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Coping With Terrorism: The Impact of Increased Salience of Terrorism on Mood and Self-Efficacy of Intrinsically Religious and Nonreligious People

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It was hypothesized that intrinsic religiousness helps to cope with increased salience of terrorism. Intrinsically religious and nonreligious participants were told that it is highly probable or highly improbable, respectively, that terrorist attacks will occur in Germany. High probability of terrorism only negatively affected the mood of nonreligious participants but not of intrinsically religious participants (Study 1). Using as a realistic context of investigation the terrorist suicide bombings in Istanbul, the authors replicated this finding and shed some light on the underlying psychological processes (Study 2): On the day of the terrorist attacks (high salience of terrorism), nonreligious participants experienced less positive emotions and less self-efficacy than did intrinsically religious participants. Two months later (low salience of terrorism), no differences were found between nonreligious and intrinsically religious participants with regard to mood and self-efficacy. Mediation analyses suggested that the mood effects were associated with differences in the reported sense of self-efficacy.

Keywords: salience of terrorism; coping; religiousness; self-efficacy; mood; positive and negative emotions

Following the devastating terror attack on the World Trade Center on September 11, 2001 (9/11), international Islamic terrorism reached Europe with the suicide bombing in a mosque in Istanbul on November 20, 2003, and the disastrous train bombings in Madrid on March 11, 2004. As a consequence, the salience of terrorism might have increased in the European population, which could pose a serious problem for their mental

health. When we look outside Europe, the postulated negative impact of terror salience on mental health is supported by U.S. polls in the days following the attacks on the World Trade Center on September 11, 2001: It was found that 70% had cried about the terror attacks (Saad, 2001) and 50% to 70% indicated feeling depressed (Institute for Social Research, 2001). When U.S. Americans were asked about the emotions they experienced in the aftermath of the terrorist attacks, they most frequently reported anger, fear, sadness, and anxiety: More than 60% of respondents said their personal sense of security was negatively affected by the attacks (Saad, 2001) and (compared to 24% in the preceding year) 54% feared that they or members of their family would become a victim of a future terrorist attack (Fredrickson, Tugade, Waugh, & Larkin, 2003; *Gallup News Service*, 2001). Even 6 months after the terrorist attacks, posttraumatic stress symptoms in the U.S. population still remained elevated (Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002).

In sum, there is considerable evidence from U.S. polls that increased salience of terrorism negatively affects people's emotions. Since al-Qaida terrorism has now arrived in Europe with an increase in number and bru-

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tality of terrorist attacks as well, similar reactions also might be found among the European population. As a consequence, in the present article, we raise the following questions: How can/do people cope with the negative effect of the increased salience of terrorism on their emotions? One answer could be the following: From the coping literature, we know that religiousness plays an outstanding role in the list of protective factors against negative life events. An old adage says that "there are no atheists in foxholes" (Pargament, 2002, p. 171), and many empirical studies show that religiousness is perceived as generally intensified and helpful in critical situations (for review, see Pargament, 1997). For a contemporary example, following the 9/11 terrorist attacks, U.S. National Public Radio reported that all over the nation, people turned to prayer for coping with this stressful event (cf. Ai, Tice, Peterson, & Huang, *in press*). However, only few studies exist that examine the interplay between terror salience, religiousness, and mental health (e.g., Ai et al., *in press*; Peterson & Seligman, 2003). The few studies in this area are furthermore mainly limited to U.S. samples, are mostly designed as correlative studies, and seldomly address mediating variables. The present investigation, which is the first one employing a European sample on this topic, tries to fill some of these research gaps. The goal of the current article is to examine the impact of terror salience on mood (positive and negative emotions) and self-efficacy of intrinsically religious and nonreligious people.

RELIGION AND COPING

The coping literature mainly distinguishes between external and internal sources of coping with stressful events (e.g., McIntosh, Silver, & Wortman, 1993). External resources refer to social support: members of social communities (family, clubs, religious groups, etc.) into which the individual is integrated respond positively to his or her expressions of distress about aversive events, facilitating adjustment to the negative event. By contrast, internal resources refer to coping processes and outcomes brought about by cognitive and affective processing, which is affected by the attitudes, beliefs, and heuristics held by the individual (Koenig, George, & Siegler, 1988; McIntosh et al., 1993). Because religion can provide both internal and external resources for coping, previous research has shown that religiousness can indeed be considered as an effective way to cope with stressful life-events (Ai, Dunkle, Peterson, & Bolling, 1998; Ai, Peterson, & Huang, 2003; Ai, Peterson, Tice, Bolling, & Koenig, 2004; Hill & Pargament, 2003; McIntosh et al., 1993; Pargament, 1997).

The most accepted approach to religiousness distinguishes between intrinsically and extrinsically religious orientations (Allport, 1959). According to Allport,

intrinsic religiousness is characterized by the striving for meaning and value. By contrast, extrinsically religious people have a utilitarian approach to religion; they use religion to protect the self, find solace, and gain social standing (cf. Allport, 1966). Allport and Ross (1967) created a Religious Orientations Scale, which is a widely used instrument for measuring extrinsic and intrinsic religiousness (cf. Ryan, Rigby, & King, 1993). Research on religious orientations has shown that high intrinsically religious people are more orthodox and ascribe more importance to religion than do high extrinsic religious individuals (e.g., Batson, 1976). Furthermore, compared to high intrinsic religious participants, high extrinsically religious participants have been found to be more dogmatic and prejudiced (Batson, 1976; Hoge & Carroll, 1978). In addition, Pargament, Smith, Koenig, and Perez (1998) distinguish between positive and negative religious coping, whereas positive religious coping is associated with intrinsic religiousness, a secure relationship to God, and positive outcomes for mental health, and in contrast, negative religious coping is associated with extrinsic religiousness, a less secure relationship, and negative outcomes for mental health (for an overview, see Pargament, 2002).

Most important for our line of reasoning, in several studies, the intrinsic religiousness scale has been found to be positively correlated with mental health outcomes, such as emotional well-being, personal adjustment, self-regulation, independence from external cues, self-control, and positive emotions (e.g., Bergin, Masters, & Richards, 1987; McClain, 1978). No correlations or even negative correlations were obtained between the extent of extrinsic religiousness and the mental health outcomes mentioned above (cf. Bergin, 1991; Bergin et al., 1987). Further research conducted on a more behavioral level supports the assumption that intrinsic religiousness helps to cope with negative events by showing that religious individuals cope better, for example, with the loss of a child (McIntosh et al., 1993), transplant surgeries (Tix & Frazier, 1998), medical illness (Koenig, Pargament, & Nielsen, 1998), cancer diagnoses (Carver et al., 1993), and natural disasters (Smith, Pargament, Brant, & Oliver, 2000). Finally, high intrinsically religious individuals also are known to report lower levels of anxiety, fear, and concern about death (Hill & Pargament, 2003; Spilka, Hood, & Gorsuch, 1985). To sum up, we assume that in the event of crises, especially intrinsic religiousness helps to experience more positive and/or less negative emotions, which helps to better cope with stressful events such as terrorism.

RELIGION, EMOTIONS, AND COPING WITH TERRORISM

From positive psychology (e.g., Seligman & Csikszentmihalyi, 2000; Sheldon & King, 2001), we know

that it is important for fostering well-being and mental health to focus on the positive aspects of the human condition, such as positive emotions and attitudes (also see Ai & Park, 2005; Peterson & Seligman, 2004). Accordingly, several studies have found a positive link between positive emotions and optimistic attitudes, on one hand, and positive mental and physical health outcomes, on the other hand (e.g., Ai et al., 2004; Ai, Peterson, Bolling, & Koenig, 2002; Fredrickson & Joiner, 2002). Thereby, intrinsic religiousness is one very important factor that helps a person to experience positive emotions (Bergin et al., 1987; McClain, 1978).

Why do positive emotions help to cope with stressful events? First, positive emotions help to distract from negative emotions and thus put people's minds at ease after they experienced negative events (Fredrickson et al., 2003). Second, positive emotions can reduce negative physiological arousal (e.g., increased heart rate, high blood pressure, vasoconstriction) caused by stressful events (Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000). And third, positive emotions can alter people's modes of thinking about crisis. Fredrickson (2000) mentioned that positive emotions broaden people's attention and behavioral repertoire, whereas negative emotions narrow attention on specific action tendencies (e.g., escape).

With special regard to the coping literature, positive emotions have consistently been shown to facilitate coping with negative events, for example, positive emotions facilitate the attention to and processing of self-relevant information (Reed & Aspinwall, 1998; for reviews, see Aspinwall, 1998, 2001). Other studies have revealed that experiencing positive emotions helps to cope better with bereavement because positive emotions during bereavement enhance developing long-term plans, goal-setting, and finding meaning in the negative experience (Keltner & Bonanno, 1997; Moskowitz, 2001). In addition, within a sample of college students, it was found that positive emotions are associated with a coping style that is characterized by generating multiple courses of action and a broadened perspective-taking on problems (Fredrickson & Joiner, 2002). Finally, Fredrickson (1998, 2001) has argued that the repeated experience of positive emotions can even build durable personal resources for coping with stressful events. In her broaden-and-build theory of positive emotions, she argues that the broadening engendered by positive emotions builds up enduring physical, social, intellectual, and psychological resources for coping with adversity.

In the specific context of terrorism, Fredrickson et al. (2003) have shown how positive emotions also help to cope with the threat of terrorism: Consistent with the broaden-and-build theory (Fredrickson, 2001), the

authors found that positive emotions in the aftermath of the terrorist attacks on the World Trade Center on September 11 (such as gratefulness to be alive or to know that the loved ones are safe) buffer predispositionally resilient people against depression and support the increase of psychological resources against crisis. Thereby, resilience is viewed as a personality trait characterized by the stable ability to overcome negative experiences and to adapt to the permanently changing world (Block & Kremen, 1996; Fredrickson et al., 2003). Related to these findings, we argue that intrinsic religiousness is another important and stable factor increasing people's possibility to experience positive emotions in the context of stressful events. In agreement with this line of argumentation, Ai and Peterson (2004) found a positive association between religiousness, optimism, and positive coping among Kosovar refugees. However, in the special context concerning religious coping with increased salience of terrorism—to our knowledge—research is rather rare, correlative, and only limited to U.S. samples; for example, Peterson and Seligman (2003) found that after the 9/11 terrorist attacks, in a U.S. sample, faith-based virtues increased, whereas secular character strengths did not. Furthermore, Ai et al. (in press) investigated U.S. students 3 months following the 9/11 terrorist attacks and found a positive association between spirituality and the use of prayers for coping. The authors showed that higher levels of initial negative emotional response to the 9/11 terrorist attacks were associated with higher use of prayer for coping, which was in turn related to less post-9/11 distress. Finally, in a U.S. nationwide longitudinal study, McIntosh, Poulin, Silver, Holman, and Gil-Rivas (2003) investigated to what extent religiousness measures predict positive and negative outcomes in the year following the 9/11 terrorist attacks. In line with our expectations, using a path model to interpret their data, the authors found a positive link between personal religion and subjective well-being.

To sum up, there is some previous research showing that religion facilitates the experience of positive emotions, promotes emotional well-being, and thus helps to cope with the threat of terrorism. However, this research evidence is rather thin, limited to U.S. samples, has mostly been performed using correlative designs, and mainly does not address the question of how religiousness helps to cope with the threat of terrorism. Accordingly, the present two studies try to overcome some of these shortcomings of previous research. For this reason, we try to directly focus on the associations between religiousness, terror salience, and mood (positive and negative emotions), as well as associated processes concerning personal control (which are introduced later).

THE PRESENT RESEARCH

In the present research, we want to show that intrinsically religious participants' mood is less negatively affected by increased salience of terrorism than the mood of not intrinsically religious participants. After experimentally manipulating the salience of terrorism threat, intrinsically religious and nonreligious participants were asked to what extent they actually experience positive and negative emotions (Study 1). Next, we try to replicate the expected effect of Study 1 in a realistic context with higher ecological validity and further clarify associated psychological processes of personal control (self-efficacy). One day (low terror salience) versus 2 months (high terror salience) after the devastating terror attacks in Istanbul, intrinsically religious and nonreligious participants answered a self-efficacy measure and reported their actually experienced positive and negative emotions (Study 2).

STUDY 1

Participants were either informed that intelligence services had recently assessed terrorist attacks in Germany to be very likely (high salience of terrorism) or relatively unlikely (low salience of terrorism) to happen in the next few weeks. After this manipulation of terror salience, we measured participants' intrinsic religiousness and mood (actually experienced positive and negative emotions). It was hypothesized that a high salience of terrorism is associated with less positive and/or more negative emotions only for nonreligious participants but not for intrinsically religious participants. No differences were expected between nonreligious and intrinsically religious participants for the low terror salience condition.

Method

Participants and design. One hundred and forty-six pedestrians near the university campus volunteered to participate in this study. The sample consisted of 65 women and 81 men, ages ranging from 17 to 62 years ($M = 30.28$ years, $SD = 8.45$). The experiment was based on a 2 (salience of terrorism: low vs. high) \times 2 (intrinsic religiousness: nonreligious vs. intrinsically religious) \times 2 (type of emotion: positive vs. negative) factorial design with repeated measures on the last factor.

Procedure. Participants were recruited in a pedestrian zone near the University of Munich. The experimenter asked them if they were willing to participate in a psychological study dealing with psychological effects of terrorism. If they agreed, they were led to an experimental lab at the nearby Institute of Psychology and were given a questionnaire that began with the following induction of the salience of terrorism:

Islamic fundamentalist terrorism is one of the biggest challenges facing the Western world. After the terrorist attack on the World Trade Center on September 11, 2001, terrorism has reached Europe with the devastating attacks on Mosques in Istanbul in November 2003 and the disastrous attacks on trains in Madrid in March 2004, which alone left over 200 dead. Experts from the German intelligence services are sure that Germany will (not) suffer from a terrorist attack in the near future. Many signs collected by the German intelligence services support the assumption that in Germany there currently is (no) high risk of terrorism.

Following the manipulation of salience of terrorism, participants responded to the following questions as a manipulation check of the salience of terrorism: (a) "How likely do you think is it that similar terrorist attacks will happen in Germany in the near future?" (0 = *not at all likely*, 10 = *extremely likely*); (b) "How likely do you think is it that you personally will become a victim of terrorism in Germany?" (0 = *not at all likely*, 10 = *extremely likely*); and (c) "How often do you think about the threat of terrorism?" (0 = *not often*, 10 = *very often*). Because these three items were highly intercorrelated (r s ranging from .47 to .74), we collapsed them into a scale of "salience of terrorism" ($\alpha = .75$).

Next, we measured participants' attitudes toward terrorism ("What is your attitude toward terrorism?" -5 = *very negative*, +5 = *very positive*) and al-Qaida ("What is your attitude towards al-Qaida?" -5 = *very negative*, +5 = *very positive*) because it is possible that the intrinsically religious participant group includes more participants who sympathize with the aims of religiously motivated terrorists than in the nonreligious participant group. If so, they might be less upset by the increased threat of terrorism in the high terror salience condition. Both variables were highly intercorrelated ($r = .72$) and therefore were collapsed into a scale of "attitude to terrorism" ($\alpha = .84$).

Afterward, the participants were asked to fill out the German translation of the intrinsic and extrinsic religious orientation scale (Allport & Ross, 1967; Zwingmann, Hellmeister, & Ochsmann, 1993). An example for an intrinsic religiousness item is as follows: "I try hard to integrate my religion into all my other dealings in life" (1 = *not at all true*, 9 = *exactly true*). The extrinsic scale includes items such as, "The primary purpose of prayer is to gain relief and protection" (1 = *not at all true*, 9 = *exactly true*). Similar to previous studies using the Allport instrument (cf. Zwingmann et al., 1993), we first created a scale for participants' intrinsic religious orientation ($\alpha = .82$) and then created a dichotomous quasi-experimental factor for participants' intrinsic religiousness (nonreligious vs. intrinsically religious) via median split ($Mdn = 2.27$). Because extrinsic religiousness represents

TABLE 1: Positive and Negative Emotions as a Function of Intrinsic Religiousness and Terror Salience

Terror Salience	Intrinsic Religiousness			
	Positive Emotions		Negative Emotions	
	No	Yes	No	Yes
Low	7.75 (1.39)	7.30 (1.84)	1.92 (1.69)	2.33 (1.67)
High	7.16 (1.19)	7.76 (1.63)	2.66 (1.66)	2.05 (1.45)

no “real” religiousness, the following analyses mainly focus on intrinsic religiousness.

Finally, participants’ current positive and negative emotions were measured with an established instrument developed by Brunstein (1993). Positive emotions were measured by the items “lucky, happy, satisfied, and confident” ($\alpha = .80$); negative emotions were measured by the items “sad, depressed, frustrated, and anxious” ($\alpha = .70$). Participants were asked to what extent they currently feel these emotions; all items ranged from 0 (*not at all*) to 10 (*very strong*). Afterwards, participants were debriefed and thanked for their participation.

Results and Discussion

Check for manipulation and interfering effects. With regard to the scale “salience of terrorism,” a 2 (intrinsic religiousness¹) \times 2 (salience of terrorism) factorial analysis of variance (ANOVA) revealed a significant main effect for salience of terrorism, $F(1, 142) = 4.23, p = .04, \eta^2 = .03$. Participants in the low terror salience condition overall reported a lower salience of terrorism ($M = 2.68, SD = 1.76$) than did participants in the high salience of terrorism condition ($M = 3.40, SD = 2.11$). Thus, the manipulation of “salience of terrorism” was successful. No further effects occurred, all $F_s < 1.27$, all $p_s > .26$.

Furthermore, with regard to the dependent variable “attitude to terrorism,” a 2 (intrinsic religiousness) \times 2 (salience of terrorism) ANOVA revealed no significant main effects or interactions, all $F_s < 2.38$, all $p_s > .12$. Thus, the following reported effects cannot be attributed to differences between nonreligious and intrinsically religious participants with regard to their a priori attitude to terrorism.

Moreover, we checked whether our salience of terrorism manipulation affected the subjective degree of intrinsic religiousness. A 2 (salience of terrorism) \times 1 one-way ANOVA with the dependent variable “intrinsic religiousness” revealed no significant main effect, $F(1, 144) = 2.77, p = .10, \eta^2 = .02$, indicating that the salience of terrorism manipulation did not significantly affect reported intrinsic religiousness.

Finally, a 2 (intrinsic religiousness) \times 2 (salience of terrorism) \times 2 (gender) \times 2 (type of emotion) ANOVA with repeated measures on the last factor revealed that

neither participants’ age nor gender was significantly associated with “type of emotions,” all $F_s < 1.06$, and they did not interact² with the manipulation of terror salience, $F < 1$.

Positive and negative emotions. Means and standard deviations for positive and negative emotions are shown in Table 1. A 2 (salience of terrorism) \times 2 (intrinsic religiousness) \times 2 (type of emotion) ANOVA with repeated measures on the last factor revealed a significant main effect for “type of emotion,” $F(1, 142) = 503.49, p = .001, \eta^2 = .78$, indicating that participants experienced more positive ($M = 7.54, SD = 1.54$) than negative emotions ($M = 2.20, SD = 1.62$). However, this main effect was qualified by a significant three-way interaction³ between “type of emotion,” “intrinsic religiousness,” and “salience of terrorism,” $F(1, 142) = 4.84, p = .03, \eta^2 = .03$. Follow-up analyses separately conducted for positive and negative emotions revealed a significant two-way interaction between “salience of terrorism” and “intrinsic religiousness” for positive emotions, $F(1, 142) = 4.19, p = .04, \eta^2 = .03$, and a marginal interaction for negative emotions, $F(1, 142) = 3.44, p = .07, \eta^2 = .02$.

With regard to positive emotions, comparisons of the low and high terror salience condition separately conducted for nonreligious and intrinsically religious participants revealed that positive emotions of nonreligious participants were marginally reduced by a high ($M = 7.16, SD = 1.19$) compared to a low salience of terrorism ($M = 7.75, SD = 1.39$), $F(1, 71) = 3.60, p = .06, \eta^2 = .05$. By contrast, no significant differences concerning positive emotions occurred for intrinsically religious participants with regard to low ($M = 7.30, SD = 1.84$) and high salience of terrorism ($M = 7.76, SD = 1.63$), $F(1, 71) = 1.27, p = .26, \eta^2 = .02$. To put it differently, given high terror salience, intrinsically religious participants ($M = 7.76$) experienced marginally more positive emotions than did nonreligious participants ($M = 7.16$), $F(1, 71) = 2.98, p = .09, \eta^2 = .04$. In contrast, given low terror salience, no significant differences in experienced positive emotions occurred between intrinsically religious ($M = 7.30$) and nonreligious participants ($M = 7.75$), $F(1, 71) = 1.42, p = .24, \eta^2 = .02$.

Concerning negative emotions, nonreligious participants reported marginally more negative emotions after

high ($M = 2.66$, $SD = 1.66$) rather than low salience of terrorism ($M = 1.92$, $SD = 1.69$), $F(1, 71) = 3.38$, $p = .07$, $\eta^2 = .05$. By contrast, intrinsically religious participants' reported negative emotions were not differently affected by high ($M = 2.05$, $SD = 1.45$) or low salience of terrorism ($M = 2.33$, $SD = 1.67$), $F(1, 71) = 0.55$, $p = .46$, $\eta^2 = .01$. Further simple-effects analyses revealed that given high terror salience, intrinsically religious participants ($M = 2.05$) experienced marginally less negative emotions than did nonreligious participants ($M = 2.66$), $F(1, 71) = 2.73$, $p = .10$, $\eta^2 = .04$. No differences between intrinsically religious ($M = 2.33$) and nonreligious participants ($M = 1.92$) occurred under conditions of low terror salience, $F(1, 71) = 1.01$, $p = .32$, $\eta^2 = .01$.

The analysis of the experimental design did not reveal any further significant effects,⁴ all F 's < 1 , all p 's $> .52$. The reported interaction between "type of emotion," "intrinsic religiousness," and "salience of terrorism" did not change when extrinsic religiousness was controlled as a covariate in the overall analysis ($p = .03$). Moreover, extrinsic religiousness did not affect the dependent variable or interact with terror salience, all F 's < 1 , all p 's $> .35$.

Study 1 revealed that only nonreligious participants' mood was negatively affected by the increased salience of terrorism. In contrast, the mood of intrinsically religious participants was not differentially associated with high and low salience of terrorism. Further analyses revealed that these mood differences between nonreligious and intrinsically religious individuals are both due to differences with regard to positive and negative emotions: Intrinsically religious people experienced more positive emotions and less negative emotions under conditions of high terror salience than did nonreligious participants. No differences between both groups occurred under conditions of low terror salience. In sum, the results of Study 1 support the expectation that intrinsic religiousness helps people to cope with adversities caused by increasing salience of terrorism. In a second study, we try to replicate this finding with a community sample in the context of a real-life terrorist attack, which provides a higher ecological validity compared to the typical, undergraduate, lab-experiment samples. In addition, Study 2 attempts to shed some further light on associated psychological processes employed in religious coping with increased salience of terrorism.

STUDY 2

Taken as a whole, previous research has consistently shown that religiousness helps people to cope with stressful events in life (e.g., Ai et al., in press; McIntosh et al., 1993) and thus promotes mental health (e.g., Miller & Thorensen, 2003; Pargament, 1997). However, former research had difficulties explaining the positive effect of religiousness on mental health (cf. George,

Ellison, & Larson, 2002; Hill & Pargament, 2003). Accordingly, less research was done on the question of how intrinsic religiousness facilitates coping with stressful events and, thus, why it has a positive effect on mental health (see George et al., 2002; Hill & Pargament, 2003). One important hypothesis—which was directly tested in the present Study 1—is that intrinsic religiousness promotes positive emotions and, thus, facilitates coping with adversity because positive emotions help to distract from negative affect, reduce physiological arousal, and alter cognitive processing (see Fredrickson et al., 2003).

However, in our opinion, another factor exists that correlates with the positive effects of positive emotions, which has received scant attention thus far: All of the mentioned positive effects of positive emotions on coping also should be associated with a greater feeling of personal control and self-efficacy in the coping process because they increase people's resources for coping (e.g., by broadening the scope of available coping actions, providing physical power, etc.; see Fredrickson et al., 2003). In addition, not only positive emotions triggered by intrinsic religiousness but also factors especially inherent to intrinsic religiousness might increase the sense of self-efficacy that reflects the expectation of being able to control challenging environmental demands by performing adaptive action (Bandura, 1997; Schwarzer & Jerusalem, 1995; Schwarzer & Scholz, 2000): According to the argumentation put forward by Ellison (1991), religiousness is basically associated with feelings of self-efficacy, which result from an increased sense of control over the external world and its adversities and therefore increases intrinsically religious individuals' emotional well-being. Although this line of reasoning has not been directly empirically investigated so far, it is supported by related findings. For example, it was shown that religiousness provides a belief system that enables individuals to integrate negative experiences with prior assumptions and worldviews more quickly (Horowitz, 1976; Janoff-Bulman, 1992; McIntosh et al., 1993; Parkes, 1972) and thus to better keep up a sense of own control and self-efficacy. Furthermore, religious people believe that after praying they will receive help from a personal god, another factor that should increase religious individuals' sense of self-efficacy in the context of stressful events (Hall & Edwards, 2002; Kirkpatrick, Kellas, & Shillito, 1993). Other authors found a positive correlation between religious activities and personal control (Benson & Spilka, 1973; Jackson & Coursey, 1988; Shrauger & Silverman, 1971). Finally, and most directly, Ai, Peterson, Rodgers, and Tice (2005) found in a sample of cardiac patients that increased internal control was positively related to the use of prayer for coping. Based on these findings and assumptions, and transferring them to our research question,

we posit that intrinsic religiousness furthermore helps people to cope with the increased salience of modern terrorism by bolstering and/or increasing intrinsically religious individuals' sense of self-efficacy, which is associated with an enhanced experience of positive emotions. This line of reasoning is tested in a straightforward way in Study 2 in the context of the Istanbul terrorist attacks.

In November 2003, Istanbul, the capital of Turkey, was shocked by a series of devastating terrorist attacks: On November 20th, suicide car bombers attacked two synagogues in central Istanbul, killing 23 people and injuring more than 257. Only 5 days later, parallel explosions occurred at the British Consulate and the Turkish headquarters of the London-based HSBC bank in Istanbul, killing at least 15 people and wounding more than 300. Terrorism experts said the bomb blasts in Istanbul were the work of al-Qaida. Due to the fact that Turkey was never considered to be a prime target of al-Qaida terrorism and that 2.1 million Turkish people live in Germany, the suicide attacks in Istanbul also increased the fear of al-Qaida terrorism occurring in German cities. Accordingly, the Istanbul terror attacks can be seen as a natural manipulation of the salience of terrorism being very high immediately after the terror attacks (on the same day) and comparatively lower, for example, 2 months later. Accordingly, in Study 2, we investigated mood (positive and negative emotions) and self-efficacy of nonreligious and intrinsically religious individuals at the same day and 2 months after the second wave of the Istanbul terrorist attacks. It was hypothesized that on the day of the terrorist attacks, terrorism is highly salient for both nonreligious and intrinsically religious people; however, the mood of intrinsically religious people was expected to be less negatively affected than the mood of nonreligious people. Furthermore, we expected that this effect is mediated by different levels of experienced self-efficacy: Because of their belief in a helping god, intrinsically religious people have a greater sense of self-efficacy immediately after the attacks than do nonreligious people, and associated with that, feel better than nonreligious people. Two months after the Istanbul terrorist attacks, the experienced salience of terrorism should have faded somewhat and therefore no differences between both mood and self-efficacy of intrinsically religious and nonreligious people are expected.

Method

Participants and design. Seventy-four people sitting in a Munich cafe volunteered to participate in a study on the impact of terrorism on different areas of life.⁵ The sample consisted of 33 women and 41 men, ranging in age from 21 to 62 years ($M = 30.61$ years, $SD = 8.99$). The experiment was based on a 2 (time of measurement: the

day of the terrorist attacks in Istanbul [November 20, 2003] vs. 2 months later [February 2, 2004]) \times 2 (religiousness: nonreligious vs. intrinsically religious) \times 2 (type of emotion: positive vs. negative) factorial design with repeated measures on the last factor. Forty-three individuals participated on November 20, 2003, and 31 individuals participated on February 2, 2004. No individual participated on both occasions.

Procedure. Participants were recruited from the same cafe in Munich, Germany, during both times of measurement. They were given a questionnaire that began with a short description of the second wave of terrorist attacks in Istanbul that had happened several hours (vs. 2 months prior) to questioning. Next, participants responded to the question, "How likely do you think it is that similar terrorist attacks will happen in Germany in the near future?" (0 = *not at all likely*, 10 = *extremely likely*) and subsequently filled out the German translation of the intrinsic and extrinsic religious orientation scale (Allport & Ross, 1967; Zwingmann et al., 1993; scale of intrinsic religiousness: $\alpha = .77$, $Mdn = 2.50$). As in Study 1, for further analyses, only the intrinsic religiousness scale was used. The participants' next task was to reply to several questions containing a questionnaire on general self-efficacy (Schwarzer & Jerusalem, 1995) containing 10 items on a scale from 1 (*not at all true*) to 4 (*exactly true*). Two examples of the items used are as follows: "I always manage to solve difficult problems if I try hard enough" and "Thanks to my resourcefulness, I know how to handle unforeseen situations" ($\alpha = .89$). Then, as in Study 1, participants' current mood was measured with Brunstein's instrument (1993) distinguishing between positive ($\alpha = .82$) and negative emotions ($\alpha = .76$). Finally, participants were debriefed and thanked for their participation.

Results and Discussion

Five participants had to be excluded from further analyses: Four of them failed to complete the questionnaire and one of them was not fluent enough in German to enable participation.

Check for salience of terrorism and interfering effects. A 2 (intrinsic religiousness) \times 2 (time of measurement) ANOVA revealed a significant main effect for time of measurement, $F(1, 65) = 4.22$, $p = .04$, $\eta^2 = .06$. Several hours after the second wave of the Istanbul terrorist attacks ($M = 5.32$, $SD = 2.39$), participants' belief in the likelihood of terrorist attacks happening in Germany was greater than 2 months after the attacks ($M = 4.26$, $SD = 1.81$). No further significant effects occurred, all F s < 1.60 . In addition, we investigated whether the differences that resulted from the salience of terrorism affected the intrinsic religiousness measure.

TABLE 2: Positive Emotions, Negative Emotions, and Self-Efficacy as a Function of Intrinsic Religiousness and Terror Salience (Distance to Istanbul Terrorist Attacks)

Terror Salience	Intrinsic Religiousness					
	Positive Emotions		Negative Emotions		Self-Efficacy	
	No	Yes	No	Yes	No	Yes
Low (2 months)	7.53 (1.53)	6.77 (2.97)	1.33 (1.09)	1.67 (1.79)	3.12 (0.40)	2.99 (0.66)
High (same day)	6.47 (1.39)	7.80 (1.30)	2.67 (1.52)	2.00 (1.51)	2.51 (0.71)	3.02 (0.61)

Accordingly, a 2 (time of measurement) \times 1 one-way ANOVA revealed no significant main effect, $F(1, 67) = 0.85, p = .36, \eta^2 = .01$, indicating that high ($M = 2.98, SD = 1.83$) and low ($M = 2.60, SD = 1.51$) salience of terrorism did not differently affect levels of reported intrinsic religiousness. Finally, further analyses revealed that participants' age or gender was not significantly associated with positive emotions, negative emotions, or self-efficacy, all $F_s < 1$, all $p_s > .32$, and did not interact with the other factors of the quasi-experimental design, all $F_s < 2.39$, all $p_s > .12$.

Positive and negative emotions. Means and standard deviations for positive and negative emotions are presented in Table 2. A 2 (time of measurement) \times 2 (intrinsic religiousness) \times 2 (type of emotion) ANOVA with repeated measures on the last factor revealed a significant main effect for "type of emotions," $F(1, 65) = 251.82, p < .01, \eta^2 = .80$, indicating that participants experienced more positive ($M = 7.14, SD = 1.92$) than negative emotions ($M = 1.96, SD = 1.55$).⁶ Furthermore, this main effect was qualified by a significant three-way interaction,⁷ $F(1, 65) = 5.56, p = .02, \eta^2 = .08$. Follow-up 2 (time of measurement) \times 2 (religiousness) analyses separately conducted for positive and negative emotions showed that this interaction effect was mainly based on differences due to positive emotions, $F(1, 65) = 5.29, p = .03, \eta^2 = .08$. No significant interaction between time of measurement and intrinsic religiousness occurred for negative emotions, $F(1, 65) = 1.92, p = .17, \eta^2 = .03$.

Separate analyses conducted several hours (high terror salience) and 2 months (low terror salience) after the terrorist attacks in Istanbul clarified the two-way interaction for positive emotions: Several hours after the attacks, intrinsically religious individuals ($M = 7.80, SD = 1.30$) felt better than did nonreligious individuals ($M = 6.47, SD = 1.39$), $F(1, 36) = 9.23, p = .01, \eta^2 = .20$. Two months after the terrorist attacks, no difference occurred between intrinsically religious ($M = 6.77, SD = 2.97$) and nonreligious ($M = 7.53, SD = 1.53$) participants, $F(1, 29) = 0.80, p = .38, \eta^2 = .03$.

To put it differently, nonreligious people experienced less positive emotions several hours ($M = 6.47$)

rather than 2 months ($M = 7.53$) after the terrorist attacks in Istanbul, $F(1, 32) = 4.44, p = .04, \eta^2 = .12$. By contrast, intrinsically religious participants reported no significantly different experience of positive emotions several hours ($M = 7.80$) and 2 months ($M = 6.77$) after the terrorist attacks, $F(1, 33) = 1.90, p = .18, \eta^2 = .05$.

The reported interaction between "type of emotion," "intrinsic religiousness," and "salience of terrorism" still reached significance when extrinsic religiousness was controlled as a covariate in the overall analysis ($p = .03$).

Self-efficacy. Means and standard deviations are presented in Table 2. A 2 (time of measurement) \times 2 (intrinsic religiousness) ANOVA revealed a marginal main effect for time of measurement, $F(1, 65) = 3.80, p = .06, \eta^2 = .06$, indicating that participants experienced less self-efficacy several hours ($M = 2.77, SD = 0.71$) rather than 2 months ($M = 3.05, SD = 0.54$) after the Istanbul terrorist attacks. Furthermore, this main effect was qualified by a significant two-way interaction between time of measurement and religiousness, $F(1, 65) = 4.55, p = .04, \eta^2 = .07$. Simple effects analyses carried out separately for the two times of measurement indicated that several hours after the terrorist attacks (high terror salience), intrinsically religious individuals ($M = 3.02, SD = 0.61$) perceived themselves as having more self-efficacy than did nonreligious individuals ($M = 2.51, SD = 0.71$), $F(1, 36) = 5.58, p = .02, \eta^2 = .13$. By contrast, 2 months after the Istanbul terrorist attacks (low terror salience), no significant difference occurred between intrinsically religious ($M = 2.99, SD = 0.66$) and nonreligious ($M = 3.12, SD = 0.40$) individuals, $F(1, 29) = 0.41, p = .53, \eta^2 = .01$.

To put it differently: Several hours after the terrorist attacks ($M = 2.51$), nonreligious individuals perceived themselves as having less self-efficacy than 2 months after the terrorist attacks ($M = 3.12$), $F(1, 32) = 8.72, p = .01, \eta^2 = .21$. With regard to intrinsically religious individuals, no significant difference occurred between both times of measurement (several hours: $M = 3.02$; 2 months: $M = 2.99$), $F(1, 33) = 0.02, p = .90, \eta^2 = .001$. No further significant effects⁸ occurred, all $F_s < 3.80$, all $p_s > .06$.

Mediational analysis. To test whether self-efficacy mediates the interaction between time of measurement,

intrinsic religiousness, and type of emotion reported above, $F(1, 65) = 5.56, p = .02, \eta^2 = .08$, we performed a 2 (time of measurement) \times 2 (intrinsic religiousness) \times 2 (type of emotion) analysis of covariance (ANCOVA) with self-efficacy as a covariate. Most important, the interaction between time of measurement, intrinsic religiousness, and type of emotion was no longer significant when controlling for self-efficacy, $F(1, 64) = 2.15, p = .15, \eta^2 = .03$. Moreover, the effect of the covariate, self-efficacy, on type of emotion was significant, $F(1, 64) = 18.78, p < .001, \eta^2 = .23$. Hence, these results support the assumption that self-efficacy mediates the relationship between time of measurement and intrinsic religiousness on type of emotions with a substantial reduction of the interaction effect size from .08 ($p = .02$) to .03 ($p = .15$).

To sum up, Study 2 replicated the findings of Study 1 in a more ecologically valid context—the Istanbul terrorist attacks from November 2003. It revealed that intrinsically religious participants' mood was less negatively affected by conditions of high terror salience than was the mood of nonreligious participants. In contrast, under conditions of low terror salience, no mood differences were found between nonreligious and intrinsically religious participants. Further analyses revealed that this effect was due to differences in reported positive emotions: Immediately after the terrorist attacks, intrinsically religious participants reported higher levels of positive emotions than did nonreligious participants; 2 months later, no differences occurred between both groups. In contrast, no significant differences were discovered with regard to reported negative emotions. These results are in line with previous coping research (e.g., Fredrickson et al., 2003) emphasizing the important role of positive emotions in coping with adversity. It seems that religiousness is one precondition facilitating the experience of positive emotions in crisis. In addition, immediately after the terrorist attacks, intrinsically religious participants reported a higher sense of self-efficacy than did nonreligious participants, whereas this difference was not observed 2 months later. Accordingly, an analysis of covariance showed that there is a significant link between terror salience, intrinsic religiousness, self-efficacy, and mood. However, because of the underlying correlative design, we cannot make assumptions about the causal direction of this effect.

GENERAL DISCUSSION

Terrorist attacks are extremely aversive events that deeply shake people's emotions and feelings of personal control. Religious participation is mentioned as a common strategy for coping with aversive events. In two studies, we have shown that intrinsic religiousness helps to cope with the increased salience of terrorism. Whereas

nonreligious participants reported reduced positive emotions in conditions with high salience of terrorism, the degree of experienced positive emotions of intrinsically religious participants did not vary with different levels of terror salience (Study 1 and 2). In addition, in Study 1, nonreligious participants reported a marginally increased degree of experienced negative emotions (compared to intrinsically religious participants). However, the latter effect on negative emotions was not replicated in Study 2. Furthermore, we found evidence that the effect of terror salience on mood (positive and negative emotions) is mediated by differences due to the sense of self-efficacy (Study 2): high salience of terrorism only negatively affected the self-efficacy of nonreligious participants, but not the self-efficacy of intrinsically religious participants. If self-efficacy was statistically controlled for, the differential effect of salience of terrorism on mood of intrinsically religious and nonreligious participants could no longer be obtained. This result supports the line of reasoning that the negative effect on mood of nonreligious participants under conditions of high salience of terrorism is associated with a reduction of experienced self-efficacy.

Implications of the Present Research

What do we learn from these results? First, terrorism negatively affects people's mood and sense of self-efficacy, probably because it is extraordinarily difficult to predict or counteract terrorist attacks and everybody could be among al-Qaida's next victims. Indeed, al-Qaida terrorism with its tendency to be carried out in the form of devastating suicide bombing is a new kind of terrorism that especially threatens the "normal" lives of people. This is in contrast to RAF terrorism in Germany in the 1970s, which was predominantly directed at top-level politicians and managers. The present research showed that following an increased salience of terrorism, a decrease in self-efficacy is associated with lower levels of positive emotions and in the direction of higher levels of negative emotions. This supports previous findings showing that low self-efficacy is associated with higher levels of depression (cf. Schwarzer & Scholz, 2000), whereas higher levels of self-efficacy are associated with positive emotions (Ellison, 1991) and, thus, a successful adjustment to a host of negative life events (Bandura, 1997; Cozzarelli, 1993). Individuals are motivated to predict, explain, and influence what happens in the world (Skinner, 1996). Suicide bombing terrorism negatively affects that goal of internal controllability, and thus, people might feel bad immediately after terrorist attacks. However, the present studies also revealed that these processes are not universal. Intrinsic religiousness helps to bolster the negative effect of terror salience on mood and self-efficacy.

Second, with regard to the psychology of religion, our findings add force and generality to previous efforts to situate the role of religiousness within models of coping (Carver et al., 1993; Palmer & Noble, 1989). Former studies investigated religious coping with stressful life events unintentionally caused by nature, such as the loss of a child from Sudden Infant Death Syndrome (McIntosh et al., 1993) or being diagnosed with cancer (Carver et al., 1993). However, to our knowledge, there is no research on religious coping with aversive events intentionally caused by mankind, such as military conflicts or terrorist attacks. Furthermore, previous research on religious coping was mainly limited to coping with adversities concretely affecting the individual. Our findings extend that research by showing that intrinsic religiousness also helps to cope with terrorism, which threatens both the individual and its whole society/culture.

Third, the questions of why religiousness promotes mental health and how religious coping promotes adjustment to adversity could be clarified in more detail: Whereas previous research theoretically suggested a link between religiousness, self-efficacy, and emotions (cf. Ellison, 1991), the present research shows that religious coping with aversive events is indeed significantly associated with increased self-efficacy and positive emotions. These results demonstrate that positive emotions and self-efficacy, which both promote mental health, are critical active ingredients within coping processes of intrinsically religious people. Because former research had difficulties explaining the positive effect of religiousness on mental health (cf. George et al., 2002; Hill & Pargament, 2003), our study is an important addition to this field of research.

Fourth, the current research helps to further understand the effects terrorism has on psychological variables, such as self-efficacy and mood. Despite its tremendous impact on society, up until this point, there has been very little research on the psychological effects of modern terrorism. One exception is a study by Fredrickson et al. (2003), showing that positive emotions in the aftermath of the terrorist attacks on the World Trade Center on September 11 buffer people against depression and support the increase of psychological resources against adversity. Positive emotions, such as happiness or confidence, provide more pleasant subjective experience than do negative emotions, such as anxiety or sadness. Hence, to the extent that positive emotions reduce the focus on negative emotions, they can put people's minds at ease, which is a reasonable effect of positive emotions in crises (cf. Bonanno & Keltner, 1997; Folkman & Moskowitz, 2000). Our research complements the work of Fredrickson et al. (2003) by showing that under conditions of high terror salience, positive

emotions also are promoted by the precondition of intrinsic religiousness and are associated with a higher sense of self-efficacy within the group of intrinsic religious people.

Limitations and Directions for Future Research

Our research has several methodological limitations: These include (a) that we used a cross-sectional design restricting the detection of cause and effect because of many possible third variables (cf. Miller & Thorensen, 2003); (b) the limited statistical power arising from the small sample size, especially in Study 2; (c) the use of a convenience sample, which calls into question whether our sample is an accurate representation of the whole population; and (d) the limitation of the regression-based (ANCOVA) statistical tool we used for the mediation test in Study 2. Results based on structural equation modeling would have provided a better basis for causal interpretation than the regression-based analysis of covariance, which we had to use because of the small sample size. Future research should address these methodological problems and might perform a longitudinal study that employs the same randomized sample of intrinsically religious and nonreligious participants on two or more separate occasions and uses a bigger sample ($N > 200$), thereby enabling an application of structural equation modeling to come closer to a causal interpretation of linkages between salience of terrorism, religiousness, mood, and self-efficacy.

Second, we have to mention that with reference to Terror Management Theory, which suggests that people cope with the awareness of death by investing in some kind of literal or symbolic immortality (for a recent overview, see Solomon, Greenberg, & Pyszczynski, 2004), one could have expected that the salience of terrorism (because of its similarity to mortality salience) might itself influence the levels of reported intrinsic religiousness, and thus our reported effects. However, in additional analyses for both studies, we did not find any effect of the terror salience manipulation on the degree of reported intrinsic religiousness.⁹ Furthermore, the findings that mortality (terror) salience does not affect the levels of reported religiousness corresponds with previous research on Terror Management Theory. For example, Burling (1993) investigated whether mortality salience affected self-reported investments in religion. In line with our findings, no effects were found.¹⁰ To sum up, our additional analyses and results from previous research do not support the assumption that mortality salience or terror salience, respectively, affect the levels of reported intrinsic religiousness.

Third, the present results suggest that religiousness helps to maintain positive emotions but seems not to buffer negative emotions, which is in contrast to previ-

ous research showing that religiousness also is helpful in coping with negative emotions (e.g., Ai et al., in press; McIntosh et al., 1993). However, whereas these previous studies examined threats that were very personal, such as health events (e.g., cancer diagnoses, Carver et al., 1993; transplant surgeries, Tix & Frazier, 1998), the loss of a child (McIntosh et al., 1993), or a disastrous terrorist attack in the own country (9/11, Ai et al., in press), the event in question in the present article (terrorist attack in another country) did not involve a personal or immediate threat for the participants. On that score, it would be a fruitful endeavor for future research to investigate religiousness and emotional response dependent on whether individuals face a very personal or less personal threat.

Fourth, a further limitation of our studies is that the results are restricted to German Christians. We cannot say whether the same effects of terror salience, mood, and self-efficacy would have been obtained for participants of other religions or cultures. For example, St. George and McNamera (1984) have found that religious involvement was more strongly related to life satisfaction and other aspects of well-being for African Americans than for White Americans with a similar background. Furthermore, according to the findings of Park, Cohen, and Herb (1990), Catholics are expected to cope better with controllable stressful life situations, whereas Protestants are better at coping with uncontrollable stressful life-events (see also Pargament, 2002). These examples illustrate the problem of generalizability of findings in the research area of religious coping and mental health. Related to this problem is the question of whether intrinsic religiousness is the same for the more secular European population and samples outside Europe, such as the typically more religious samples in the United States. With regard to intrinsic religiousness in non-European samples, in another study (Fischer, Greitemeyer, & Kastenmueller, 2005), we found a higher median (compared to the samples of the present studies) for an orthodox Christian sample from the Ukraine ($Mdn = 4.50$) and a Muslim sample from Azerbaijan ($Mdn = 4.92$). However, other research has shown that intrinsic religiousness both in Germany and the United States correlates to a comparable degree with the same criteria, such as the frequency of church attendance or importance of religion (Hellmeister, 1993; Zwingmann, 1991). Although these results might support the generalizability of our findings, it would be a fruitful endeavor for future research to address the question of whether our results on the interplay between intrinsic religiousness, mood (positive and negative emotions), and self-efficacy in coping with terrorism also could be obtained in the United States or other non-European countries.

NOTES

1. Intrinsic religiousness was coded with 0 (not intrinsically religious) and 1 (intrinsically religious).

2. However, we found a significant three-way interaction between "intrinsic religiousness," "gender," and "type of emotion," $F(1, 138) = 4.13, p = .04, \eta^2 = .03$. Follow-up analyses separately conducted for male and female participants revealed a marginally significant two-way interaction between "intrinsic religiousness" and "type of emotion" only for female, $F(1, 63) = 3.58, p = .06, \eta^2 = .05$, but not for male participants, $F(1, 79) = 1.36, p = .25, \eta^2 = .02$. Further simple-effect analyses show that intrinsically religious, female participants ($M = 1.86, SD = 1.46$) reported marginally less negative emotions than not religious, female participants ($M = 2.61, SD = 1.73$), $F(1, 63) = 3.60, p = .06, \eta^2 = .05$. No significant differences between not religious ($M = 7.67, SD = 1.18$) and intrinsically religious ($M = 8.13, SD = 1.47$) female participants were found with regard to positive emotions, $F(1, 63) = 1.92, p = .17, \eta^2 = .03$. To sum up, intrinsically religious, female participants have been found to experience less negative emotions than not religious, female participants. However, this effect did not interact with the manipulation of the salience of terrorism and therefore represents no alternative explanation for a potential effect of salience of terrorism on positive and negative emotions of high and low intrinsically religious people.

3. This three-way interaction was still significant when the effects of age, gender, and perceived terrorist threat were controlled as covariates, $F(1, 134) = 4.83, p = .03, \eta^2 = .04$.

4. No significant interactions occurred for extrinsic religiousness, all $F_s < 1$, all $p_s > .35$.

5. A second, unrelated aim of this study concerned processes of information seeking. These data are unrelated to the current investigation and will probably be reported separately (Jonas & Fischer, 2005).

6. No significant interactions occurred for extrinsic religiousness, all $F_s < 1$, all $p_s > .81$.

7. This three-way interaction did not change when salience of terrorism was controlled as a covariate, $F(1, 64) = 5.31, p = .02, \eta^2 = .08$.

8. No significant effects occurred for extrinsic religiousness, all $F_s < 2.13$, all $p_s > .14$.

9. In addition, in a related work by Jonas and Fischer (2005, Study 2) on mortality salience and religion, the influence of mortality salience on religiousness was directly tested (the time of measurement of religiousness was manipulated and took place either before or after the mortality salience induction). Again, no effect of mortality salience on intrinsic religiosity was found.

10. Burling (1993) suggested that this null finding could be explained by the assumption that religious beliefs are normally deeply internalized and stable. Therefore, mortality salience might not induce any change in the level of reported religiousness but rather in participants' adherence to religious beliefs, norms, and values.

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