control condition ($M = 4.17$; $SD = .69$). This effect was marginally significant, simple $F(1, 48) = 2.27$; $p = .08$ (Figure 3).

Discussion of Study 3

The results of Study 3 replicate, in a full experimental design, the findings of Studies 1 and 2, indicating that intrinsic religiosity reduces intergroup hostility under mortality threat. Study 3 confirms that intrinsic religious orientation can be made temporarily accessible. It corroborates the previous findings indicating that priming of religious concepts influences attitudes and behavior consistent with religious recommendations for social interaction. The results of Study 3 suggest that intrinsic religiosity affects intergroup hostility under mortality salience because of increased accessibility of peaceful and non-violent religious teaching. In Study 3, we did not replicate the interactive effects of mortality salience and intrinsic religiosity priming on death-related thoughts accessibility found in Study 1.

GENERAL DISCUSSION

The present studies explored the idea that distinguishing different ways of being religious allows us to more adequately understand the interactive effects of individual religiosity and mortality threat in intergroup context (e.g., Norenzayan et al., 2009; Rothschild et al., 2009). The results of the present studies converge to indicate that mortality salience moderates

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[2]We conducted multiple regression analysis including general religiosity as predictor in Step 1; two-way interaction of general religiosity and religious priming conditions and two-way interaction of general religiosity and mortality salience in Step 2; and three-way interaction in Step 3. This analysis indicated a significant predicted interaction of religious priming × mortality salience interaction, $p = .03$. No other interaction was significant.
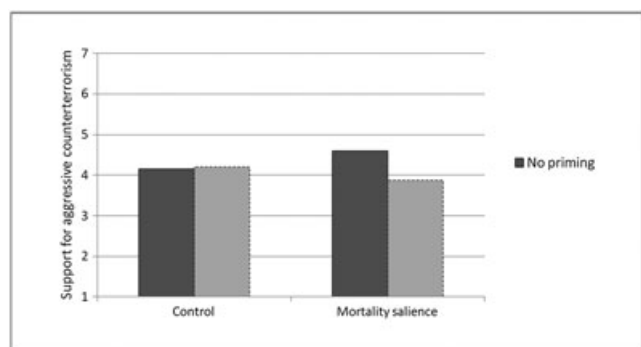

Figure 3. The interaction between mortality salience and intrinsic religiosity priming in predicting support for aggressive counterterrorism: Study 3 ($N = 100$)

the effect of intrinsic religiosity—the commitment to one's religious faith based on internalized religious beliefs—on intergroup hostility in the context of current political tensions often referred to as the "conflict between the Muslim and the Western worlds" (Pyszczynski et al., 2006). This conflict inspired actions that functioned as mortality reminders and increased the sense of uncertainty and threat among all the involved parties. Existing divisions are strengthened by the fact that the parties in this conflict belong to different religious traditions, and religious zealotry has been blamed for the escalation of this conflict (e.g., Hogg et al., 2010).

Studies 1 and 2 confirmed that the relationship between intrinsic religiosity and intergroup hostility becomes significant and negative under mortality salience. Study 3 showed that the priming of intrinsic religiosity decreased intergroup hostility under mortality salience. When intrinsic religiosity was primed, mortality salience significantly decreased support for hostile counterterrorism in comparison with control conditions. Under mortality salience, priming of intrinsic religiosity significantly decreased intergroup hostility in comparison with no-prime conditions.

Together, these results indicate that religious commitment is not inevitably related to support for intergroup hostility. Moreover, it is related to decreased support for intergroup violence in times of threat. The fact that we replicated the predicted interaction in all three studies speaks for generalizability of our results across three different continents with different religions and cultures. Importantly, intergroup hostility is reduced under mortality on both sides of the conflict among intrinsically religious Muslims, Christians, and Jews.

The present results go beyond the findings of previous studies that examined the role of religiosity in an intergroup context under mortality salience. The present studies clarify that among people who define themselves as religious, the intrinsically religious are the most likely to reject intergroup hostility under mortality salience (Norenzayan et al., 2009). The results of Study 1 point to the importance of such clarification, revealing that neither extrinsic nor quest religiosity interacted with mortality salience to predict the decrease in support for intergroup hostility. In addition, general religiosity assessed by the question "How religious are you?" was differently associated with intergroup hostility across the studies. In Study 1, the relationship was negative and non-significant; in Study 2, it was negative and significant; and in Study 3, it was positive and non-significant.

The present studies corroborate and complement the findings indicating that the priming of compassionate religious teachings reduces support for political violence among American and Iranian religious fundamentalists (Rothschild et al., 2009). Going beyond those findings, the present results show that there is something about intrinsic religious commitment *per se* that chronically rather than temporarily reduces intergroup hostility under mortality salience (among Judeo-Christian Americans and Muslim Iranians). In comparison, it is not clear whether religious fundamentalism—a tendency to assume the absolute truth of one's beliefs—increases a tendency to act according to the norm of compassion under mortality salience because it is religious or because it taps a general tendency to treat beliefs and norms in a fundamental way. In addition, the present results suggest that the role of

religiosity under mortality salience is not only complex but also subtle. We demonstrated that also the *unobtrusive* priming of religious commitment influences intergroup hostility under mortality salience.

The present results indicate that mortality salience and intrinsic religiosity interact to predict not only a tendency to assert personal conviction and defend one's worldview (Jonas & Fischer, 2006) but also intergroup hostility. Study 1 confirmed that death-related thoughts were less accessible among intrinsically religious people under mortality salience. However, the negative relationship between intrinsic religiosity and death thoughts accessibility did not mediate the relationship between intrinsic religiosity and intergroup hostility under mortality salience. This does not disconfirm that intergroup hostility may be reduced because intrinsic religious commitment alleviates existential fear. This argument requires further studies. The non-significant effect in Study 1 may be due to the fact that death thought accessibility may not be the best indicator of reduced existential fear, and word completion task is only one way of assessing death thought accessibility.

Importantly, Study 3 showed that mortality salience moderated the effect of intrinsic religiosity priming on intergroup hostility even when such priming did not decrease death thoughts accessibility. This suggests that the interactive effect of mortality salience and intrinsic religiosity on intergroup hostility may be driven by a tendency to follow religious recommendations for social interaction in which intrinsic religiosity priming is likely to make salient and which are chronically salient for intrinsically religious people (McIntosh, 1995). In this vein, previous studies indicate that under mortality salience, people tend to adhere to the most salient social norms in regulating their social behavior (e.g., Greenberg et al., 1992; Jonas et al., 2008). Such a mechanism is also suggested by studies that investigated the effects of personal and cognitive uncertainty, need for cognitive closure, or lack of personal control. The effects of such variables on intergroup attitudes are often moderated by accessible norms and standards (e.g., Fritsche, Jonas, & Fankhänel, 2008; Golec & Federico, 2004; Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007). Although existential anxiety may not be able to be reduced to feelings of uncertainty or lack of control (Pyszczynski et al., 2006), such variables often produce analogous effects, suggesting that there may be a common aspect to all these conditions that make people more prone to tune into and follow the guidance of accessible (and relevant) ideological prescriptions.

Limitations and future directions

In the present paper, on the basis of the review of previous studies and the present set of findings, we argue that religious orientations are associated with different prescriptions for intergroup behavior. Mortality threat increases the salience of these prescriptions and strengthens the negative relationship between intrinsic religiosity and intergroup hostility. It should be noted that although our studies provide support for this proposition, further studies should directly examine whether increased accessibility of peaceful norms mediates the relationship between intrinsic religiosity and intergroup hostility under mortality salience.

Although our studies tested the same hypothesis in the context of different religions and cultures, they did not follow the rigor of cross-cultural studies in asserting that religious orientations have exactly the same meaning across religions and cultures. It has been suggested that religious orientations may not mean exactly the same thing across different religions (Cohen, et al., 200). However, other analyses indicate that that especially intrinsic religiosity makes sense across cultures (Khan, et al., 2005). In addition, the findings regarding our hypothesis about the role of intrinsic religiosity in intergroup context under mortality salience are consistent across religions and cultures. Nevertheless, studies that test cross-cultural and cross-religious equivalence of intrinsic religious commitment would inform further investigations of the role of individual religiosity in reducing intergroup hostility under mortality threat.

Finally, the present set of studies focused exclusively on the attitudes of participants toward out-groups. Future research could profitably explore behavioral outcomes for intrinsically religious individuals in times of mortality threat. On the basis of the present findings, one may expect that intrinsically religious individuals would be less likely to voluntarily engage in violence (e.g., terrorism).

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