

Emotion

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God Rest Our Hearts: Religiosity and Cognitive Reappraisal

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Although religiosity is often accompanied by more intense emotions, we propose that people who are more religious may be better at using 1 of the most effective emotion regulation strategies—namely, cognitive reappraisal. We argue that religion, which is a meaning-making system, is linked to better cognitive reappraisal, which involves changing the meaning of emotional stimuli. Four studies ($N = 2,078$) supported our hypotheses. In Study 1, religiosity was associated with more frequent use of cognitive reappraisal in 3 distinct religions (i.e., Islam, Christianity, Judaism). In Studies 2A–2B, we replicated these findings using 2 indices of cognitive reappraisal and in a large representative sample. In Studies 3–4, individuals more (vs. less) religious were more effective in using cognitive reappraisal in the laboratory. We discuss how these findings inform our understanding of the psychology of religion and of emotion regulation.

Keywords: religion, emotion, emotion regulation, reappraisal

Even if sometimes it appears that something is going against you, you will see that in the end it also produces some good results for you.

—(Sayyid Abul A'la Maududi, a 20th century Imam, p. 5, 1985)

By his passion and death on the cross Christ has given a new meaning to suffering: it can henceforth configure us to him and unite us with his redemptive Passion.

—(Catechism of the Catholic Church, 1997, para. 1505)

Sufferings of the individual are ministerial to a higher good within the universal order. . . . In the perspective of totality, evil vanishes.

—(Joseph B. Soloveitchik, a 20th century Rabbi, p. 98, 1961/2003)

Perhaps more than any other cultural system, religion shapes the thoughts (Cohen & Rankin, 2004; Cohen & Rozin, 2001), feelings (Kim-Prieto & Diener, 2009; Tsai, Koopmann-Holm, Miyazaki, & Ochs, 2013) and behavior (Sasaki et al., 2013; Shariff & Norenzayan, 2007) of followers. It does so, in part, by shaping the way people give meaning to the world around them (Baumeister, 1991; Davies, 2011; Pargament, 1997; Watts, 2007). We propose that

such meaning-making practices extend to the emotion domain, where one of the most effective regulation strategies—namely, cognitive reappraisal—involves changing the meaning of an event so that its emotional impact changes (Gross & John, 2003). We hypothesized, therefore, that religion is linked to more effective cognitive reappraisal.

Religiosity and Emotions

Religion is a cultural system that is characterized by rites, belief systems and worldviews, which relate humanity to presumed supernatural entities (Cohen, 2009). We refer to *religiosity* as reflecting the extent to which religion plays an important role in one's life. Although emotional experiences differ across religions (Kim-Prieto & Diener, 2009), they also differ as a function of religiosity (e.g., Diener & Clifton, 2002; Koenig, George, & Titus, 2004).

Religion can have a direct effect on emotional experiences, by shaping emotional reactions (e.g., Emmons, 2005; Watts, 2007). Religion shapes emotional reactions, in part, by prescribing specific appraisals. For example, the belief in a higher power and the promise of continuity after death fosters a sense of security and reduces anxiety (Harding, Flannelly, Weaver, & Costa, 2005; Vail et al., 2010). Similarly, considering one's self relative to an omnipotent or omnibenevolent divine agent fosters appraisals that lead to awe (Keltner & Haidt, 2003) and gratitude (McCullough, Emmons, & Tsang, 2002).

Religion may also have an indirect effect on emotional experiences, by shaping processes of emotion regulation (e.g., Vishkin, Bigman, & Tamir, 2014; Watts, 2007). It does so by facilitating either extrinsic or intrinsic forms of emotion regulation. Extrinsic emotion regulation refers to processes which originate outside the individual. Religion promotes extrinsic emotion regulation by con-

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structing a network of social support (Diener, Tay, & Myers, 2011; McIntosh, Silver, & Wortman, 1993; Salsman, Brown, Brechting, & Carlson, 2005) and promoting feelings of social belonging (Krause & Wulff, 2005).

Intrinsic emotion regulation refers to processes which originate from inside the individual (Gross & Thompson, 2007). Religion may also cultivate certain forms of intrinsic emotion regulation. Although evidence to this effect is limited, some research suggests that certain religious practices promote effective coping with negative events. Pargament et al. (1988, 1990) highlighted specific coping methods that are uniquely religious, such as conversing with God, working with God to solve the problem, or requesting God's direct intervention in order to ameliorate the situation (Pargament et al., 1988, 1990). Other religious practices may facilitate emotion control. For instance, praying for an aggressor decreased anger following a provocation (Bremner, Koole, & Bushman, 2011). Similarly, meditation, a common religious practice, has been associated with the ability to disengage attention from an emotion-arousing stimulus (Ortner, Kilner, & Zelazo, 2007).

To date, evidence that religion promotes intrinsic emotion regulation has been limited to the cultivation of uniquely religious practices. We propose, however, that the link between religiosity and intrinsic emotion regulation might extend beyond religious content, to more general practices of emotion regulation. We propose that, independent of religious content, religion cultivates the effective use of cognitive reappraisal. In the next section, we elaborate on this hypothesis.

Religiosity and Cognitive Reappraisal

Religion requires adherence to strict rules and behavioral norms (Kenrick, McCreath, Govern, King, & Bordin, 1990; Price & Bouffard, 1974; Rappaport, 1999). To adhere to such norms, religiosity requires self-regulatory skills (McCullough & Wiloughby, 2009). More religious individuals are higher in self-monitoring and better in self-control (Carter, McCullough, & Carver, 2012). Within a religious context, these self-regulation skills could be applied to control behavior (e.g., "thou shall not steal," Exodus 20:12), thoughts (e.g., "Honor thy father and thy mother," Exodus 20:11), and feelings (e.g., "thou shall not covet," Exodus 20:13; "Thou shalt not hate thy brother," Leviticus 19:17; "thou shalt love thy neighbor as thyself," Leviticus 19:18). Therefore, religion fosters not only the self-regulation of behavior, but the self-regulation of emotion, as well (Koole, McCullough, Kuhl, & Roelofsma, 2010), in a manner that is congruent with religion-consistent emotion goals (see Vishkin et al., 2014).

However, religion is unlikely to cultivate all forms of emotion regulation. Instead, we propose that religion might foster the use of emotion regulation strategies that involve meaning-making. This is because meaning-making is one of the primary concerns of religion (Baumeister, 1991; Davies, 2011; Pargament, 1997; Watts, 2007). In dealing with fundamental questions, such as death, suffering, pain, and injustice (Yinger, 1970), religious texts supply broad schemas which are capable of giving meaning to modern events against the backdrop of events immemorial (Geertz, 1966; Yerushalmi, 1982). By changing the meaning of events, religion influences how people think, behave, and feel.

In the emotion regulation literature, changing the meaning of emotional events so that they lead to different emotional experi-

ences is referred to as cognitive reappraisal (Gross & John, 2003). Cognitive reappraisal is one of the most effective emotion regulation strategies (for a recent meta-analysis, see Webb, Miles, & Sheeran, 2012). Relative to other emotion regulation strategies, such as expressive suppression, cognitive reappraisal is more effective in changing emotional experiences, with relatively few physiological (Gross, 1998; Gross & Levenson, 1993, 1997) or cognitive (Richards & Gross, 1999, 2000) costs.

Religion offers many examples of positive reappraisals of negative events. By addressing the issue of theodicy, religion offers ways to interpret innocent human suffering and injustice, such that they become easier to comprehend and less distressing (Weber, 1922/1963). As demonstrated in the opening quotes, all religions echo the idea that suffering can be perceived in a manner that renders it less negative. Religious texts also offer examples of positive reappraisals of negative events. For example, the Babylonian Talmud (Tractate Brachot, 60b) proposes that everything is for the best and demonstrates how this idea can be applied to cope with specific events. In one example, Rabbi Akiva came upon a new town, but nobody agreed to invite him in. "Whatever God does is for the best," he said. He spent the night in the open field. That night the town was attacked by bandits and everyone was killed but him.¹ Such examples show how religious texts demonstrate instances of reappraisal (specifically, a reappraisal tactic that involves changing the perceived future consequences of the negative event; McRae, Ciesielski, & Gross, 2012). Such evidence is consistent with the argument that religion introduces and trains adherents in using cognitive reappraisal to regulate emotions.

Although there is evidence for links between religiosity and religious coping (e.g., Ross, Handal, Clark, & Vander Wal, 2009), the present work seeks to move beyond religious coping to focus on cognitive reappraisal, which is a general emotion regulation strategy. Although not the primary focus of their investigation, several studies failed to find significant associations between religiosity and cognitive reappraisal (Rosmarin et al., 2013) or related measures (i.e., positive reframing; Horning, Davis, Stirrat, & Cornwell, 2011; Saroglou & Anciaux, 2004). These investigations, however, suffer from various limitations, emphasizing the need for additional research.

The Current Investigation

In this investigation, we tested the potential links between religiosity and cognitive reappraisal. We hypothesized that more (vs. less) religious individuals would use cognitive reappraisal more frequently and be more effective in doing so. As a first step, we limited our investigation to monotheistic religions. First, we examined the associations between religiosity and the frequency of using cognitive reappraisal (Studies 1 and 2). To test whether religiosity is associated with reappraisal per se or with emotion regulation, more generally, in Studies 1 and 2 we also assessed expressive suppression, as a comparison. Whereas cognitive reappraisal involves changing the meaning of events, expressive suppression involves concealing the overt expression of emotions (Gross, 1998). In Study 2, we tested the validity of our findings by using two distinct indices of cognitive reappraisal and suppression.

¹ A story with a similar theme, in which speciously negative events are reappraised as positive post facto, appears in Surah 18 of the Koran.

In Studies 3–4, we assessed the possible links between religiosity and cognitive reappraisal in a laboratory setting. Specifically, we tested whether people who are more (vs. less) religious use cognitive reappraisal more effectively, irrespective of social demand. We predicted that religiosity would be related to more frequent and more effective use of cognitive reappraisal.

Study 1

We examined the associations between religiosity and cognitive reappraisal in three different countries, each with a different dominant religion: Turkey (a Muslim sample), United States (a Christian sample), and Israel (a Jewish sample). We expected religiosity to be positively associated with cognitive reappraisal in all three samples, but had no a priori predictions regarding the associations between religiosity and expressive suppression.

Method

Participants. Participants in the Muslim sample were undergraduate students from Turkey who completed questionnaires in class ($N = 270$, 77% female, $M_{\text{age}} = 20.97$).² Participants in the Christian sample were Americans ($N = 277$, 48% female, $M_{\text{age}} = 34.74$).³ Participants in the Jewish sample were Israelis ($N = 288$, 51% female, $M_{\text{age}} = 29.63$), who were selected to represent different levels of religiosity in the general population.⁴

Materials.

Religiosity. In the Muslim sample, religiosity was assessed using a single-item self-report measure on a scale of 1 (*not at all religious*) to 9 (*very religious*). In the Christian sample, religiosity was assessed with a measure we adapted from Ben-Nun Bloom, Arikian, and Courtemanche (2015), which included 5 items. Two items assessed religious beliefs (e.g., “Do you believe in God?”) on a scale of 1 (*not at all*) to 5 (*absolutely*). Three items assessed religious behaviors (e.g., “How frequently do you go to Synagogue, Church, or Mosque?”; “How many of your friends are religious?”) on scales of 1 (*never or almost never*) to 7 (*several times a week*) and 1 (*none of my friends*) to 5 (*all of my friends*), respectively. We standardized all items before averaging across them ($\alpha = .86$).

In the Jewish sample, we used two measures of religiosity. First, we used an extended version of the multi-item measure by Ben-Nun Bloom et al. (2015), that was used in the Christian sample, which included a total of 8 items ($\alpha = .90$). Second, we measured self-reported religious affiliation (1 = *secular*, 2 = *traditional*, 3 = *orthodox*, 4 = *ultraorthodox*; Halperin, Bar-Tal, Nets-Zehngut, & Drori, 2008) as a proxy of Jewish religiosity. We refer to this measure as the single-item measure.

Reappraisal and suppression frequency. The frequency of reappraisal and suppression was assessed using the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). Six items assessed cognitive reappraisal (e.g., “When I want to feel less negative emotion, I change the way I’m thinking about the situation”); Muslim sample: $\alpha = .78$; Christian sample: $\alpha = .90$; Jewish sample: $\alpha = .83$) and four items assessed expressive suppression (e.g., “When I am feeling negative emotions, I make sure not to express them”); Muslim sample: $\alpha = .78$; Christian sample: $\alpha = .79$; Jewish sample: $\alpha = .76$). Responses were provided on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Procedure. In the Muslim sample, participants completed the survey in a paper and pencil format, at a group setting in a university lecture hall, as part of a larger study. In the Christian and Jewish samples, the surveys were completed online (using Amazon’s Mechanical Turk [http://www.mturk.com], or an Israeli online survey company [http://www.panel4all.co.il/panel], respectively). In all samples, participants rated the frequency of using cognitive reappraisal and expressive suppression, and then completed measures of religiosity, in addition to other unrelated questionnaires. Finally, they provided demographic information.

Results

As expected, the two measures of religiosity in the Jewish sample correlated highly with each other ($r = .77$, $p < .001$), demonstrating convergent validity (see Tables 1 and 2, for descriptive statistics and intercorrelations). To assess links between religiosity, cognitive reappraisal and expressive suppression in each of the three samples, we regressed religiosity on reappraisal or suppression, while controlling for age and gender. As predicted and summarized in Table 3, more religious individuals reported using reappraisal more frequently in their daily lives in all samples (Muslim sample: $\beta = .17$, $p = .007$; Christian sample: $\beta = .14$, $p = .018$; Jewish sample, multi-item measure: $\beta = .23$, $p < .001$; Jewish sample, single-item measure: $\beta = .13$, $p = .032$). Meanwhile, the relationship between religiosity and suppression was dependent on the sample, exhibiting no correlation in the Muslim and the multi-item measure of the Jewish sample, a negative correlation in the Christian sample, and a positive correlation with the single-item measure of the Jewish sample (Muslim sample: $\beta = .079$, $p = .20$; Christian sample: $\beta = -.14$, $p = .016$; Jewish sample, multi-item measure: $\beta = .081$, $p = .160$; Jewish sample, single-item measure: $\beta = .12$, $p = .038$).

Discussion

As we predicted, religiosity was positively associated with cognitive reappraisal in three different religious identities: Muslim, Christian, and Jewish. This pattern was obtained when using different measures of religiosity. Across the three samples, we did not find consistent associations between religiosity and expressive suppression, demonstrating the specificity of our effect. Because the association between religiosity and cognitive reappraisal was replicated across three religions, the following studies tested our predictions in the context of one religion only (i.e., Judaism).

² We used the same exclusion criteria across samples. In the Muslim sample, the original sample size was 321, but 3% were excluded because they were not Muslim, 8% were omitted because they failed to complete the ERQ or indicate their level of religiosity, and 5% were excluded for providing the same response 90% of the time or more (see Schwartz & Rubel-Lifschitz, 2009).

³ The original sample size was 368, 22% were excluded from the analyses for identifying with a religion other than Christianity and 3% were excluded based on the other exclusion criteria.

⁴ The original sample size was 313, but 4% were excluded from the analyses because they were not Jewish, and 4% were excluded based on the other exclusion criteria.

Table 1
Descriptive Statistics of Key Variables and Their Intercorrelations, Muslim and Christian Sample (Study 1)

Variable	<i>M</i> (<i>SD</i>)	1	2	3	4	5
Muslim sample						
1. Religiosity	5.92 (1.79)	—				
2. Reappraisal frequency	4.83 (1.07)	.17**	—			
3. Suppression frequency	3.76 (1.39)	.10	.21**	—		
4. Age	20.97 (1.90)	-.14*	-.01	-.17**	—	
5. Gender ^a		-.05	-.08	.01	.15*	—
Christian sample						
1. Religiosity	2.76 (1.65 ^b)	—				
	2.24 (1.21 ^c)	—				
2. Reappraisal frequency	5.15 (1.00)	.15*	—			
3. Suppression frequency	3.83 (1.26)	-.19**	-.035	—		
4. Age	34.74 (12.29)	.12	.16**	-.22**	—	
5. Gender ^a		.16**	-.01	-.26**	.16**	—

^a male = 0; female = 1. ^b Descriptive statistics for belief items. ^c Descriptive statistics for behavior items.

* $p < .05$. ** $p < .01$.

Studies 2A–2B

In Study 1 we demonstrated that people who are more religious tend to use meaning-making more frequently as a form of emotion regulation. In Studies 2A–2B, we sought to replicate and extend these findings by examining an additional index of meaning-based emotion regulation—namely, positive reframing. Like cognitive reappraisal, positive reframing involves changing the meaning of emotional events to change their emotional impact. Specifically, positive reframing changes the meaning of negative events so that they are less negative (Carver, Scheier, & Weintraub, 1989). To further demonstrate the specificity of our findings, we also assessed a different index of expression-based emotion regulation—namely, venting. Venting involves the overt expression of negative emotions (Carver, 1997). We expected religiosity to be positively associated with positive reframing. We had no a priori predictions regarding the relationship between religiosity and venting. In Study 2A, we tested the associations between religiosity, positive reframing, and venting. In Study 2B, we simultaneously assessed the associations between religiosity and reappraisal, suppression, positive reframing, and venting, in a large representative community sample.

Study 2A

Method.

Participants. Participants were Israelis ($N = 92$, 54% female, $M_{\text{age}} = 28.70$), who were selected to represent different levels of religiosity in the general population.⁵

Materials.

Religiosity. Religiosity was assessed using two different measures. First, we used the same multi-item measure as in Study 1 with the Jewish sample ($\alpha = .95$). Second, as in Study 1 with the Muslim sample, we also included a single-item self-report measure of religiosity, ranging from 1 (*not at all religious*) to 7 (*very religious*).

Positive reframing and venting. Participants completed two subscales from the brief COPE inventory (Carver, 1997). Each subscale was comprised of two items on a 4-point Likert scale ranging from 1 (*I haven't been doing this at all*) to 4 (*I've been doing this a lot*). Specifically, we assessed positive reframing (e.g.,

"I've been looking for something good in what is happening"; $r(92) = .41, p < .001$) and venting (e.g., "I've been expressing my negative feelings"; $r(92) = .31, p = .003$).

Procedure. The survey was completed online using an Israeli online survey company (<http://www.panel4all.co.il/panel>). The religiosity measures were completed last.

Results. Descriptive statistics and intercorrelations are presented in Table 4. The two measures of religiosity were highly correlated ($r = .90, p < .001$), showing convergent validity. As in Study 1, we ran all the analyses with each measure of religiosity separately. Specifically, we ran a series of simple regressions, predicting each regulation strategy from religiosity, age, and gender (see Table 5). First, consistent with our findings regarding cognitive reappraisal in Study 1, more religious individuals reported using positive reframing more frequently in their daily lives (multi-item measure: $\beta = .23, p = .026$; single-item measure: $\beta = .25, p = .015$). Religiosity was not significantly linked to venting (multi-item measure: $\beta = -.12, p = .26$; single-item measure: $\beta = -.13, p = .21$).

Study 2B

Method.

Participants. Participants were Israelis representative of the larger population ($N = 967$, 52% female, $M_{\text{age}} = 38.78$).⁶

Materials.

Religiosity. Religiosity was assessed using a single-item self-report measure, ranging from 1 (*not at all religious*) to 7 (*very religious*).

Reappraisal and suppression frequency. The frequency of reappraisal ($\alpha = .81$) and suppression ($\alpha = .75$) was assessed using the ERQ, as in Study 1.

Positive reframing and venting. Participants completed a shorter version of the subscales used in Study 2A, that included one item for positive reframing (i.e., "I've been looking for something good in what is happening") and one item for venting (i.e., "I've been saying things to let my unpleasant feelings escape").

Procedure. The survey was completed online using an Israeli online survey company (<http://www.midgampanel.com>). The religiosity measures were completed last.

Results. Descriptive statistics and intercorrelations are presented in Table 6. To assess links between religiosity and each of the four emotion regulation strategies, we regressed religiosity on each strategy, controlling for age and gender. As predicted and summarized in Table 7, more religious individuals reported using reappraisal and positive reframing more frequently in their daily lives ($\beta = .12, p < .001$; $\beta = .14, p < .001$, respectively), but did not use suppression or venting more frequently ($\beta = .032, p = .31$; $\beta = .009, p = .77$, respectively).

Discussion. The results of Studies 2A–2B further demonstrate that people who are more religious regulate their emotions more often by changing the meaning of negative events (i.e., cognitive

⁵ The original sample size was 104, but 5% were excluded because they were not Jewish and 7% were omitted due to unreliable responses as determined by the instructional manipulation check (Oppenheimer, Meyvis, & Davidenko, 2009).

⁶ This study was part of a larger survey that addressed unrelated research questions. The original sample size was 984, but 2% were excluded because they were not Jewish.

Table 2
Descriptive Statistics of Key Variables and Their Intercorrelations, Jewish Sample (Study 1)

Variable	<i>M (SD)</i>	1	2	3	4	5	6
1. Religiosity, multi-item	3.17 (.89) ^b 3.20 (1.46) ^c	—	—	—	—	—	—
2. Religiosity, single item	2.25 (.97)	.77**	—	—	—	—	—
3. Reappraisal frequency	5.16 (1.01)	.22**	.13*	—	—	—	—
4. Suppression frequency	4.01 (1.28)	.10	.11	.16**	—	—	—
5. Age	29.63 (5.79)	.08	.05	-.05	-.07	—	—
6. Gender ^a		-.09	.02	.12*	-.26**	-.08	—

^a male = 0; female = 1. ^b Descriptive statistics for belief items. ^c Descriptive statistics for behavior items.
^{*} $p < .05$. ^{**} $p < .01$.

reappraisal and positive reframing). As expected, this effect was specific to strategies that involved meaning-making and did not extend to strategies that involved increasing or decreasing emotional expression (i.e., suppression and venting).

Study 3

Studies 1–2 indicate that more (vs. less) religious individuals use reappraisal more frequently, based on self-report. Such differences in the frequency of using reappraisal are likely to occur to the extent that religious people are more effective in using reappraisal. In Study 3, therefore, we tested whether more (vs. less) religious individuals are indeed able to use reappraisal more effectively. We tested this possibility in a laboratory setting, in which participants were instructed to regulate their emotions in response to negative emotional stimuli. To assess the efficacy of using reappraisal, we assessed participants' feelings following exposure to the negative stimuli.

Religious people tend to be more compliant (Van Cappellen, Cornielle, Cols, & Saroglou, 2011). Therefore, it is important to demonstrate that people more (vs. less) religious are not merely better at following instructions. To this end, the reappraisal task in Study 3 included both trials in which participants were instructed to use reappraisal, as well as trials in which they could select whether to use reappraisal or not. We expected people more (vs. less) in religious to use reappraisal more effectively, whether they are instructed to use it or choose it themselves.

Method

Participants. Participants were Israeli undergraduate students, who participated in exchange for approximately \$8.50 or course credit ($N = 119$, 58% female, mean age = 24.43).⁷

Materials.

Negative pictures. We used 59 pictures from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 2008) and 13 additional pictures. In a pilot test, participants ($N = 11$) reported unpleasant feelings when watching each of the pictures ($M = 2.94$ on a scale ranging from 1 = *very bad* to 9 = *very good*, $SD = .41$). The pictures included graphic portrayals of a cockroach on food (IAPS #7380), young children bathing in a polluted river (IAPS #9520), and a firefighter carrying an injured woman out of a burning house (IAPS #9921).

Religiosity. We measured religiosity using a single-item self-report measure (i.e., "How religious are you?"), on a scale of 1 (*not at all*) to 5 (*very much*).

Procedure. The experimenter first trained the participant how to reappraise, suppress, or passively watch emotion-arousing stimuli. During the training session, the experimenter described how to use each strategy, and then the participant practiced using the strategy independently. Following Ochsner et al. (2004), participants were told that "watch" involves watching the picture and imagining they are part of the situation presented in it and that "reappraise" refers to thinking about the stimuli in a way that reduces the negative emotion it elicits. Following Gross (1998), participants were told that "suppress" refers to inhibiting overt emotional expression. The experimenter observed the participant to confirm that s/he understood and would be able to use the strategy appropriately. Next, the participant was exposed 10–12 times to each of six types of trials. On half the trials, the participant was instructed to select which of two strategies to use (i.e., reappraise vs. suppress; reappraise vs. watch; suppress vs. watch). On half the trials the participants was told which strategy to use by the computer (i.e., reappraise, suppress or watch).

On selection trials, two strategies appeared on the screen, the participant selected which one to use, and then the picture appeared. On instruction trials, a strategy appeared on the screen, which was followed by a picture. The picture was displayed for 6000 ms during which the participant was asked to employ the strategy he had selected (or was instructed) to use. The participant then rated how the picture made them feel (1 = *very bad*, 9 = *very good*), and then reported which strategy they used to regulate their emotions. Responses that did not match the participant's selected strategy on selection trials, or the instructed strategy on instruction trials, were excluded from the analyses. At the end of the experiment, participants filled out a demographic questionnaire, which included the religiosity measure.

Results

To examine whether religiosity was associated with reappraisal efficacy, we conducted a repeated measures analysis of variance, in which we predicted participants' emotional reactions to the pictures from strategy (reappraisal vs. watch or suppress) and trial type (instruction vs. self-selection) as within-subject factors and religiosity as a covariate. As expected, there was a main effect for strategy, such that reappraisal resulted in less negative feelings compared with watch or suppression, $F(1, 111) = 17.87, p < .001, \eta^2 = .14$. Furthermore,

⁷ Three participants were omitted from the analyses, due to missing or unreliable data.

Table 3

Summary of Regression Analyses Predicting the Frequency of Cognitive Reappraisal and Expressive Suppression From Religiosity, Age, and Gender (Study 1)

Variable	Jewish sample											
	Muslim sample			Christian sample			Multi-item religiosity measure			Single-item measure		
	β	t	p	β	t	p	β	t	p	β	t	p
Reappraisal												
Religiosity	.17	2.73	.007	.14	2.37	.018	.23	4.05	<.001	.13	2.15	.032
Age	.021	.34	.73	.15	2.55	.011	-.060	-1.04	.30	-.050	-.85	.40
Gender ^a	-.071	-1.16	.25	-.054	-.89	.37	.14	2.36	.019	.11	1.93	.055
Suppression												
Religiosity	.079	1.29	.20	-.14	-2.43	.016	.081	1.41	.160	.12	2.09	.038
Age	-.17	-2.70	.007	-.17	-2.85	.005	-.093	-1.62	.106	-.094	-1.65	.101
Gender ^a	.042	.69	.49	-.21	-3.57	<.001	-.26	-4.50	<.001	-.27	-4.70	<.001

^a male = 0; female = 1.

as we predicted, we found a significant Religiosity \times Strategy interaction, $F(1, 111) = 4.38, p = .039, \eta^2 = .038$, which was not qualified by trial type, $F < 2$. As shown in Figure 1, when looking at reappraisal trials, more religious participants tended to report more positive feelings when reappraising, $r(119) = .13, p = .18$. This was not the case when looking at watch trials, $r(119) = -.099, p = .28$, or suppression trials, $r(119) = -.018, p > .5$. No other effect was significant, $F_s < 1.6$.

We also examined whether individuals more (vs. less) religious were more likely to choose reappraisal over other regulation options. To do so, we computed the overall proportion of choosing reappraisal in all trials that included reappraisal as an option. Overall, participants chose to reappraise 54% of the time that reappraisal was an option, chose to watch 61% of the time that watch was an option, and chose to suppress 34% of the time that suppression was an option. Simple correlations revealed that more (vs. less) religious participants tended to choose reappraisal more frequently, though this effect did not reach significance, $r(119) = .15, p = .113$. More (vs. less) religious participants also tended to choose to watch less, $r(119) = -.16, p = .091$. Finally, choosing suppression did not differ as a function of religiosity, $r(119) = .048, p > .50$.⁸

Discussion

The findings of Study 3 demonstrate that more religious people use reappraisal more effectively, regardless of whether they choose

reappraisal or not. The present study failed to show that religious people are significantly more likely to choose reappraisal over other regulation options in a laboratory context. In Study 4, we tested the generalizability of this effect, when reappraisal was used in response to an intense emotional clip. Because our findings did not depend on whether participants were instructed to use reappraisal or selected to do so themselves, participants in Study 4 were instructed to use reappraisal.

Study 4

As in Study 3, in Study 4 we examined efficacy in reappraisal, by assessing it as it occurred in real time in the laboratory. Participants viewed an emotion-inducing film clip and were instructed to use reappraisal (or not). To rule out social demand, we also assessed participants' motivation to decrease their negative reactions to the films. We expected all of our participants to try to decrease their negative emotions, but we expected more (vs. less) religious participants who were instructed to reappraise (vs. not) to be more effective in doing so.

Method

Participants. Participants were Israeli undergraduate students⁹ ($N = 65$, 58% female, mean age = 24.3) who participated in exchange for course credit or the equivalent of \$9.50.

Materials.

Film clip. Following a pilot study, we selected a clip from the movie *Sophie's Choice* (length of clip: 2:05 minutes) to induce negative emotions (Styron, Pakula, & Pakula, 1982). The clip shows an exchange between a Nazi soldier and a mother of two who is commanded by the Nazi soldier to choose which of her two children she would like to save. This clip has been used effectively to induce negative emotions in prior research (e.g., Sanna, Meier, & Turley-Ames, 1998).

⁸ We examined whether the findings presented in Studies 3-4 were moderated by gender. They were not, and therefore the effects of gender are not discussed further.

⁹ Two participants who were not undergraduate students were omitted from the analysis.

Table 4

Descriptive Statistics of Key Variables and Their Intercorrelations (Study 2A)

Variable	$M (SD)$	1	2	3	4	5
1. Religiosity	3.07 (1.10) ^b 3.47 (1.64) ^c	—				
2. Positive reframing frequency	2.88 (.70)	.21*	—			
3. Venting frequency	2.27 (.74)	-.14	.13	—		
4. Age	28.70 (5.73)	.13	.03	.02	—	
5. Gender ^a		-.12	.20	.23*	-.17	—

^a male = 0; female = 1. ^b Descriptive statistics for belief items. ^c Descriptive statistics for behavior items.

* $p < .05$.

Table 5
Summary of Regression Analyses Predicting the Frequency of Emotion Regulation Strategies From Religiosity, Age, and Gender (Study 2A)

Variable	Multi-item measure			Single-item measure		
	β	t	p	β	t	p
Positive reframing						
Religiosity	.23	2.27	.026	.25	2.48	.015
Age	.036	0.35	.73	.020	0.19	.85
Gender ^a	.24	2.32	.023	.20	1.96	.054
Venting						
Religiosity	-.12	-1.13	.26	-.13	-1.26	.21
Age	.073	0.70	.49	.082	0.76	.44
Gender ^a	.23	2.16	.034	.25	2.36	.021

^a male = 0; female = 1.

Negative emotional experience. Participants rated the extent to which they experienced anger, confusion, contempt, embarrassment, fear, pain, sadness, tension, and disgust ($\alpha = .79$). Ratings were provided on a 9-point Likert scale, ranging from 0 (*not at all*) to 8 (*very much*).

Motivation to decrease negative emotions. Participants answered five questions regarding their motivation to decrease negative emotions during the film clip (e.g., "During the movie, I tried to decrease my negative emotions"; $\alpha = .71$). Ratings were provided on a 9-point Likert scale, ranging from 0 (*not at all*) to 8 (*to a great extent*).

Religiosity. We used the same measure of religiosity as in Study 3.

Procedure. Participants were randomly assigned to either a reappraisal or a control condition. Following Gross (1998), participants in the reappraisal condition were instructed to think about the emotion-inducing stimulus from an objective perspective so that it reduces the emotional impact. Participants in the control condition were asked to watch the film clip and respond naturally. All participants watched the negative film clip. After the clip, participants rated their emotional experiences and their motivation to decrease their negative emotions during the clip. Finally, participants provided demographic information and indicated their level of religiosity.

Results

To test whether religiosity was related to more effective reappraisal we ran a multiple regression analysis, predicting negative

emotional experience from condition (1 = reappraisal condition, 0 = control condition), centered religiosity, and their interaction. As expected, the Condition \times Religiosity interaction was significant ($\beta = 0.27$, $t = 2.10$, $p = .040$). Follow-up tests of simple effects confirmed that among participants who were instructed to reappraise, religiosity was related to less negative emotional experience, $r(31) = -.26$, $p = .163$, whereas among participants in the control condition religiosity was associated with more negative emotional experience, $r(34) = .27$, $p = .130$. No other effects were significant ($ts < 1.2$).

Finally, we sought to confirm that all participants, regardless of their level of religiosity, were equally motivated to regulate their emotions. To this end, we conducted a multiple regression analysis predicting the motivation to decrease negative emotions during the film from condition (reappraisal vs. control), centered religiosity and their interaction. We found a main effect for condition, such that those instructed to reappraise were more motivated to decrease negative emotions during the film than those in the control condition ($M_s = 4.36$ vs. 3.03 , respectively; $\beta = -0.41$, $t = -3.45$, $p < .001$). No other effect was significant ($ts < 1$).

Discussion

The results of Study 4 demonstrate that individuals who are more religious use reappraisal more effectively than those who are less religious. Specifically, individuals who were more (vs. less) religious and were instructed to reappraise when watching a negative film clip experienced less negative emotions. Our findings could not be attributed to differences in compliance (Van Cappellen et al., 2011), because although both participants higher and lower in religiosity were equally motivated to reappraise their negative emotions when instructed to do so, participants higher in religiosity were more successful at doing so.

General Discussion

Religious people often transform the meaning of events in the world to fit their religious framework. We propose that this ability may serve them well when applied to the emotion domain, where one effective strategy involves changing the meaning of emotional events. In this investigation, we show that religious people are better, rather than worse, in flexibly changing the meaning of events to control their emotional impact.

We found that religiosity was positively associated with the frequency (Studies 1–2) and efficacy (Studies 3–4) of cognitive reappraisal. The association between religiosity and the frequency

Table 6
Descriptive Statistics of Key Variables and Their Intercorrelations (Study 2B)

Variable	M (SD)	1	2	3	4	5	6	7
1. Religiosity	2.81 (2.01)	—						
2. Reappraisal frequency	5.68 (1.10)	.12**	—					
3. Suppression frequency	3.51 (1.30)	.04	.09**	—				
4. Positive reframing frequency	3.13 (.85)	.13**	.44**	-.08*	—			
5. Venting frequency	2.32 (.91)	.01	.22**	-.11**	.16**	—		
6. Age	38.78 (12.30)	-.17**	.01	-.05	.05	.00	—	
7. Gender ^a		-.01	.09**	-.29**	.03	.17**	.02	—

^a male = 0; female = 1.

* $p < .05$. ** $p < .01$.

Table 7
Summary of Regression Analyses Predicting the Frequency of Emotion Regulation Strategies From Religiosity, Age, and Gender (Study 2B)

Variable	Religiosity		
	β	t	p
Reappraisal			
Religiosity	.12	3.85	<.001
Age	.026	0.82	.41
Gender ^a	.089	2.80	.005
Suppression			
Religiosity	.032	1.01	.31
Age	-.038	-1.21	.23
Gender ^a	-.29	-9.50	<.001
Positive reframing			
Religiosity	.14	4.40	<.001
Age	.079	2.43	.015
Gender ^a	.026	0.81	.42
Venting			
Religiosity	.009	0.29	.77
Age	.002	0.052	.96
Gender ^a	.17	5.30	<.001

^a male = 0; female = 1.

of using cognitive reappraisal was replicated across three religious affiliations (i.e., Muslim, Christian, and Jewish; Study 1), and with distinct measures of reappraisal (i.e., cognitive reappraisal in Studies 1–2, and positive reframing in Study 2) and religiosity. Furthermore, in laboratory studies, we demonstrated that individuals more (vs. less) religious were more successful in using reappraisal to decrease emotional responses to negative stimuli (Studies 3–4).

Theoretical Implications

Religion is a powerful system that shapes people's beliefs and ways of seeing the world. Religion influences behavior and thoughts, but also emotional experiences. To date, attempts to explain how religion might influence emotional experiences have focused on how it might influence emotional reactions or religious coping (e.g., Kim-Prieto & Diener, 2009; Pargament, 1997). This investigation, however, demonstrated that religion is also associ-

ated with some forms of emotion regulation. Specifically, we demonstrated that more religious individuals are more effective at regulating their emotions using cognitive reappraisal.

Cognitive reappraisal has been associated with a range of benefits, including more positive affect (McRae et al., 2012), less negative affect (Denny & Ochsner, 2014; Gross, 1998; McRae et al., 2012; but see Sheppes & Meiran, 2007, 2008) and greater mental health and well-being (Denny & Ochsner, 2014; Troy, Wilhelm, Shallcross, & Mauss, 2010). If religiosity is associated with more frequent and effective cognitive reappraisal, this could lead to more adaptive outcomes, including more adaptive emotional experiences and greater well-being. Future research should examine whether the use of cognitive reappraisal might account for some of the associations between religiosity and well-being.

Given that cognitive reappraisal is an adaptive regulation strategy, it is likely to lead to adaptive outcomes. However, better cognitive reappraisal may not uniformly lead to adaptive emotional outcomes. Emotion regulation strategies operate in the service of emotion goals (e.g., Mauss & Tamir, 2014; Tamir, 2009). Effective reappraisal should be linked to adaptive outcomes to the extent that it is used in the service of adaptive emotion goals. For instance, if a religion promotes the experience of gratitude, better emotion regulation should increase gratitude, resulting in greater well-being (Emmons & McCullough, 2003). However, if a religion promotes the experience of hatred (Soloveichik, 2003), better emotion regulation should increase hatred, likely resulting in maladaptive social outcomes. Whether and how religiosity is related to emotion goals is an important task for future research.

Limitations and Future Directions

Although the findings supported our hypotheses, they do not allow us to conclude whether religiosity causally leads to more cognitive reappraisal. An alternative explanation may be that people who can flexibly change the meaning of events to regulate emotions are better equipped to handle theological challenges, such as theodicy, and become more religious. Another alternative explanation may be that people who search for meaning are more likely to become religious and also more likely to engage in cognitive reappraisal, independently of each other. Future research should test whether being religious increases the frequency and

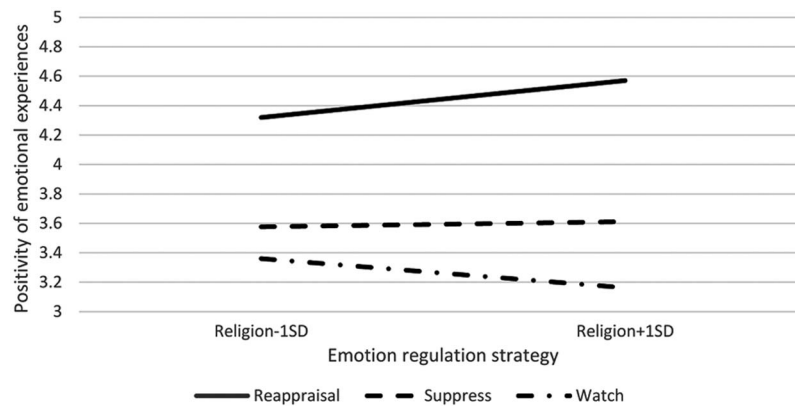


Figure 1. Emotional experiences (1 = very bad, 9 = very good) in response to negative pictures, when using reappraisal, compared to watching or suppressing, as a function of religiosity (Study 3).

efficacy of cognitive reappraisal. This could be done in longitudinal studies that look at religiosity and change in the effectiveness and frequency of engaging in cognitive reappraisal over time. Another possibility is to test whether priming the concept of God affects emotion regulation. Previous studies have shown that priming God affects self-regulation (Laurin, Kay, & Fitzsimons, 2012), so it may affect emotion regulation as well.

In this investigation, we focused almost exclusively on cognitive reappraisal. In the future, it would be beneficial to examine differences among more (vs. less) religious individuals in other emotion regulation strategies, such as distraction or rumination. First, it is important to examine other strategies that are relatively effective, like reappraisal, to see whether religiosity is associated with reappraisal, in particular, or with effective emotion regulation strategies, more generally. Second, it is important to examine whether there are differences in emotion regulation strategies across religions. Our findings involving suppression suggest that there might be such differences.

It should also be noted that across studies, we found relatively small effect sizes. This suggests that although religiosity is consistently and positively linked to reappraisal, these links are not strong. It is likely that many other factors determine the frequency and efficacy of reappraisal, such as personality traits (Gross & John, 2003) and age (Blanchard-Fields, Stein, & Watson, 2004). In the future, therefore, it is important to understand whether and how religiosity is linked to the use of reappraisal in daily life. For instance, future research could use experience sampling to look at the frequency of reappraisal use over time and its efficacy, as a function of religiosity.

Finally, the present studies were limited to studying monotheistic religions. In the future, it would be important to test whether findings from Studies 2–4 also replicate across these three religions, as well as testing whether any effects replicate in polytheistic religions. Meaning-making and theodicy feature prominently in monotheistic religions, but less prominently in polytheistic religions (Weber, 1922/1963). Therefore, it is theoretically plausible that our findings might apply to monotheistic religions, but less so to polytheistic ones. Similarly, in our investigation we focused on large-scale, rather than small-scale, religions. Small-scale religions differ from large-scale religions by being less concerned with morality (Norenzayan, 2015), which may also mean that they are less occupied with theodicy. Future research, therefore, should test our predictions in the context of other religions, especially polytheistic or small-scale ones.

The present work focused on down-regulating negative emotions, for which religion may be highly adaptive (Burris & Petrican, 2014). However, religion does not always encourage down-regulating negative emotions, and sometimes explicitly encourages up-regulating negative emotions, such as hatred (e.g., Soloveichik, 2003). Might religious people be better at using cognitive reappraisal to up-regulate negative emotions as well, such as hatred toward out-groups (Dawkins, 2006)?

Conclusions

If “God giveth and God taketh away” (Job 1:22), losses are rendered less negative. With this and similar examples, religious individuals may frequently practice reappraising emotion-inducing events. By demonstrating such effects, our investigation points to

another mechanism by which religion might influence the psychology and phenomenology of its adherents.

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