Article

Religiosity and Emotion Regulation

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Allon Vishkin[1], Pazit Ben-Nun Bloom[1], Shalom H. Schwartz[1], Nevin Solak[2], and Maya Tamir[1]

Abstract

People higher (vs. lower) in religiosity differ in the emotions they typically experience, but do they also differ in how they deal with their emotions? In this investigation, we systematically tested links between religiosity and elements of emotion regulation, including beliefs regarding the controllability of emotion, the motivation to feel better, and the tendency to use specific emotion regulation strategies (e.g., cognitive reappraisal, rumination, distraction). Participants were American Catholics, Israeli Jews, and Muslim Turks ($N = 616$) who were stratified sampled based on level of religiosity. All eight preregistered hypotheses were confirmed, even after controlling for demographic variables. We found that people higher (vs. lower) in religiosity were more likely to use emotion regulation strategies that are typically linked to adaptive emotional outcomes (e.g., cognitive reappraisal, acceptance) and less likely to use emotion regulation strategies that are typically linked to less adaptive outcomes (e.g., rumination). These findings suggest that people higher (vs. lower) in religiosity may deal with their emotions in more adaptive ways.

Keywords

religion, religiosity, emotion, emotion regulation

Religiosity has been associated with a range of mental health benefits, including lower anxiety and fewer depressive symptoms (Koenig, 2012), fewer eating disorders (Richards, Berrett, Hardman, & Eggett, 2006), greater life satisfaction (Hackney & Sanders, 2003), greater perceived meaning in life (Steger & Frazier, 2005), and a positive hedonic balance. The latter is evidenced by the positive associations between religiosity and optimism (Krause, 2005; Whittington & Scher, 2010), hope (Ai, Park, Huang, Rodgers, & Tice, 2007), and positive emotions (Van Cappellen, Toth-Gauthier, Saroglou, & Fredrickson, 2016; Vishkin, Bigman, Porat, Solak, Halperin, & Tamir, 2016). Religiosity, therefore, is linked to desirable outcomes, including emotional ones. Such associations may reflect differences in how more (vs. less) religious people react emotionally to events (e.g., Burris & Petrican, 2011; Kim-Prieto, & Diener, 2009; Van Cappellen et al., 2016), but they may also reflect differences in how they deal with their emotions.

We suggest that religiosity is linked to unique patterns of emotion regulation, that is, to the processes involved in monitoring, evaluating, and modifying emotional reactions (R. A.

[1]The Hebrew University of Jerusalem, Israel
[2]TED University, Ankara, Turkey

Corresponding Author:
Allon Vishkin, Department of Psychology, The Hebrew University of Jerusalem, Mount Scopus, 91905 Jerusalem, Israel.
Email: allon.vishkin@mail.huji.ac.il

Thompson, 1994). To the extent that religiosity is associated with adaptive regulation of emotion, such links may ultimately contribute to more desirable emotional outcomes. Consistent with this idea, religiosity has been linked to more frequent and more successful use of cognitive reappraisal, which is considered an adaptive emotion regulation strategy (Vishkin et al., 2016). More frequent cognitive reappraisal, in turn, has been found to mediate the association between religiosity and life satisfaction (Vishkin, Ben-Nun Bloom, & Tamir, 2018). Cognitive reappraisal, however, is but one emotion regulation strategy typically linked to desirable outcomes. In this investigation, we test whether religiosity is systematically related to the main components of emotion regulation.

Emotion regulation is a process that involves multiple elements. First, emotion regulation is directed by motives to approach or avoid particular emotional states (Tamir, 2016). Second, similar to other forms of self-regulation (e.g., Cervone & Peake, 1986), people must cultivate certain beliefs regarding the ability to regulate emotions to initiate emotion regulation. Third, people must employ various strategies to attain desired end-states in emotion regulation. Emotion regulation strategies differ in their relative efficacy (Webb, Miles, & Sheeran, 2012) and in their implications for psychopathology and well-being (Aldao, Nolen-Hoeksema, & Schweizer, 2010). To the extent that people higher (vs. lower) in religiosity are characterized by more adaptive patterns pertaining to each of these elements (i.e., they are more motivated to increase hedonic balance, they are more likely to believe that emotions can be controlled, and they are more likely to use emotion regulation strategies that are typically linked to adaptive outcomes), such patterns may contribute to adaptive emotional outcomes. We refer to elements of emotion regulation as "adaptive" or "maladaptive" to indicate that across contexts, these elements are associated with outcomes that are generally considered desirable, such as more positive emotions, less negative emotions, and higher well-being. We recognize that strategies that are considered "adaptive" may be maladaptive in certain contexts, whereas strategies considered "maladaptive" may be adaptive in certain contexts (Sheppes et al., 2014). Below, we present a series of hypotheses regarding religiosity and its potential associations with various elements of emotion regulation.

Religiosity has been linked to greater engagement in self-regulation (McCullough & Willoughby, 2009), but emotion regulation is a unique form of self-regulation, which involves the pursuit of desired emotional states (i.e., emotion goals). The pursuit of emotion goals may or may not be consistent with the pursuit of other goals (Koole, 2009; Tice, Bratslavsky, & Baumeister, 2001). The fact that religiosity is linked to more effective self-regulation, therefore, does not necessarily imply that it is similarly linked to more effective emotion regulation. Indeed, people who are better in self-regulation may be more likely to engage in maladaptive emotion regulation strategies, such as expressive suppression (Gross & John, 2003), or work effectively to achieve maladaptive emotion goals, such as increasing anger (Tamir, Mitchell, & Gross, 2008) or decreasing compassion (Cameron & Payne, 2011). Therefore, it is important to assess whether and how religiosity is linked to patterns of emotion regulation.

Religiosity and Prohedonic Motives

Prohedonic motives involve the desire to decrease negative affect or increase positive affect (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). Most people are motivated to increase positive emotions and decrease negative emotions, but people differ in the strength and frequency of such motives (see Tamir, 2016). People with stronger prohedonic motives are more optimistic, experience more positive affect and less negative affect, and report fewer depressive symptoms (Salovey et al., 1995; B. L. Thompson, Waltz, Croyle, & Pepper, 2007). Prohedonic motives play a causal role in directing emotion regulation (Tamir, Halperin, Porat, Bigman, & Hasson, 2019).

Religiosity has been negatively associated with hedonistic values (Saroglou, Delpierre, & Dernelle, 2004) and not significantly associated with hedonistic goals (Roberts & Robins, 2000). However, hedonistic values and goals refer to the behavioral pursuit of pleasure, such as via

enjoyment of food and sex (Schwartz, 1992) or "having new and different experiences" (Roberts & Robins, 2000). The desire to experience emotions that are positive rather than negative may be differentially associated with religion because of its distinct social and behavioral implications. Indeed, some religious traditions explicitly emphasize prohedonic motives by encouraging joy and ecstasy (Buber, 1991; Holm, 1982). Prohedonic motives may therefore lead individuals higher (vs. lower) in religiosity to initiate and direct efforts in emotion regulation in a prohedonic direction, ultimately shifting their affect accordingly. People who are more (vs. less) religious do, indeed, tend to experience a more positive hedonic balance (e.g., Van Cappellen et al., 2016). Therefore, we hypothesized that religiosity is related to stronger prohedonic motives.

Religiosity and Beliefs About Controllability of Emotions

People hold beliefs about the controllability of emotions. People who endorse an incremental theory of emotion believe that emotions are controllable, whereas people who endorse an entity theory of emotion believe that emotions are not controllable (Tamir, John, Srivastava, & Gross, 2007). Beliefs about controllability can refer both to how much people think emotions are controllable, in general, and to how much people think their own emotions are controllable (i.e., self-efficacy of emotion regulation, De Castella, Platow, Tamir, & Gross, 2018). Just as beliefs about the controllability of intelligence promote success in academic tasks (Hong, Chiu, Dweck, Lin, & Wan, 1999), beliefs about the controllability of emotions should promote success in emotion regulation (Bigman, Mauss, Gross, & Tamir, 2016). Indeed, the belief that emotions are controllable is associated with less psychological distress and greater well-being (De et al., 2013; De Castella et al., 2018). Given that religiosity is associated with desirable emotional outcomes, religiosity may also be associated with the belief that emotions are more controllable. Such a belief may propel efforts in emotion regulation, increasing chances of success.

In addition, religious sources are replete with prescriptions about what to feel and proscriptions regarding what not to feel. These instructions direct adherents to feel love (Leviticus 19:17) and gratitude (Quran 2:152) and not to feel hate (Leviticus 19:18). By directing adherents what to feel, religion may promote an assumption that emotions can be changed and thereby foster beliefs about the controllability of emotions (Vishkin, Bigman, & Tamir, 2014). Therefore, we hypothesized that religiosity is associated with a general belief that emotions are controllable, as well as with greater self-efficacy in changing one's emotions.

Religiosity and Emotion Regulation Strategies

Emotion regulation strategies refer to the means with which people regulate their emotions (Tamir & Millgram, 2017). Building on a recent meta-analysis (Naragon-Gainey, McMahon, & Chacko, 2017), we identified eight emotion regulation strategies (cognitive reappraisal, acceptance, nonjudgmental mindfulness, rumination, expressive suppression, distraction, experiential avoidance, and behavioral avoidance) and social support and assessed their potential links with religiosity.[1] We expected religiosity to be positively associated with social support, cognitive reappraisal, and acceptance, and negatively associated with the nonjudgmental aspect of mindfulness and with rumination. We did not have directional predictions regarding associations with expressive suppression, distraction, experiential avoidance, and behavioral avoidance. All of these predictions were preregistered. Next, we present the a priori theoretical considerations on which they were based.

Social Support

Social support refers to the extent to which people turn to others to help regulate their own emotions (Carver, Scheier, & Weintraub, 1989). By creating communities (Graham & Haidt, 2010), religion provides a network of social connections (Diener, Tay, & Myers, 2011), which are the

means for engaging in social support. In addition, social support is associated with adaptive emotional outcomes (Lakey & Orehek, 2011). Therefore, we expected religiosity to be associated with greater social support as a form of emotion regulation.

Cognitive Reappraisal

As an emotion regulation strategy, cognitive reappraisal refers to changing the perceived meaning of an emotional event (Gross & John, 2003). Meaning-making is one of the primary concerns of religion (Baumeister, 1991; Davies, 2011; Pargament, 1997; Watts, 2007). Hence, religiosity may be associated with more frequent use of cognitive reappraisal. There is evidence that religiosity is positively associated with the frequency of cognitive reappraisal (Vishkin et al., 2016). We predicted that the current study would replicate this finding.

Acceptance

As an emotion regulation strategy, acceptance refers to recognizing the reality of a negative situation to accommodate it (Carver et al., 1989). By doing so, acceptance allows one to establish secondary control (Rothbaum, Weisz, & Snyder, 1982). Secondary control has been identified as a central feature of religious life: "The life of religion . . . consists of the belief that there is an unseen order, and that our supreme good lies in harmoniously adjusting ourselves thereto" (James, 1902, p. 53). Therefore, we predicted that religiosity is associated with more frequent use of acceptance.

Non-judgmentalism

Whereas acceptance refers to recognition and acknowledgment of the situational event, mindfulness refers to recognition and acknowledgment of the subjective experience of feeling emotion. The two constructs are similar and have sometimes been used interchangeably (see Naragon-Gainey et al., 2017). Nonetheless, the distinction between acknowledging an objective state of affairs (i.e., acceptance) and acknowledging one's emotions (i.e., non-judgmentalism) is meaningful in the context of religiosity. Non-judgmentalism entails taking a nonevaluative stance toward one's inner experience (Bohlmeijer, Klooster, Fledderus, Veehof, & Baer, 2011). But religion may encourage adherents to judge their emotions actively by prescribing what to feel (e.g., "love thy neighbor"; Leviticus 19:18) and proscribing what not to feel (e.g., "thou shall not covet"; Exodus 20:13). Therefore, we predicted that religiosity is negatively associated with non-judgmentalism.

Rumination

As an emotion regulation strategy, rumination refers to repetitive thoughts about the experience, causes, and consequences of emotional distress (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Reappraisal and rumination are similar in that both are emotion regulation strategies that involve cognitive elaboration. However, whereas cognitive reappraisal involves reinterpreting the emotional event, rumination keeps people in a loop of repetitive thought about the negative aspects of an emotional event. Correspondingly, people can choose to ruminate for the purpose of maintaining negative emotions (Millgram, Sheppes, Kalokerinos, Kuppens, & Tamir, 2019). If, as we argued above, people who are more (vs. less) religious are more motivated to experience a more positive hedonic balance, they may be less likely to use an emotion regulation strategy that leads to a more negative hedonic balance, such as rumination. Furthermore, the neural mechanisms associated with the propensity to ruminate are also activated when engaging in cognitive reappraisal, suggesting that rumination may reflect an altered recruitment of these mechanisms

(Ray et al., 2005). Therefore, to the extent that religiosity is associated with more frequent use of cognitive reappraisal, it may also be associated with less frequent use of rumination. Therefore, we predicted that religiosity is negatively related to rumination.

Expressive Suppression

As an emotion regulation strategy, expressive suppression refers to attempts to avoid expressing what one feels (Gross & John, 2003). We were agnostic about the association between religiosity and expressive suppression. On one hand, some have suggested that a religious life facilitates strong emotions (Watts, 1996). Indeed, at least some religious rituals seem to deliberately increase emotional arousal and expression. From this perspective, religiosity should be negatively associated with an attempt to conceal one's emotions. On the other hand, religiosity is also associated with abstinent or ascetic practices which limit the variety of one's inner experiences, such as sexual abstinence or dietary restrictions (El-Azayem & Hedayat-Diba, 1994). From this perspective, concealing one's emotions may be viewed favorably. Reflecting this ambivalence, we previously found that expressive suppression was related negatively to religiosity among adherents of one religion, positively among adherents of another religion, and not at all among adherents of a third religion (Vishkin et al., 2016). Therefore, we had no specific a priori prediction regarding the association between religiosity and expressive suppression.

Distraction, Experiential Avoidance, and Behavioral Avoidance

These three strategies all involve actively disengaging from one's emotions (Parkinson & Totterdell, 1999). Distraction refers to directing one's attention away from emotion-eliciting stimuli (Gross, 1998). Experiential avoidance refers to avoiding negative internal experiences. Behavioral avoidance refers to avoiding situations that arouse distress (Gamez, Chmielewski, Kotov, Ruggero, & Watson, 2011). We were agnostic about the associations between religiosity and these strategies. On one hand, these strategies encourage people to avoid negative emotions. Therefore, to the extent that religiosity is linked to stronger prohedonic motivations, religiosity might be positively linked to these strategies. Furthermore, religious pursuits, such as prayer and religious studies, provide means for distracting oneself from negative emotional stimuli (Vishkin et al., 2014). On the other hand, these strategies are often linked to negative outcomes (Gamez et al., 2011; Litman & Lunsford, 2009), and so religiosity may be negatively linked to these strategies. Taken together, we had no conclusive a priori predictions regarding the association between these strategies and religiosity.

Challenges in Assessing Religiosity

The current literature views religiosity as a multidimensional construct, though the precise dimensions are a matter of dispute. One classification distinguishes between the dimensions of belief, behavior, and belonging, where belief refers to the content of a faith, behavior refers to the practices of a faith, and belonging refers to the affiliation with a particular religious community (Smidt, Kellstedt, & Guth, 2009). A similar distinction between belief and practice has been drawn by Worthington et al. (2003) who distinguished between intrapersonal and interpersonal religiosity, where the former is more cognitive and the latter is more behavioral. When we refer to religiosity, we thus refer to a multidimensional construct composed of intrapersonal religiosity, interpersonal religiosity, and religious affiliation. An alternative classification distinguishes between intrinsic religiosity and extrinsic religiosity (Allport & Ross, 1967). This distinction has not emerged consistently across religions (Cohen & Hill, 2007; Cohen et al., 2017) and therefore was less relevant for the current study. We had no expectations that the associations between

religiosity and elements of emotion regulation will vary by the dimensions of intrapersonal and interpersonal religiosity.

Religiosity reflects the degree of adherence to religious beliefs and practices, yet these beliefs and practices can vary dramatically across religions. An association between religion and an element of emotion regulation may hold in one religion, but not in another religion. Therefore, when testing associations with religiosity, it is necessary to evaluate whether such associations hold across religious affiliations. In the present investigation, we studied adherents of Christianity, Judaism, and Islam for several reasons. First, as the first assessment of potential associations between religiosity and emotion regulation practices, we wanted to begin by focusing on common religions; and more than half of the world population adheres to these faiths (Pew Research Center, Religion & Public Life, 2012). Second, our hypotheses were derived, in part, from existing research on religiosity and emotional experiences, most of which examined adherents to Abrahamic faiths.

Religion is a culture that is often nested within a national context (Cohen, Wu, & Miller, 2016). An association between religion and an element of emotion regulation may hold in one national context, but not in another national context, even if the religion is identical. Therefore, when testing associations with religiosity, it is necessary to evaluate whether such associations hold across national contexts. We had no expectations that any of our a priori predictions would systematically vary by religious affiliation or by national culture.[2] We therefore test generalizability across three religions in three countries.

Summary of Predictions

We predicted that religiosity is associated positively with a motivation to attain more positive affect and less negative affect. In addition, we predicted that religiosity is associated positively with a general belief that emotions are controllable and with a personal belief in greater self-efficacy in changing one's emotions. Furthermore, we predicted that religiosity is associated positively with social support, cognitive reappraisal, and acceptance and that religiosity is associated negatively with the nonjudgmental aspect of mindfulness and rumination. We had no a priori predictions regarding the associations between religiosity and expressive suppression, distraction, experiential avoidance, and behavioral avoidance. We expected the findings to generalize across three Abrahamic religions (Catholicism, Judaism, and Islam) and three countries (United States, Israel, or Turkey) and not to vary by dimension of religiosity (intrapersonal or interpersonal).

Main Study

We selected participants from three different countries representing three different monotheistic religions. In the United States, we chose to sample Catholics because of their unified theology. Many Catholics in the United States belong to the Hispanic minority. To avoid the possibility that differences were due to ethnicity, we prescreened to limit the sample to exclude Hispanic participants. Finally, to further control for alternative accounts, we controlled for socioeconomic status in addition to controlling for age and gender.[3] Different variables from the same data set have been reported in a separate paper, focusing on desired emotions (Vishkin, Schwartz, Ben-Nun Bloom, Solak, & Tamir, 2019).

Method

Participants. In each sample, we pre-screened for affiliation with the target religion. In the Turkish and American samples, participants were prescreened based on their family's religious

background. In addition, to rule out the possibility that the findings reflect associations with a limited range of religiosity, participants were selected to represent a broad spectrum of religiosity. In the Turkish and American samples, they were prescreened based on a 5-point scale of religiosity ("How important is religion in your life?"), from 1 (*I am not religious*) to 5 (*Center of my entire life*). In line with the preregistration, we obtained 20% of responses from each of the five scale points.[4] In the Israeli sample, participants were prescreened based on a 4-point proxy of Jewish religious affiliation (Halperin, Bar-Tal, Nets-Zehngut, & Drori, 2008): *Secular* (30%), *Traditional* (30%), *Orthodox* (20%), and *Ultra-orthodox* (20%).

We preregistered a target sample size of 200 participants per sample, with the caveat that we would oversample by 10% and exercise quality control based on short completion times and failing two instructional attention checks (IMCs; Oppenheimer, Meyvis, & Davidenko, 2009). The panel that ran the Turkish sample automatically removed participants who completed the survey in less than 7 min and 38 s,[5] so we set this as the benchmark for all the samples. The final samples were as follows: United States, $N = 210$ (58.6% female, $M_{age} = 40.64$, $SD_{age} = 11.99$); Israel, $N = 203$ (52.7% female, $M_{age} = 41.62$, $SD_{age} = 12.66$); and Turkey, $N = 203$ participants (36.5% female, $M_{age} = 34.45$, $SD_{age} = 10.56$).

Materials

For the Israeli and Turkish samples, we relied on existing translations where possible. Measures without existing translations were translated and back-translated.

Religiosity. Following the recommendation of a literature review on measuring religiosity (Hill & Edwards, 2013), we assessed religiosity via the 10-item Religious Commitment Inventory (RCI) (e.g., "My religious beliefs lie behind my whole approach to life"; $\alpha = .97$; Worthington et al., 2003). We calculated a score for each participant by averaging across all items. The average religiosity differed significantly between the American sample ($M = 2.11$, $SD = 1.20$), the Israeli sample ($M = 2.47$, $SD = 1.30$), and the Turkish sample ($M = 2.43$, $SD = 1.22$), $F(2, 613) = 5.04$, $p = .007$. Because the factor structure of the scale has not yet been assessed in samples from Israel and Turkey, we conducted an exploratory factor analysis. We retained factors with eigenvalues greater than 1 and confirmed that the number of obtained factors is correct by comparing these results with results from a scree plot and results from a parallel analysis.[6] A factor analysis on the entire sample revealed a single dimension that explained 76.8% of the variance in a whole sample, contrary to the two-dimensional structure that Worthington et al. (2003) obtained (for item-level statistics, see Table A1 in the Supplementary Materials). The structure was consistent across samples. The intrapersonal and interpersonal subscales were highly correlated in each sample (United States: $r = .85$; Israel: $r = .91$; Turkey: $r = .88$).

Prohedonic motives. Prohedonic motives, which pertain to tendencies to maintain pleasant moods or repair unpleasant ones, were assessed using the 6-item mood repair subscale (e.g., "No matter how badly I feel, I try to think about pleasant things"; $\alpha = .74$) of the Trait Meta-Mood Scale (TMMS; Salovey et al., 1995). We also examined the two additional subscales of the TMMS to control for them. The 13-item attention subscale pertains to the level of attention one pays to one's feelings ($\alpha = .78$). The 11-item clarity subscale pertains to the extent that one can make sense of one's feelings ($\alpha = .82$).

Beliefs about controllability of emotions. General beliefs about controllability of emotions were assessed using the 4-item measure (e.g., "Everyone can learn to control their emotions"; $\alpha = .74$) from Tamir et al. (2007).

Self-efficacy in emotion regulation. Beliefs about how much one's own emotions are controllable were assessed using the 4-item measure of personal beliefs about the controllability of emotions (e.g., "If I want to, I can change the emotions I have"; $\alpha = .78$) from De Castella et al. (2013).

Social support. Social support was assessed using the two 4-item subscales for instrumental social support (e.g., "I try to get advice from someone about what to do"; $\alpha = .85$) and emotional social support (e.g., "I discuss my feelings with someone"; $\alpha = .88$) of the coping orientation to problems experienced (COPE; Carver et al., 1989). We examined each of these subscales separately.

Reappraisal. The frequency of engaging in cognitive reappraisal was assessed using the 6-item cognitive reappraisal subscale (e.g., "When I want to feel less negative emotion, I change the way I'm thinking about the situation"; $\alpha = .84$) of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), as well as using the 4-item positive reinterpretation and growth subscale (e.g., "I look for something good in what is happening"; $\alpha = .79$) of the COPE (Carver et al., 1989). We examined each of these scales separately.

Acceptance. Acceptance was assessed using the 4-item acceptance subscale (e.g., "I accept that this has happened and that it can't be changed"; $\alpha = .79$) of the COPE (Carver et al., 1989).

Non-judgmentalism. Non-judgmentalism was assessed using the 5-item nonjudgmental subscale (e.g., "I tell myself that I shouldn't be feeling the way I'm feeling," reverse-scored; $\alpha = .80$) of the short form of the Five-Factor Mindfulness Questionnaire (FFMQ; Bohlmeijer et al., 2011). We also examined two additional subscales of the FFMQ to control for them. The 5-item describing subscale pertains to the labeling of internal experiences with words ($\alpha = .83$). The 5-item non-reactance subscale pertains to allowing feelings to come and go ($\alpha = .77$).

Rumination. The frequency of engaging in rumination was assessed using the 6-item short form of the rumination subscale (e.g., "Sometimes it is hard for me to shut off thoughts about myself"; $\alpha = .83$) of the Rumination-Reflection Questionnaire (Trapnell & Campbell, 1999).[7]

Expressive suppression. The frequency of engaging suppression was assessed using the 4-item expressive suppression subscale (e.g., "When I am feeling negative emotions, I make sure not to express them"; $\alpha = .75$) of the ERQ (Gross & John, 2003).

Distraction. The frequency of engaging in distraction was assessed using the 6-item distraction subscale (e.g., "I occupy myself with work instead"; $\alpha = .81$) of the Thought Control Questionnaire (TCQ; Wells & Davies, 1994), as well as using the 4-item mental disengagement subscale (e.g., "I turn to work or other substitute activities to take my mind off things."; $\alpha = .53$) of the COPE (Carver et al., 1989). We examined each of these subscales separately.

Experiential avoidance. Experiential avoidance was assessed via the 7-item Acceptance and Action Questionnaire-II (AAQ-II; e.g., "I'm afraid of my feelings"; $\alpha = .93$; Bond et al., 2011).

Behavioral avoidance. Behavioral avoidance was assessed via the 8-item behavioral social subscale of the Cognitive-Behavioral Avoidance Scale (CBAS; e.g., "I avoid attending social activities"; $\alpha = .93$; Ottenbreit & Dobson, 2004).

Procedure. The surveys were completed online. The Turkish sample was recruited through the Qualtrics Panels service (https://www.qualtrics.com/online-sample). The American sample was

recruited through Amazon's Mechanical Turk via TurkPrime (http://www.mturk.com). The Israeli sample was recruited through an Israeli online survey company (http://www.panel4all.co.il).

After giving consent, participants completed the survey in one of two orders. Half the participants completed the survey in the following order: self-efficacy, COPE subscales, rumination, implicit theories, TMMS, mindfulness, CBAS, AAQ-II, ERQ, TCQ distraction subscale, and desired and actual emotions (reported elsewhere). The other half of the participants completed the survey in the opposite order. In both conditions, participants then completed additional measures, including the RCI and demographics.

Analyses

To test whether the measures tap equivalent constructs across samples, we tested their cross-cultural equivalence (e.g., Fischer & Fontaine, 2011; van de Vijver & Leung, 2011), by running multigroup confirmatory factor analyses (MGCFA) on each measure with robust maximum likelihood estimation, using the Lavaan package in *R* (Rosseel, 2012). First, we examined configural invariance by testing whether all the items in a measure loaded on the same factor across samples. We took into account the possibility that some items are more correlated with others within a given measure and therefore added covariances to error terms based on modification indices. We used standard cutoffs for multiple fit indices to evaluate model fit, such that reasonable model fit is indicated by comparative fit index (CFI) values $>.95$, root-mean-square error of approximation (RMSEA) values $\leq.06$, and the standard root-mean-square residual (SRMR) values $\leq.08$ (Hu & Bentler, 1999). Next, we examined metric invariance by testing whether the loading of the items on the latent factor were equal across samples. Reduction in fit from configural to metric invariance was evaluated based on criteria proposed by Chen (2007), including ΔCFI $< .01$, ΔRMSEA $< .015$, and ΔSRMR $< .03$. In instances where full metric invariance was not established, we examined partial metric invariance. This requires that at least two loadings are equivalent across groups (Byrne, Shavelson, & Muthen, 1989). Partial metric invariance is sufficient to justify comparing associations between religiosity and elements of emotion regulation across samples.[8]

Overall, all 16 measures displayed acceptable levels of fit for establishing configural invariance with the exception of beliefs about controllability of emotion (see Table 1). Self-efficacy beliefs did not demonstrate metric or partial metric invariance. In addition, the reduction in fit for the RMSEA index for expressive suppression from configural to partial metric invariance was higher than the acceptable criteria (ΔRMSEA $= .034$), but the changes in fit for CFI and SRMR were acceptable. Metric or partial metric invariance was established for all other measures. The results of the measurement invariance testing justify comparing associations with religiosity across samples, with the exception of beliefs about controllability of emotions and self-efficacy beliefs. These associations should be interpreted with caution.

We ran separate multiple regression analyses to examine the predictors of each element of emotion regulation. We expected that the hypothesized associations between religiosity and elements of emotion regulation would hold across samples. Therefore, we used effect coding to code the three samples, because effect coding provides coefficients of the average effects across groups (Cohen & Cohen, 1983).[9] The variables coded the American, Israeli, and Turkish samples, respectively, as (−1, 1, 0) and (−1, 0, 1). We predicted each element of emotion regulation by sample and religiosity. In addition, because the samples differed in their distribution of age, $F(2, 613) = 22.23$, $p < .001$, gender, $F(2, 613) = 11.12$, $p < .001$, and socioeconomic status, $F(2, 613) = 20.00$, $p < .001$, we included these as covariates. Finally, we added the interactions of all the predictors with the two effect-coded variables of samples. All noncategorical predictors were standardized within samples. For each element of emotion regulation, we examined (a) whether it is associated with religiosity in zero-order correlations, (b) whether this association

Table 1. Measurement Invariance of Religiosity and Elements of Emotion Regulation Across Samples.

	Configural invariance					Metric invariance			Partial metric invariance		
	$\chi^2(df)$	*p*	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR
Religiosity	371.59 (93)	<.001	.966	.081	.030	.958	.084	.064	.987	.048	.054
Reduction in fit	—	—	—	—	—	*.008*	*.003*	*.034*	*−.021*	*−.033*	*.024*
Prohedonic motives	16.85 (18)	.534	1.000	.000	.023	.967	.058	.072	1.000	.000	.039
Reduction in fit	—	—	—	—	—	*.033*	*.058*	*.049*	*.000*	*.000*	*.016*
Beliefs about controllability of emotion	65.08 (6)	<.001	.926	.152	.050	.903	.123	.059	.910	.130	.056
Reduction in fit	—	—	—	—	—	*.023*	*−.029*	*.009*	*.016*	*−.022*	*.006*
Self-efficacy	10.83 (3)	.013	.991	.094	.012	.922	.160	.097	.955	.138	.080
Reduction in fit	—	—	—	—	—	*.069*	*.066*	*.085*	*.036*	*.044*	*.068*
Instrumental social support	13.27 (6)	.039	.996	.049	.016	.998	.020	.026	—	—	—
Reduction in fit	—	—	—	—	—	*−.002*	*−.029*	*.010*	—	—	—
Emotional social support	9.68 (6)	.139	.999	.026	.009	.990	.056	.047	.996	.038	.027
Reduction in fit	—	—	—	—	—	*.009*	*.030*	*.038*	*.003*	*.012*	*.018*
Cognitive reappraisal	44.84 (15)	.000	.984	.068	.026	.963	.080	.085	.98	.060	.046
Reduction in fit	—	—	—	—	—	*.021*	*.012*	*.059*	*.001*	*−.008*	*.020*
Positive reinterpretation and growth	2.51 (3)	.473	1.000	.000	.006	.998	.022	.031	1.000	.000	.015
Reduction in fit	—	—	—	—	—	*.002*	*.022*	*.025*	*.000*	*.000*	*.009*
Acceptance	9.32 (3)	.025	.991	.080	.015	.985	.060	.048	.987	.063	.042
Reduction in fit	—	—	—	—	—	*.006*	*−.020*	*.033*	*.004*	*−.017*	*.027*
Non-judgmentalism	17.81 (9)	.037	.988	.059	.020	.983	.052	.042	—	—	—
Reduction in fit	—	—	—	—	—	*.005*	*−.007*	*.022*	—	—	—
Rumination	20.97 (9)	.013	.994	.060	.023	.965	.096	.075	.984	.074	.045
Reduction in fit	—	—	—	—	—	*.029*	*.036*	*.052*	*.010*	*.014*	*.022*
Expressive suppression	1.48 (3)	.686	1.000	.000	.008	.983	.059	.050	.996	.034	.034
Reduction in fit	—	—	—	—	—	*.017*	*.059*	*.042*	*.004*	*.034*	*.026*
Distraction	20.21 (15)	.164	.999	.013	.019	.987	.048	.054	.999	.011	.033
Reduction in fit	—	—	—	—	—	*.012*	*.035*	*.035*	*.000*	*−.002*	*.014*
Mental disengagement	11.32 (6)	.079	.971	.055	.028	.909	.069	.050	.961	.049	.040
Reduction in fit	—	—	—	—	—	*.062*	*.014*	*.022*	*.010*	*−.006*	*.012*
Experiential avoidance	74.15 (36)	<.001	.993	.043	.019	.987	.049	.051	.990	.046	.046
Reduction in fit	—	—	—	—	—	*.006*	*.006*	*.032*	*.003*	*.003*	*.027*
Behavioral avoidance	128.36 (57)	<.001	.985	.053	.023	.968	.069	.093	.981	.054	.043
Reduction in fit	—	—	—	—	—	*.017*	*.016*	*.070*	*.004*	*.001*	*.020*

Note. CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standard root-mean-square residual.

held in a multivariate regression, (c) whether this association held after adding controls (when this was relevant), (d) whether this association varied by sample, and (e) whether this association varied by dimension of religiosity. For analyses (a) to (d), we use the full 10-item measure of religiosity. For analysis (e), we divide religiosity into its two subscales: interpersonal religiosity and intrapersonal religiosity.

Results

Table 2 presents the means and standard deviations of the main variables and the zero-order correlations among these variables across all participants in the entire sample. Tables 3-5 present the results of the regressions on the various elements of emotion regulation. Age, gender, socioeconomic status, and sample predicted various elements of emotion regulation in some, but not all, regressions. Variation by sample appears in Tables 3-5, Rows 7 and 8. To assess variation by dimension of religiosity, we reran each set of regressions in Tables 3-5 twice, replacing the RCI once with interpersonal subscale (Table A3 in the Supplementary Materials) of the RCI and once with the intrapersonal subscale of the RCI (Table A4 in the Supplementary Materials).

Prohedonic motives. Religiosity was positively associated with prohedonic motives, both in the zero-order correlations (Table 2) and after controlling for demographic variables and effect coding samples (Table 3, Row 1). To establish specificity, we reran the regression on prohedonic motives while controlling for the TMMS subscales of clarity and attention. Religiosity remained a significant predictor of prohedonic motives, $\beta = .074$, $SE = .034$, $t = 2.17$, $p = .031$. This association did not vary by sample or by dimension of religiosity.

Beliefs about controllability. Religiosity was positively associated with belief in the controllability of emotion, both in the zero-order correlations (Table 2) and after controlling for demographic variables and effect coding samples (Table 3). Beliefs about controllability were most strongly associated with religiosity in the Israeli sample ($\beta = .29$, $SE = .07$, $t = 4.16$, $p < .001$), whereas the association was not significant in the American sample ($\beta = .09$, $SE = .07$, $t = 1.24$, $p = .22$) or the Turkish sample ($\beta = -.13$, $SE = .07$, $t = -1.81$, $p = .072$). Nevertheless, the association across samples was consistent with our hypothesis. However, given that metric invariance did not hold for beliefs about controllability, these results should be interpreted with caution. In addition, beliefs about controllability were associated with interpersonal religiosity ($\beta = .12$, $SE = .04$, $t = 2.93$, $p = .003$) but not with intrapersonal religiosity ($\beta = .07$, $SE = .05$, $t = 1.74$, $p = .083$).

Religiosity was positively associated with self-efficacy beliefs in emotion regulation, both in the zero-order correlations (Table 2) and after controlling for demographic variables and effect coding samples (Table 3). Self-efficacy in emotion regulation was most strongly associated with religiosity in the Israeli sample ($\beta = .28$, $SE = .07$, $t = 4.00$, $p < .001$) but was also associated with religiosity the American sample ($\beta = .14$, $SE = .07$, $t = 2.07$, $p = .040$), whereas the association was not significant in the Turkish sample ($\beta = -.07$, $SE = .07$, $t = -1.01$, $p = .31$). Nevertheless, the association across samples was consistent with our hypothesis. However, given that metric invariance did not hold for beliefs about controllability, these results should be interpreted with caution. The association did not vary by dimension of religiosity.

Emotion regulation strategies

Social support. Religiosity was positively associated with both instrumental and emotional social support, both in the zero-order correlations (Table 2) and after controlling for demographic variables and effect coding samples (Table 3). This association did not vary by sample or by dimension of religiosity.

Table 2. Descriptive Statistics and Pairwise Correlations Among Study Variables.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Religiosity	2.33	1.25															
2. Prohedonic motives	3.69	0.69	.13**														
3. Beliefs about controllability of emotion	3.47	0.82	.09*	.35**													
4. Self-efficacy	3.50	0.84	.13**	.43**	.72**												
5. Instrumental social support	2.74	0.74	.16**	.17**	.11**	.15**											
6. Emotional social support	2.65	0.8	.12**	.16**	.11**	.15**	.79**										
7. Cognitive reappraisal	4.92	1.08	.13**	.49**	.23**	.29**	.15**	.13**									
8. Positive reinterpretation and growth	3.07	0.63	.18**	.54**	.30**	.39**	.40**	.32**	.42**								
9. Acceptance	2.90	0.66	.11**	.17**	.12**	.11**	.12**	.11**	.20**	.32**							
10. Non-judgmentalism	1.98	0.84	−.09*	.27**	.19**	.25**	−.03	.01	−.03	.01	.03						
11. Rumination	3.24	0.87	−.09*	−.41**	−.26**	−.37**	.00	.04	−.20**	−.26**	−.11**	−.33**					
12. Expressive suppression	3.85	1.32	.08*	−.22**	−.16**	−.21**	−.27**	−.36**	.08*	−.15**	.03	−.35**	.19**				
13. Distraction	2.86	0.57	.17**	.40**	.10**	.15**	.17**	.12**	.55**	.38**	.15**	−.10*	−.12**	.06			
14. Mental disengagement	2.49	0.62	.02	−.18**	−.18**	−.18**	.15**	.14**	.11**	.07	.08*	−.38**	.31**	.23**	.22**		
15. Experiential avoidance	3.02	1.48	−.06	−.55**	−.33**	−.41**	−.04	−.04	−.18**	−.29**	−.12**	−.50**	.54**	.32**	−.12**	.41**	
16. Behavioral avoidance	2.08	1.01	−.06	−.44**	−.19**	−.27**	−.19**	−.20**	−.15**	−.29**	.00	−.27**	.37**	.31**	−.14**	.24**	.54**

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

Table 3. Regression Coefficients and Standard Errors in Predicting Elements of Emotion Regulation.

	Prohedonic motives		Beliefs about controllability of emotion		Self-efficacy		Instrumental social support		Emotional social support	
	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Religiosity	0.12**	0.04	0.09*	0.04	0.13**	0.04	0.13**	0.04	0.11**	0.04
Age	0.13**	0.04	−0.01	0.04	0.00	0.04	−0.08*	0.04	−0.04	0.04
Gender	0.14+	0.08	0.00	0.08	−0.08	0.08	0.25**	0.08	0.41***	0.08
Socioeconomic	0.22***	0.04	0.06	0.04	0.11**	0.04	0.04	0.04	0.08+	0.04
Israel (effect coded)	−0.11	0.17	−0.36*	0.18	−0.17	0.18	−0.09	0.18	−0.19	0.18
Turkey (effect coded)	−0.08	0.17	0.01	0.17	−0.16	0.17	0.43*	0.17	0.38*	0.17
Religiosity × Israel	0.03	0.06	0.21***	0.06	0.16**	0.06	0.00	0.06	−0.04	0.06
Religiosity × Turkey	−0.11+	0.06	−0.21***	0.06	−0.19**	0.06	0.00	0.06	0.06	0.06
Age × Israel	−0.08	0.05	0.05	0.06	0.00	0.06	0.01	0.06	0.04	0.06
Age × Turkey	0.00	0.05	−0.06	0.06	−0.01	0.06	0.02	0.06	−0.03	0.05
Gender × Israel	0.18+	0.11	0.24*	0.11	0.16	0.11	0.16	0.11	0.27+	0.11
Gender × Turkey	−0.1	0.11	−0.1	0.12	0.02	0.12	−0.22+	0.11	−0.27+	0.11
Socioeconomic × Israel	0.07	0.05	−0.08	0.06	0.00	0.06	−0.06	0.06	−0.01	0.06
Socioeconomic × Turkey	−0.12*	0.06	−0.08	0.06	−0.12*	0.06	−0.05	0.06	−0.08	0.06
R^2	.14		.07		.07		.08		.11	

+$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Reappraisal. Religiosity was positively associated with both the cognitive reappraisal subscale of the ERQ and the positive reinterpretation and growth subscale of the COPE, both in the zero-order correlations (Table 2) and after controlling for demographic variables and effect coding samples (Table 4). This association did not vary by sample or by dimension of religiosity.

Acceptance. Religiosity was positively associated with acceptance, both in the zero-order correlations (Table 2) and after controlling for demographic variables and effect coding samples (Table 4). Acceptance was most strongly associated with religiosity in the Israeli sample ($\beta = .24$, $SE = .07$, $t = 3.45$, $p < .001$), whereas the association was not significant in the American sample ($\beta = .05$, $SE = .07$, $t = 0.74$, $p = .46$) or in the Turkish sample ($\beta = .03$, $SE = .07$, $t = 0.40$, $p = .69$). Nevertheless, the association across samples was consistent with our hypothesis. This association did not vary by dimension of religiosity.

Non-judgmentalism. Religiosity was negatively associated with non-judgmentalism, both in the zero-order correlations (Table 2) and after controlling for demographic variables and effect coding samples (Table 4). To establish specificity, we reran the regression on non-judgmentalism while controlling for the FFMQ subscales of describing and non-reactance. Religiosity remained a significant predictor of non-judgmentalism, $\beta = -.066$, $SE = .034$, $t = -1.97$, $p = .049$. This association did not vary by sample but did vary by dimension of religiosity. Specifically, non-judgmentalism was associated with intrapersonal religiosity ($\beta = -.08$, $SE = .04$, $t = 2.17$, $p = .030$), but not with interpersonal religiosity ($\beta = -.06$, $SE = .04$, $t = 1.61$, $p = .11$).

Rumination. Religiosity was negatively associated with rumination, both in the zero-order correlations (Table 2) and after controlling for demographic variables and effect coding samples (Table 4). This association did not vary by sample or by dimension of religiosity.

Expressive suppression. Religiosity was positively associated with expressive suppression in the zero-order correlations (Table 2), but not after controlling for demographic variables and effect coding samples (Table 5). This association varied both by sample and by dimension of religiosity. Specifically, expressive suppression was positively associated with religiosity in the Turkish sample ($\beta = .23$, $SE = .07$, $t = 3.19$, $p = .002$), whereas the association was not significant in the American sample ($\beta = -.07$, $SE = .07$, $t = 1.06$, $p = .29$) nor in the Israeli sample ($\beta = .09$, $SE = .07$, $t = 1.32$, $p = .19$). In addition, expressive suppression was associated with intrapersonal religiosity ($\beta = .08$, $SE = .04$, $t = 2.08$, $p = .038$) but not with interpersonal religiosity ($\beta = .06$, $SE = .04$, $t = 1.40$, $p = .16$).

Distraction. Religiosity was positively associated with the distraction subscale of the TCQ, both in the zero-order correlations (Table 2) and after controlling for demographic variables and effect coding samples (Table 5). Religiosity was not associated with the mental disengagement subscale of the COPE in the zero-order correlations (Table 2) or after controlling for demographic variables and effect coding samples (Table 5). The discrepancy between the two measures may be due to the low reliability of the latter scale. Neither measure of distraction varied by sample or by dimension of religiosity.

Experiential avoidance. Religiosity was not associated with experiential avoidance in the zero-order correlations (Table 2) or after controlling for demographic variables and effect coding samples (Table 5). This association did not vary by sample but did vary by dimension of religiosity. Specifically, experiential avoidance was negatively associated with interpersonal religiosity ($\beta = -.09$, $SE = .04$, $t = -2.46$, $p = .014$) but not with intrapersonal religiosity ($\beta = -.04$, $SE = .04$, $t = -1.18$, $p = .24$).

Table 4.

	Cognitive reappraisal		Positive reinterpretation and growth		Acceptance		Non-judgmentalism		Rumination	
	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Religiosity	0.16***	0.04	0.15***	0.04	0.11**	0.04	−0.07*	0.04	−0.09*	0.04
Age	0.08+	0.04	0.02	0.04	0.05	0.04	0.13***	0.04	−0.21***	0.04
Gender	0.15+	0.08	0.04	0.08	0.00	0.08	−0.14+	0.07	0.12	0.08
Socioeconomic	0.12**	0.04	0.15***	0.04	0.08+	0.04	0.07*	0.04	−0.16***	0.04
Israel (effect coded)	−0.18	0.18	−0.17	0.18	−0.08	0.18	0.26	0.16	0.29	0.18
Turkey (effect coded)	−0.18	0.17	0.33+	0.17	−0.35*	0.18	−0.56***	0.16	0.07	0.17
Religiosity × Israel	−0.08	0.06	0.04	0.06	0.14*	0.06	0.03	0.05	−0.06	0.06
Religiosity × Turkey	0.06	0.06	−0.07	0.06	−0.08	0.06	−0.10+	0.05	0.05	0.06
Age × Israel	−0.05	0.06	−0.09+	0.06	0.03	0.06	−0.07	0.05	0.01	0.05
Age × Turkey	0.03	0.06	−0.03	0.06	−0.09+	0.06	−0.07	0.05	0.03	0.05
Gender × Israel	0.05	0.11	0.15	0.11	0.06	0.11	0.03	0.1	−0.06	0.11
Gender × Turkey	0.07	0.11	−0.14	0.11	0.14	0.12	−0.05	0.1	−0.05	0.11
Socioeconomic × Israel	0.10+	0.06	0.02	0.06	−0.03	0.06	0.08	0.05	−0.03	0.06
Socioeconomic × Turkey	−0.11+	0.06	−0.08	0.06	−0.06	0.06	−0.17**	0.05	0.07	0.06
R^2	.08		.08		.05		.25		.11	

+p <.10. *p < .05. **p < .01. ***p < .001.

Table 5.

	Expressive suppression		Distraction		Mental disengagement		Experiential avoidance		Behavioral avoidance	
	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Religiosity	0.07+	0.04	0.18***	0.04	0.02	0.04	−0.07+	0.04	−0.05	0.04
Age	−0.02	0.04	0.02	0.04	−0.12**	0.04	−0.16***	0.04	−0.08*	0.04
Gender	−0.29***	0.08	0.19*	0.08	0.23**	0.08	0.17*	0.08	−0.07	0.08
Socioeconomic	−0.04	0.04	0.08*	0.04	−0.07+	0.04	−0.16***	0.04	−0.15***	0.04
Israel (effect coded)	−0.04	0.18	−0.22	0.18	−0.22	0.18	−0.03	0.17	−0.20	0.18
Turkey (effect coded)	0.09	0.17	0.14	0.17	0.35*	0.17	0.07	0.16	0.03	0.17
Religiosity × Israel	0.01	0.06	−0.09	0.06	−0.07	0.06	−0.05	0.05	0.12*	0.06
Religiosity × Turkey	0.14*	0.06	0.09	0.06	0.09	0.06	0.06	0.05	0.06	0.06
Age × Israel	0.06	0.06	−0.08	0.06	0.06	0.05	0.12*	0.05	0.10+	0.05
Age × Turkey	0.00	0.05	0.12*	0.06	0.11*	0.05	−0.03	0.05	−0.07	0.05
Gender × Israel	−0.08	0.11	0.06	0.11	0.04	0.11	−0.14	0.11	−0.03	0.11
Gender × Turkey	0.15	0.11	0.02	0.11	0.02	0.11	0.23*	0.11	0.02	0.11
Socioeconomic × Israel	−0.01	0.06	0.09	0.06	−0.11*	0.06	−0.13*	0.05	−0.15**	0.06
Socioeconomic × Turkey	0.00	0.06	−0.18**	0.06	0.07	0.06	0.24***	0.05	0.18**	0.06
R^2	.11		.09		.12		.18		.12	

$+p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

Behavioral avoidance. Religiosity was not associated with behavioral avoidance in the zero-order correlations (Table 2) or after controlling for demographic variables and effect coding samples (Table 5). This association varied by sample and by dimension of religiosity. Specifically, behavioral avoidance was associated negatively with religiosity in the American sample ($\beta = -.21$, $SE = .07$, $t = -3.08$, $p = .002$), whereas the association was not significant in the Israeli sample ($\beta = .09$, $SE = .07$, $t = 1.29$, $p = .20$) or in the Turkish sample ($\beta = .01$, $SE = .07$, $t = 0.14$, $p = .89$). In addition, across samples, behavioral avoidance was negatively associated with interpersonal religiosity ($\beta = -.08$, $SE = .04$, $t = -2.12$, $p = .035$) but not intrapersonal religiosity ($\beta = -.03$, $SE = .04$, $t = -.67$, $p = .50$).

Discussion

The purpose of the present investigation was to systematically map associations between religiosity and elements of emotion regulation, including the following: prohedonic motives, beliefs regarding the controllability of emotions, and emotion regulation strategies. All our preregistered predictions regarding associations between religiosity and elements of emotion regulation were confirmed in the total sample, even if some were not confirmed in one or another country or religion. Religiosity was positively associated with prohedonic motives, beliefs about controllability of emotions, self-efficacy in emotion regulation, and use of the emotion regulation strategies of social support, cognitive reappraisal, and acceptance. Religiosity was negatively associated with rumination and non-judgmentalism. Religiosity was not consistently associated with the emotion regulation strategies for which we did not have a priori predictions: expressive suppression, distraction, experiential avoidance, and behavioral avoidance.

Theoretical Implications

Religiosity has been associated with a unique pattern of emotional experiences, including fewer depressive symptoms (Koenig, 2012) and more positive emotions (Van Cappellen et al., 2016; Vishkin et al., 2018). One explanation for this pattern is that people who are more religious react differently to emotional events. In the present work, we began to explore an additional explanation, that more (vs. less) religious people may also deal differently with their emotions. If people who are more (vs. less) religious deal with their emotions in ways that are likely to lead to more (vs. less) adaptive emotional outcomes, emotion regulation may contribute to the links between religiosity and adaptive emotions.

Supporting this possibility, in general, we found that religiosity was positively associated with adaptive patterns of emotion regulation and associated either negatively or not at all with maladaptive patterns of emotion regulation. Moreover, these associations held across religions. More (vs. less) religious people were more motivated to increase hedonic balance, believed more strongly that emotions can be controlled and that they can control their emotions, and reported using emotion regulation strategies linked to adaptive outcomes, such as cognitive reappraisal and acceptance, more frequently. More (vs. less) religious people were also less likely, or at least not more likely, to use emotion regulation strategies typically linked to maladaptive outcomes, including rumination, expressive suppression, and experiential and behavioral avoidance. These results demonstrate that religiosity is related to a generally more adaptive pattern of emotion regulation. Such a pattern may facilitate more positive and less negative emotional experiences, and therefore could potentially account for the positive association between religiosity and well-being (Van Cappellen et al., 2016).

The consistent association between religiosity and adaptive elements of emotion regulation begs the question of which aspect of religion may be responsible for this association. One candidate for such an aspect is religion's function in coping with existential concerns, such as death awareness, isolation, and meaninglessness (e.g., Vail et al., 2010). Coping with such existential

concerns requires at least some degree of emotion regulation. If religion is to deal effectively with unresolvable existential concerns, it must provide adherents with the tools to engage effectively in emotion-focused coping. Thus, religion's origins in coping with existential concerns may map religion on to effective and adaptive elements of emotion regulation.

We found that religiosity was positively related to acceptance and negatively related to the mindfulness facet of non-judgmentalism. This is an informative finding, given that acceptance and non-judgmentalism have typically been viewed as similar, if not interchangeable. Hayes (2004) characterizes acceptance both as accepting the situation and as being non-judgmental about one's experiences. Likewise, in a rigorous meta-analysis of existing emotion regulation strategies, scales assessing non-judgmentalism of one's emotions were grouped under acceptance rather than mindfulness (Naragon-Gainey et al., 2017). The opposite associations of religiosity with acceptance and non-judgmentalism in the present study demonstrate that the link between religiosity and elements of emotion regulation depend on specific characteristics of religiosity. When dealing with emotions, religiosity encourages judging one's emotional experience rather than judging the situation that aroused the emotional experience. By doing so, religiosity encourages internal rather than external attribution. Future research should examine whether these two types of acceptance relate to different antecedents and consequences.

Moderation by Sample and Dimension of Religiosity

In line with our predictions, the associations between religiosity and various elements of emotion regulation did not interact with sample, for the most part. Out of the 15 dependent variables we assessed, 10 did not vary by sample. Therefore, in our data set, most of the associations between religiosity and elements of emotion regulation did not vary by religious affiliation or by national context. The consistent associations across religions support the idea that these associations may characterize religion, more generally, rather than being specific to a religion.

We did find variation by sample in the case of acceptance, beliefs about controllability of emotions, self-efficacy in emotion regulation, expressive suppression, and behavioral avoidance, though for the latter two the associations with religiosity across samples were not significant. These elements do not appear to have anything in common—some are beliefs, some are emotion regulation strategies typically linked to adaptive outcomes, and some are emotion regulation strategies typically linked to maladaptive outcomes. The finding that the association between religiosity and acceptance may depend on national context or religion is consistent with previous findings regarding the association between religiosity and secondary control (Sasaki & Kim, 2011). However, those findings indicated a stronger association between religiosity and secondary control among Americans (relative to Koreans). In the present research, it is unclear why religiosity was not significantly associated with acceptance in the American sample.

It is also unclear why the association between religiosity and beliefs regarding controllability of emotions was lowest among Muslims in Turkey and highest among Jews in Israel. One explanation is that, given the failure to establish measurement invariance across the samples for beliefs regarding controllability of emotions, these measures assessed different underlying constructs in the different samples. Notwithstanding the difficulty of establishing measurement invariance, an alternative possibility is that different religions have different standards for the acceptable level of control over one's emotions. Whereas Christians think that thoughts are blameworthy, Jews think that thoughts without actions are not blameworthy (Cohen & Rozin, 2001). Therefore, when regulating emotions, Jews may experience self-efficacy simply by regulating the action tendency that an emotion arouses, whereas Christians may experience self-efficacy only when they feel that they have successfully regulated the experience of the emotion. This explanation can account for why beliefs regarding controllability of emotions are lower among Christians than among Jews, but cannot account for why it is lowest among Muslims. An additional explanation is that if religiosity is associated with beliefs regarding controllability of emotions because

religions prescribe what to feel and proscribe what not to feel, then the strength of the association between religiosity and belief regarding controllability of emotions may depend on the extent to which such prescriptions and proscriptions are present in each religion.

The associations between religiosity and various elements of emotion regulation did not depend on dimensions of religiosity. Overall, three elements of emotion regulation were significantly associated only with interpersonal religiosity and two elements of emotion regulation were significantly associated only with intrapersonal religiosity. Importantly, no element of emotion regulation was associated with one dimension of religiosity significantly more so than another dimension of religiosity. Thus, no particular dimension of religiosity was consistently associated with elements of emotion regulation more than another dimension. Although different dimensions of religiosity have been associated with divergent outcomes, such as in the context of intergroup relations (e.g., Ben-Nun, Bloom, Arikan, & Courtemanche, 2015; Ginges, Hansen, & Norenzayan, 2009), different dimensions of religiosity do not appear to be associated with unique patterns of emotion regulation. Although this may suggest that the associations between religiosity and elements of emotion regulation are independent of particular dimensions of religiosity, it may also be a result of the high correlation between the two dimensions of religiosity in the present study. A starting point for evaluating whether associations with elements of emotion regulation vary by dimension of religiosity is to identify the mechanisms within religion that may link religiosity to adaptive elements of emotion regulation. We suggested above that religion's concern with coping with existential concerns may be such a mechanism. Previous research has found that a range of religious orientations are associated with coping with existential concerns, including religious fundamentalism, intrinsic religiosity, and quest orientations (but not extrinsic religiosity; Vail et al., 2010). This suggests that if coping with existential concerns is indeed the mechanism that links religiosity to adaptive elements of emotion regulation, then these associations may be largely independent of specific dimensions of religiosity.

Limitations and Future Directions

This is the first investigation that offers a relatively comprehensive assessment of possible links between religiosity and distinct elements of emotion regulation. Nonetheless, it has several limitations. First, the sample size was sufficient to detect an effect size of $r = .11$ at 80% power. Most of the effects met this criterion, but the associations between religiosity and beliefs about controllability of emotion, non-judgmentalism, and rumination did not. Future studies are needed to examine whether these effects are replicable. Whereas the overall explained variance for most of the regressions was small ($.05 \leq R^2 \leq .25$; mean $R^2 = .11$), effect sizes for demographic variables were slightly larger than effect sizes from previous studies examining the same constructs (e.g., gender and cognitive reappraisal and suppression [Gross & John, 2003]; cognitive reappraisal and socioeconomic status [Troy, Ford, McRae, Zarolia, & Mauss, 2017]; prohedonic motives and age [Riediger, Schmiedek, Wagner, & Lindenberger, 2009]). Thus, the obtained effect sizes were typical to the those commonly found in the literature.

In addition, all three samples varied in both religious affiliation and nationality. This element of the design was based on the expectation that most associations with religiosity are independent of religious affiliation and nationality. Nevertheless, when associations did vary by sample, such as for acceptance, the design precluded the ability to attribute such variation to religious affiliation versus nationality. To test whether the associations between religiosity and elements of emotion regulation vary by religious affiliation or national context, future studies should select samples that vary only on one of these dimensions. For example, a follow-up study could assess all three religions in the same national context, such as in France or the United States, where there are large contingents of all three monotheistic faiths.

In addition to confounding religious affiliation and nationality, samples were also limited in that they examined only adherents of monotheistic religions and did not include non-Catholic

Christians. It is unclear why the findings should depend on the particular structure of religious belief. Moreover, the findings were, for the most part, not moderated by dimensions of religiosity. Nonetheless, future research should examine whether these associations replicate among adherents of non-monotheistic religions and among non-Catholic Christians.

Although we assessed religiosity at the individual level, it is also a culture-level variable (Cohen, 2009). Religiosity as a cultural variable uniquely predicts psychological outcomes, such as well-being (Gebauer et al., 2017). Culture-level religiosity may moderate the associations between religiosity and emotion regulation at the individual level. For example, both religiosity at the individual level and religiosity at the cultural level may provide individuals with broad interpretive schemas useful for engaging in cognitive reappraisal. Thus, in a culture that is highly religious, the association between individual-level religiosity and using cognitive reappraisal will be weaker. Future research could examine whether culture-level religiosity moderates the association between individual-religiosity and elements of emotion regulation by sampling participants from a wider range of countries.

An important methodological limitation is that we relied exclusively on self-reports. We cannot rule out the possibility of demand characteristics, especially given the suggestion that people who are more religious give more weight to self-presentation concerns (Galen, 2012). If religiosity is associated with various elements of emotion regulation, this should be evident in actual emotion regulation behavior. For example, when choosing between emotion regulation strategies, people who are more religious may be more likely to choose cognitive reappraisal or acceptance relative to rumination or behavioral avoidance and may also be more effective in implementing them (Vishkin et al., 2016). Future studies could examine whether religiosity predicts emotion regulation in more ecologically valid contexts that are not susceptible to demand characteristics.

We found that religiosity is associated with adaptive emotion regulation strategies and not associated, or negatively associated, with maladaptive emotion regulation strategies. We suggest that this may partially explain the association between religiosity and well-being. However, the use of adaptive emotion regulation strategies by more (vs. less) religious individuals may impair their well-being in some circumstances Regulating negative emotions is adaptive when one cannot alter the situation that aroused negative emotions. However, when facing a controllable stressor, the adaptive behavior is to alter the stressor rather than one's emotions (Lazarus & Folkman, 1984). In such circumstances, emotion regulation may hurt one's well-being because it impedes actions to alter the stressor (Troy, Shallcross, & Mauss, 2013). If religious individuals use their emotion regulation toolkit even when facing controllable stressors, it may lead to less adaptive outcomes. Whether and how circumstances determine the adaptive nature of emotion regulation in more (vs. less) religious individuals is an important direction for future research.

Conclusion

In the present work, we examined how religiosity may be associated with unique patterns of coping with emotions. Across three samples differing in nationality and religious affiliation, we found that people higher in religiosity were more motivated to increase positive and decrease negative feelings, believed more strongly that emotions can be controlled and that they can control their own emotions, used adaptive emotion regulation strategies more often and used maladaptive emotion regulation less often. These findings indicate that to understand how religiosity shapes emotional experiences, it is necessary to consider emotion regulation.

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ORCID iDs

Allon Vishkin https://orcid.org/0000-0002-9655-7449

Pazit Ben-Nun Bloom https://orcid.org/0000-0003-4930-3355

Supplemental Material

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Notes

1. That review also examined two additional strategies, worry and problem-solving. However, as Naragon-Gainey, McMahon, & Chacko, 2017 acknowledge, these may or may not be considered emotion regulation strategies. Worry is a component of affective states such as anxiety and dysphoric mood (Berking & Wupperman, 2012) and problem-solving is a problem-focused method of coping, rather than an emotion-focused method of coping (Lazarus & Folkman, 1984). Therefore, we did not include worry and problem-solving in our investigation.
2. We were open to the possibility that some associations would vary by religious affiliation or by national culture. For example, previous findings show that the association between religiosity and secondary control is stronger in analytic cultures, such as the United States, than in holistic cultures, such as Korea (Sasaki & Kim, 2011). In addition, we previously found that expressive suppression was negatively related with religiosity among adherents of Christianity, positively associated with one of two measures of religiosity among adherents of Judaism, and not associated with religiosity among adherents of Islam (Vishkin, Bigman, Porat, Solak, Halperin, & Tamir, 2016). However, none of these findings are directly relevant to our a priori predictions, because we did not assess acceptance (a form of secondary control) in the context of a holistic culture, while we did not have an a priori prediction regarding the association between expressive suppression and religiosity above and beyond religious affiliations.
3. This study collected additional measures to address other research questions. These measures were listed in the preregistration and can be provided upon request.
4. Characteristics of the sample pools required us to alter this criterion in two cases. In the Turkish sample, it was only possible to obtain 17% of the sample from Answer Point 2 (*Not important at all, although I consider myself religious*). In the American sample, it was only possible to obtain 13% of the sample from Answer Point 5. In both cases, we compensated by oversampling from adjacent answer points.
5. The panel determined this criterion independently during a pilot, by establishing one third of the median time participants took to complete the survey as the cut-off. This lead to the removal of nine participants in total (four in the American sample, one in the Israeli sample, and four in the Turkish sample).
6. Observed eigenvalues are as follows: 7.68, 0.52, 0.43, 0.35, 0.23, 0.21, 0.19, 0.15, 0.13, 0.11. Randomly generated eigenvalues for parallel analysis are as follows: 1.20, 1.15, 1.10, 1.05, 1.01, 0.98, 0.94, 0.90, 0.86, 0.81.
7. The items for the six-item short form appear on http://www.paultrapnell.com/measures/
8. A stricter type of invariance, scalar invariance, is necessary to justify comparing means across samples. We tested for scalar invariance, although we had no hypotheses regarding differences in means across samples. It was not supported.
9. HLM was inappropriate to use for the analyses in the present study because it requires a larger number of groups at Level 2. The current design would have resulted in only 2 degrees of freedom for the Level 2 variables.

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