

Religion and Well-Being: The Mediating Role of Positive Emotions

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Published online: 18 December 2014
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Abstract Research has consistently shown that endorsing a religion or spirituality is to some extent related to one's well-being. Common studied explanations tap into the social and cognitive aspects of religion and spirituality. The present research aims at understanding *how* religiosity and spirituality exert their impact on well-being and investigates the role of a surprisingly neglected mechanism: positive emotions. Two cross-sectional studies using a quantitative approach are presented. In two different contexts (churchgoers in a European country and US university employees interested in meditation), results showed that the relation between religion (Study 1), spirituality (Study 2) and well-being is mediated by positive emotions. Distinguishing between more and less relevant positive emotions in a religious/spiritual context, it was found that the effect was mediated by self-transcendent positive emotions (awe, gratitude, love, and peace) but not by other positive emotions (amusement and pride).

Keywords Positive emotions · Religion · Spirituality · Well-being · Self-transcendent

1 Introduction

Among other protective factors, such as education and nationality, endorsing a religion or spirituality has been modestly but consistently associated with higher well-being (Koenig 2012; Koenig et al. 2012). Religion and spirituality are multidimensional constructs that have been variously defined. Religion involves the co-presence of beliefs, ritualized experiences, norms, and groups connected to what people perceive as a transcendent entity

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(e.g. God, Allah, Higher Power; Koenig 2012; Saroglou 2014). Spirituality reflects the personal search for connection with a larger sacredness or a transcendent entity (Piedmont 1999). Spirituality is usually devoid of the institutionalized aspect of religion but is not considered to be a separate construct (Koenig 2012; Saroglou 2014).

Research has shown a positive association between multiple indicators of religiousness, spirituality, and valued outcomes including life satisfaction (Ellison and Fan 2008; Salsman et al. 2005), optimism and sense of self-worth (Krause 2005; Whittington and Scher 2010), perceived meaning in life (Martos et al. 2010; Steger and Frazier 2005), and hope (Ai et al. 2007). The next step for researchers has been to try to understand how and why religion and spirituality are related to well-being. Knowing the mechanisms of action is critical in order to promote well-being within but also outside the context of religion. Studies have examined multiple processes by which religion is theorized to affect well-being (see for a recent review Hayward and Krause 2014). These studies can be organized into two general categories: the social resources of religion (identification with and support received by the religious group); and cognitive resources of religion (mostly sense of coherence and meaning).

The social resource has been mostly studied with regard to religion's effects on well-being. Indeed, religion is usually more organized and institutionalized than spirituality, and as such it provides more opportunities for social interactions and social benefits (Zinnbauer and Pargament 2005). Past research shows that for most people, by adhering to a specific religion or spirituality, believers benefit from greater social integration and social support from religious leaders and other group members (Krause and Hayward 2013; Strawbridge et al. 2001). These results of course do not reflect the ostracism specific people or groups of people have experienced in the context of their religion (e.g. homosexuals, Altemeyer and Hunsberger 1992). However, the extent to which religious support alone serves to explain the relation between religion and well-being is not clear. In 2002, George, Ellison, and Larson reported more studies that failed than succeeded to find mediation by social support for the religion-health link. More recent work continues to offer at best mixed support (recently e.g. Edlund et al. 2010; and Schuurmans-Stekhoven 2013 failed; Salsman et al. 2005 succeed; see also Hayward and Krause 2014 for a review). Moreover, research found that the relation between religion and health still holds when controlling for either sociability (Ellison et al. 1989) or social support (Hayward et al. 2012; Oman et al. 2002). This suggests that if social support is a significant mediator, it is at least not the sole one.

The cognitive aspects of religion and spirituality have also been studied as potential explanatory mechanisms for the link between religion/spirituality and well-being. Endorsing a religious faith or spiritual beliefs often provides a sense of coherence and meaning that may in turn promote greater well-being. Religion/spirituality is a meaning-making system and serves as a way to understand the world, the self, other living beings, and their interactions (Park 2005). This may engender perceived control and positive expectations about the future (Levin 2010). This assumption is bolstered by cross-sectional and longitudinal research that has shown that the relationship between religiosity/spirituality and well-being is mediated by meaning in life and perceived control (Jackson and Bergeman 2011; Kashdan and Nezlek 2012; Park 2005).

1.1 Positive Emotions as Potential Mechanism

Religion and spirituality thus provide social and cognitive resources that help believers to experience greater well-being. In addition to these two mechanisms, a third potential mechanism has been neglected in previous empirical research: emotional resources.

In the present paper, we focused specifically on positive emotions. The study of positive emotions is relatively recent and has been propelled by positive psychology, which is the science of human flourishing (Gable and Haidt 2005). Like all emotions, positive emotions are “brief, multisystem responses to some change in the way people interpret—or appraise—their current circumstances” (Fredrickson 2013, p. 3). When those circumstances are appraised as good, a positive emotion arises. According to the broaden-and-build theory (Fredrickson 1998), which has now received ample empirical support (Fredrickson 2013), positive emotions broaden people’s thought-action repertoires. Over time, the recurrence of these micro-moments of positive emotion and broadened awareness build consequential personal resources, like optimism, conducive to higher life satisfaction (Fredrickson et al. 2008). As such, well-being, indexed as a combination of optimism and life satisfaction, is not synonymous with positive emotions (Cohn et al. 2009).

Empirical support exists for the separate pathways from religiosity/spirituality to positive emotions, and from positive emotions to well-being. Indeed, measures of religiosity and spirituality are positively associated with positive emotions (see Smith et al. 2012). Positive emotions are also an important component of religious and spiritual practices (see Van Cappellen and Rimé 2014). In addition, positive emotions have been shown to increase well-being by broadening thought-action repertoires and by building consequential psychological, social, and physical resources (Cohn et al. 2009; Fredrickson et al. 2008; for a review of the broaden-and-build-theory of positive emotions, see Fredrickson 2013).

Although some authors have suggested the potential role of positive emotions in fostering the well-being of believers (Fredrickson 2002; and more recently Park and Slattery 2012), they have also noted that empirical support for this claim remains only indirect. The evidence comes mostly from research on religious and spiritual practices. Krause and Hayward (2013) for example, found that an emotionally expressive worship style (i.e. where members openly express their emotions during worship services) is associated with life satisfaction. In addition, there is a growing literature on meditation, which despite being sometimes practiced in secular contexts is here considered to be a spiritual practice because of its Buddhist origin. Research has shown that specific meditation practices increase positive emotions, which in turn yield positive consequences for life satisfaction and health markers (Cohn and Fredrickson 2010; Fredrickson et al. 2008; Kok et al. 2013). Unfortunately, spirituality or religiosity in these studies of meditation was not reported. As such, no direct tests of positive emotions as mediators of the relation between religiosity/spirituality and well-being have been reported. In the two studies reported here, we address this gap and hypothesize that positive emotions will emerge as a significant mediator of the association between religion/spirituality and well-being.

Theoretically, all positive emotions have been related to well-being without making distinctions or rankings among them (Fredrickson 2013). However, further exploring this issue, we argue that because certain positive emotions seem to be particularly relevant to contexts of religion and spirituality (Emmons 2005; Saroglou et al. 2008; Van Cappellen and Saroglou 2012), these emotions, compared to other positive emotions, will be more conducive to well-being for religious people. Historical and empirical works emphasize the importance within Western religion/spirituality of a series of positive emotions such as gratitude (e.g. McCullough et al. 2002), awe/wonder (e.g. Saroglou et al. 2008), peacefulness (d’Aquili and Newberg 1993), and love (e.g. Kim-Prieto and Diener 2009). *Gratitude* is the emotional response toward a benefactor prompting an individual to be prosocial (Algoe and Haidt 2009). *Awe/wonder* is the emotional response to something vast (like natural or artistic beauty) that cannot be comprehended using existing mental

structures (Haidt 2003). *Peacefulness* is the emotion prompted by situations appraised as safe, with a high degree of certainty, and with low effort (Fredrickson 1998). *Love* is elicited by warm feelings and care for another's well-being (Fredrickson 2013). These positive emotions have been studied as the self-transcendent positive emotions¹ (Haidt 2003). This family of positive emotions is "linked to the interests or welfare either of society as a whole or at least of persons other than the judge or agent" (Haidt 2003, p. 253; see also Algoe and Haidt 2009; Keltner and Haidt 2003; Shiota et al. 2007).

Previous research has shown that self-transcendent positive emotions are particularly relevant for religious and spiritual experiences (Keltner and Haidt 2003; Valdesolo and Graham 2014; or see Van Cappellen and Rimé 2014). Indeed, induced self-transcendent positive emotions led religious and spiritual people to endorse more religion and spirituality-related feelings and behavioral intentions (Van Cappellen and Saroglou 2012). Moreover, induced self-transcendent positive emotions increase religious and spiritual beliefs (Saroglou et al. 2008) through enhanced perception of the benevolence of people/the world (Van Cappellen et al. 2013, Study 2) and meaning in life (Van Cappellen et al. 2013, Study 1), whereas induced amusement or pride produce no such effects. Indeed, amusement and pride have more complicated relations with Western religion and spirituality, being qualified respectively as frivolous and sinful (Saroglou 2002; Williams and De Steno 2009). They are also less valued by believers (Kim-Prieto and Diener 2009; LaMothe 2005; Saroglou 2002).

Experiences of self-transcendent positive emotions are not restricted to religious and spiritual settings or to religious and spiritual people. However, they are arguably experienced more often than other positive emotions in religious/spiritual contexts, are much-valued by believers, and are therefore potentially more adaptive for believers (Emmons 2005; Fredrickson 2002). Given that the present research explores the relation between positive emotions and well-being in the specific contexts of religion and spirituality, an additional hypothesis is that the self-transcendent positive emotions of awe, gratitude, love, and peace will play a more determinant role in explaining the relation between religion/spirituality and well-being than do the positive emotions of amusement and pride.

In the present research, we also explored negative emotions as potential mechanisms. A possible hypothesis could be that religion and spirituality decrease negative emotions, which in turn increases well-being. However, past research has shown that negative emotions' effects cannot be reduced to the mere opposite of positive emotions' effects. For example, Fredrickson and colleagues found that increases in positive emotions following meditation were independent of decreases in negative emotions (Fredrickson et al. 2008). In addition, religion and spirituality are thought to increase people's ability to *cope* with negative emotions and thereby dampen their deleterious effects on well-being (Ellison and Levin 1998). It is therefore possible that religion and spirituality do not decrease negative emotions per se but alter people' responses to them. Even so, we measure negative emotions in Study 2 for comparison purposes without formulating a specific hypothesis.

¹ Peacefulness does not typically appear on lists of self-transcendent positive emotions. It is actually an infrequent target of research. However, definitions of peacefulness/serenity include elements of self-transcendence ("a mindful broadening of a person's self-views and world views," Fredrickson 1998, p. 306) and peacefulness is a very common emotion reported during self-transcendent experiences such as mystical experiences (Spilka et al. 1992).

1.2 Overview of the Studies

In two cross-sectional studies we will test the hypotheses that positive emotions, and in particular the self-transcendent positive emotions of awe, gratitude, love, and peace mediate the relation between religiosity/spirituality and well-being. Each study was run in a different cultural and religious context. Study 1 (European country) focused on churchgoers and on what happens during the regular religious ritual (Sunday mass) that could explain its effect on well-being. Study 2 (USA) aimed to replicate the results of Study 1 by examining spirituality among people enacting their interest in meditation. In addition, Study 2 extends Study 1 by investigating the role of negative emotions in the spirituality-well-being association.

2 Study 1

2.1 Methods

2.1.1 Participants and Procedure

Procedure and participants are the same as described in Van Cappellen et al. (2014). All relevant information is repeated here. Via five contact priests, 1,240 questionnaires were distributed in 20 different Catholic parishes. The parishes were all in the French-speaking part of Belgium and reflect the Belgian (dominant) Catholic landscape with mostly traditional churches in small and larger villages, one parish of the Catholic charismatic renewal, and one university parish. All questionnaires were distributed the same day, which corresponded to a special celebration in Roman Catholic churches: the Whit Monday. We benefited from a somewhat greater crowd because of this special celebration, which is 1 day after Pentecost and memorializes the Holy Spirit's visit to the apostles. In addition, given that the selection of biblical texts read during the mass is based on the calendar, this procedure ensured that all participants listened to the same selection.

Before the mass, questionnaire packets were left near the church seating. At the end of the mass, each priest briefly explained that the study, carried out by university researchers, was about well-being and invited their followers to complete the questionnaire, and to do so as soon as possible after the mass. Participants were allowed to take a copy of the questionnaire and complete it at home. They were given a postage-paid return envelope supplied by the researchers, valid for 1 day after the mass. This procedure ensured that participants did not complete the questionnaire after a future mass. Seven participants were not taken into account in the analyses because their religious affiliation was not Christian. The final sample was composed of 548 people (representing a 44 % response rate; 55 % women; age $M = 55.3$, $SD = 19.2$).

2.1.2 Measures

Religiosity Participants completed different measures of self-reported religiousness.

An index of personal religiousness (Saroglou and Munoz-Garcia 2008) was composed of three items measuring the importance of God in life, the importance of religion in life (seven-point Likert scales), and frequency of prayer (five-point scale: 1 = *a little, for example for exceptional moments in my life*; 2 = *sometimes during the year*; 3 = *at least once a month*; 4 = *every week*; and 5 = *more than once a week*; transformed into a seven-

point scale before being averaged with the other items). Internal consistency is above .7 which is satisfactory (Hogan 2007): $\alpha = .77$. Church attendance was measured with one item on the same five-point scale.

Spirituality To measure spirituality, as a construct partly distinct from religiosity, we used the *Spiritual Transcendence Scale* (Piedmont 1999; our French translation). To keep the length of the questionnaire reasonable, we could not use the full scale. Therefore, for the selected subscales of Universality and Connectedness, we used the three items with the highest factor loadings (see Piedmont 1999, pp. 995–996). Like other studies (Van Cappellen and Saroglou 2012; Van Cappellen et al. 2013) we did not include the subscale Prayer Fulfillment because it has explicitly religious content (reference to God and religious practices such as prayer or meditation) and has been found to relate positively to traditional religious attitudes and behaviors (Piedmont 1999). The following items were included for *Universality*: “I feel that on a higher level, all of us share a common bond,” “All life is interconnected,” “There is a higher plane of consciousness or spirituality that binds all people;” and for *Connectedness*: “Although dead, images of some of my relatives continue to influence my current life,” “I am a link in the chain of my family’s heritage, a bridge between past and future,” “I still have a strong emotional ties with someone who has died.” Reliability for both subscales was satisfactory ($\alpha = .76$).

Mediators: Perception of the Cognitive, Social, and Emotional Aspects of Religious Attendance The measures used were purposefully developed herein to assess what is specifically involved or experienced during the mass (see the “Appendix” for the full scale). Therefore all items explicitly refer to the mass or to a specific aspect of the mass. The items were developed by a team of three researchers whose academic trainings were in psychology, theology, and religious studies and came from three different ethnic and religious backgrounds. The items were developed to broadly assess participants’ perception of three aspects of religious service attendance, defined as follows. The *cognitive* aspect refers to the potential role the mass plays in the comprehension of faith and personal reflection. This scale is composed of five items for which reliability was satisfactory ($\alpha = .85$), example item: “The mass helps me to understand the meaning of the Bible.” The *social* aspect refers to the potential role the mass plays in promoting social connectedness with the parish members. It is also composed of five items for which reliability was satisfactory ($\alpha = .84$), example item: “During the mass, I feel closer to the other believers.” Finally, the *emotional* aspect of the mass refers to the positive emotions felt during the mass. We assessed six specific positive emotions plus one more general item on emotions felt toward the beauty of the Church. Four items measured feelings of self-transcendent emotions (awe, gratitude, love, and peace) and two measured other positive emotions (pride and amusement). Reliability was satisfactory ($\alpha = .82$). All scales were seven-point Likert scales.

Well-Being Well-being was assessed as a composite of two different measures: life satisfaction and optimism. *The Satisfaction With Life Scale* (Diener et al. 1985) is considered to be a component of subjective well-being (Pavot and Diener 1993). It is a five-item measure (seven-point Likert scale) intending to reflect an overall judgment of one’s life and measure global life satisfaction. A sample item is: “In most ways my life is close to ideal.” Cronbach’s alpha in this study was = .84. Optimism was measured through the *Life Orientation Test-Revised* (Scheier et al. 1994; five-point Likert scale, transformed into a seven-point Likert scale for the analyses) that defines optimists as people who have general favorable expectancies. It is a six-item plus four fillers measure. Three items are framed positively (e.g. “In uncertain times, I expect the best”) and the other three negatively (e.g. “If something can go wrong for me it will”). Reliability was $\alpha = .68$. All two

scales were averaged to compute a single score of well-being. The two scales were positively correlated, $r = .38, p < .001$.

2.2 Results

Means, standard deviations, and bivariate associations of all measures are detailed in Table 1. For each of the three religiousness and spirituality variables (personal religiousness, church attendance, and spirituality) multiple mediator analyses were performed on well-being (simultaneously entering the three mediators: cognitive, social, and emotional aspects of the mass). Three additional multiple mediator analyses were performed to further explore the emotional aspect of the mass. In particular, the analyses explored whether self-transcendent positive emotions more specifically mediated the relation between religion and well-being. Age was included as a covariate in all of the analyses. As recommended by Preacher and Hayes (2008), we used the bootstrapping method to test our multiple mediator models. This nonparametric resampling procedure is one of the more powerful and valid methods for testing indirect effects for a single-step multiple mediator model (see Preacher and Hayes 2004). Importantly, given the purpose of our study, this procedure allows us to enter multiple mediators simultaneously, and thus test the unique indirect effect of each mediator controlling for the other mediators. It is also possible to determine, by the test of contrast, whether one mediator accounts for more of the mediated effect than the others. All results were based on 5,000 bootstrap samples. We report data parameters and bias corrected and accelerated 95 % confidence intervals (BCa CI), using the SPSS version of the Preacher and Hayes' (2008) macro ("indirect").

To be concise, we only describe the results for the religiousness scale in the text. Results for church attendance and spirituality were largely the same and can be found in Table 2.

Table 1 Means, standard deviations, and correlations for all measures (Study 1)

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Age	55.3	19.2	–	–	–	–	–	–	–
2. Religiousness	6.2	1.1	-.01	–	–	–	–	–	–
3. Church attendance	4	.9	.06	.48***	–	–	–	–	–
4. Spirituality	5.1	1.2	.14**	.23***	.10*	–	–	–	–
5. Cognitive (mass)	5.5	1.2	-.11**	.43***	.30***	.38***	–	–	–
6. Emotional (mass)	4.7	1.2	-.16***	.47***	.31***	.39***	.69***	–	–
Self-transcendent emotions	5.3	1.3	-.16***	.54***	.31***	.36***	.70***	–	–
Other emotions	3.4	1.5	-.15**	.24***	.19***	.24***	.40***	–	–
7. Social (mass)	5.3	1.1	.10*	.44***	.36***	.36***	.59***	.63***	–
								.59***	
								.46***	
8. Well-being	5	.9	-.12**	.14**	.15**	.17***	.24***	.26***	.15**
								.25***	
								.16***	

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 2 Bootstrapped multiple mediator models for religiousness, church attendance, and spirituality as predictors and well-being as outcome (Study 1)

Outcome	Predictors	Direct effect (c)	Indirect effect (c')	Total indirect effect (c-c')	Specific indirect effects			
					Emotional	Cognitive	Social	
Well-being	Religiousness	.11**	.01	.09; [.05-.15]	.06; [.01-.12]	.04; [-.01 to .10]	-.01; [-.06 to .03]	.07; [-.004 to .16]
	Church attendance	.15***	.08	.07; [.03-.12]	.05; [.01-.11]	.03; [-.007 to .09]	-.02; [-.07 to .03]	.07; [.006-.16]
	Spirituality	.14***	.07	.07; [.04-.11]	.05; [.01-.10]	.03; [-.01 to .08]	-.01; [-.05 to .02]	.06; [-.0004 to .13]

Numbers provided for direct and indirect effect are unstandardized regression coefficients. Numbers provided in the other columns are point estimates and in brackets 95 % BCa CI

** $p < .01$; *** $p < .001$

We tested a model with religiousness as the predictor variable, well-being as the dependent variable, and simultaneously the three aspects of the mass (cognitive, social, and emotional) as proposed mediators. As predicted, the total effect of religiousness on well-being was significant ($B = .11$, $SE = .03$, $p < .01$), and became non-significant when controlling for the three mediators ($B = .01$, $SE = .04$, $ns.$). The total indirect effect was significant, with a point estimate of .09 and a 95 % BCa CI of (.05–.15). The fact that the confidence intervals excluded zero indicates a significant indirect effect. This suggests an overall mediation effect for aspects of the mass within the association between religiousness and well-being. A closer look at the specific indirect effect for each mediator confirmed that emotional aspect of the mass was a significant mediator, point estimate of .06 and a 95 % BCa CI of (.01–.12) but this was not the case for the cognitive and social aspects (respectively, point estimates of .04, $-.01$ and 95 % BCa CIs of ($-.006$ to .10), ($-.06$ to .03)). Contrasting the three indirect effects revealed the indirect effect via the emotional aspect was significantly stronger than the one via the social aspect only for when Church attendance was a predictor [point estimate of contrast = .07, 95 % BCa CI (.006, .16)].

Results from mediational analysis on the three aspects of the mass revealed that the emotional aspect was a significant mediator between religiousness and spirituality variables and well-being. To probe this mediator further, we tested our hypothesis that it is self-transcendent positive emotions that are at the core of the religion/spirituality—well-being relation and not other positive emotions. We repeated the mediational analyses by distinguishing between self-transcendent (awe, gratitude, love, and peace) and other positive emotions (pride and amusement) using the same bootstrapping method as described above. We tested three (religiousness, church attendance, and spirituality) multiple mediator models and, to be concise, we only describe results for the religiousness scale below. Results for church attendance and spirituality were largely the same and can be found in Table 3.

We tested a model with religiousness as the predictor variable, well-being as the dependent variable, and simultaneously the two groups of positive emotions (self-transcendent and other positive emotions) as proposed mediators. The total effect of religiousness on well-being was significant ($B = .10$, $SE = .03$, $p < .01$), and became non-significant when controlling for the two mediators ($B = .01$, $SE = .04$, $ns.$). Furthermore, the analyses showed that the total indirect effect was significant, with a point estimate of .09 and a 95 % BCa CI of (.04–.15). A closer look at the specific indirect effects indicates that only the self-transcendent positive emotions were a significant mediator [point estimate of .09 and 95 % BCa CI of (.03–.15)]. Other positive emotions did not significantly mediate, with a point estimate of .005 and a 95 % BCa CI of ($-.01$ to .03). Moreover, contrasting the two indirect effects revealed that the indirect effect via the self-transcendent positive emotions was significantly stronger than the one via the other positive emotions [point estimate of contrast = .08, 95 % BCa CI (.02, .16)].

2.3 Discussion

Attending religious services has been shown to be one of the strongest religious predictors of well-being (George et al. 2002). To better understand the pathways through which religious attendance benefits well-being, Study 1 focused on believers' self-reported experiences during the mass and simultaneously explored the cognitive, social, and emotional effects of attending a religious service. Results indicate that the emotional effects of the mass mediate the religion—well-being association. More specifically,

Table 3 Bootstrapped multiple mediator models for religiousness, church attendance, and spirituality as predictors, well-being as outcome and focus on positive emotions as mediators (Study 1)

Outcome	Predictors	Direct effect (c)	Indirect effect (c')	Total indirect effect (c-c')	Specific indirect effects		
					Self-transcendent positive emotions	Other positive emotions	Contrast
Well-being	Religiousness	.10**	.01	.09; [.04-.15]	.09; [.03-.15]	.01; [-.01 to .03]	.08; [.02-.16]
	Church attendance	.14**	.08	.06; [.03-.11]	.06; [.03-.11]	.003; [-.02 to .02]	.06; [.01-.12]
	Spirituality	.13***	.08*	.06; [.03-.09]	.05; [.02-.09]	.006; [-.01 to .03]	.04; [.001-.09]

Numbers provided for direct and indirect effect are unstandardized regression coefficients. Numbers provided in the other columns are point estimates and in brackets 95 % BCa CI

* $p < .05$; ** $p < .01$; *** $p < .001$

confirming our hypothesis, a closer look at positive emotions revealed that only self-transcendent positive emotions of awe, gratitude, love, and peace were significant mediators, not other positive emotions of pride and amusement. This study provides the first piece of empirical evidence that positive emotions are one way through which religion is beneficial for well-being.

In the full model tested, the social and cognitive effects of the mass were not significant mediators. Two explanations are possible for this null result. First, social as well as cognitive aspects of religion have sometimes been shown to be a significant mechanism in studies globally comparing religious with non-religious people. As in the present study our sample was exclusively composed of religious church attendees, the social and cognitive aspects of the mass may not be discriminating constructs within this population. Second, in past work, social and cognitive aspects of religion have been found to be significant mediators when measured independently (e.g. Greenfield and Marks 2007; Jackson and Bergeman 2011). In the present study, we controlled for the presence of positive emotions and the inclusion of this additional mediator may account for the drop in significance for the social and cognitive aspects. Indeed, running a model with the social mediator alone yielded a significant mediation [point estimate of .05 and 95 % BCa CI of (.02-.09)]. The same applies for the cognitive mediator: point estimate of .07 and 95 % BCa CI of (.03-.13). It is possible that the “social” and “cognitive” active ingredients identified in previous literature overlap with, or are influenced by the emotional aspects measured in this study. For example, social interaction is known to increase positive emotions (Catalino and Fredrickson 2011) and positive emotions are known to increase people’s social resources (Fredrickson 2013). Therefore, controlling for these other aspects may reduce the likelihood for the social aspect to be a significant independent mediator.

A limitation of Study 1 is that it took place in a specific religious setting, namely Belgian Catholic parishes, and may not generalize to other religions. In addition, the mediators in the present study specifically asked about participants’ experience during the mass. This is a strength of the present work that attempted to explore the question of why attending regular religious rituals is beneficial for an individual’s well-being, but it is also a limitation in terms of generalizability. We therefore must be circumscribed in our conclusions. Another limitation of Study 1 is that negative emotions were not measured. Study 2 addresses this limitation and thereby provides a more global picture of the effect of

emotions on believers' well-being. A final limitation of Study 1 is that there was a brief mention that the research was about well-being, which could potentially create demand effects. Nonetheless, both longitudinal and experimental research clarifies that the religion-well-being link is not an artifact of demand characteristics (Koenig 2012).

3 Study 2

We used archival data from a larger study (see primary results in Kok et al. 2013) to provide a conceptual replication of Study 1 that self-transcendent positive emotions mediate the spirituality-well-being association. Study 2 extends Study 1 by targeting a different sample, specifically, US university employees enacting their interests in meditation, and by assessing both positive and negative emotions.

3.1 Methods

3.1.1 Participants and Procedure

Participants were faculty and staff of the University of North Carolina at Chapel Hill recruited for a larger longitudinal study on meditation conducted by researchers from that University. We drew on baseline assessments of the variables of interest: positive and negative emotions, well-being, and spirituality. A total of 71 participants consented to participate (66 % were female, Age $M = 39.7$, $SD = 13.03$). The majority was White (88.7 %) (Fig. 1).

3.1.2 Measures

Spirituality 15 of the 20 items of the *Self-transcendence Scale* (mysticism items were not assessed) from the Temperament Character Inventory were used to measure spirituality (see Kluger et al. 2004; for the full version of the TCI see Cloninger et al. 1994). The scale taps into feelings of oneness and unity with all life, and into the ability to be immersed in the moment. Sample items are: "I often feel a strong sense of unity with all the things around me;" "Often when I look at an ordinary thing, something wonderful happens. I get the feeling that I am seeing it fresh for the first time;" "I often feel a strong spiritual or emotional connection with all the people around me." Participants rated statements using a 1–7 Likert-scale from disagree strongly to agree strongly. Internal reliability was satisfactory, $\alpha = .85$ (Fig. 2).

Emotions The modified Differential Emotions Scale was used to assess positive and negative emotions (mDES; Fredrickson et al. 2003; Fredrickson 2013). Participants rated daily their strongest experiences of nine positive emotions (i.e. amusement, awe, gratitude, hope, interest, joy, love, pride, and peace) and 11 negative emotions (i.e. anger, boredom, contempt, disgust, embarrassment, fear, guilt, hatred, sadness, shame, and stress) in the past day on a five-point scale (1 = *not at all* to 5 = *extremely*). We used an average of their first week of baseline ratings. We used the same emotions as in Study 1 to compute scores for self-transcendent positive emotions (awe, gratitude, love, and peace) and for the other positive emotions (pride and amusement).

Well-Being As in Study 1, well-being was assessed through two measures: life satisfaction and optimism using the *Satisfaction with Life Scale* (Diener et al. 1985; Cronbach's

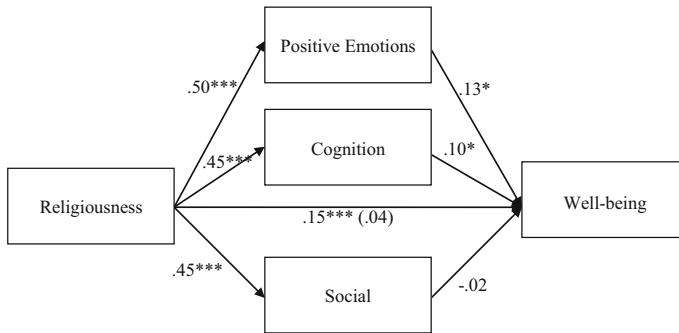


Fig. 1 Multiple mediation of the effect of religiousness on well-being through the positive emotions, cognitive and social effects of the mass (Study 1). *Numbers on paths* represent unstandardized regression coefficients. * $p < .05$; ** $p < .01$

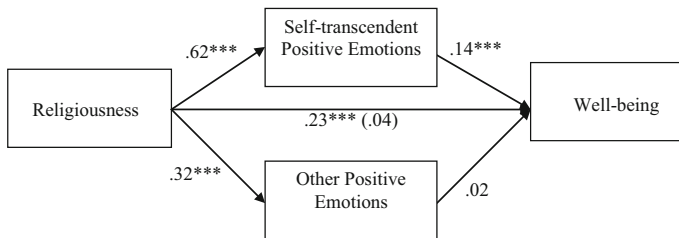


Fig. 2 Multiple mediation of the effect of religiousness on well-being through self-transcendent positive emotions (awe, gratitude, love, and peace) and other positive emotions (pride and amusement) (Study 1). *Numbers on paths* represent unstandardized regression coefficients. * $p < .05$; ** $p < .01$; *** $p < .001$

alpha in this study was = .87) and the *Life Orientation Test-Revised* (Scheier et al. 1994; $\alpha = .73$). The two scales were positively correlated, $r = .64$, $p < .001$.

3.2 Results

Means, standard deviations, and bivariate associations of all measures are detailed in Table 4. As in Study 1, we used the “indirect” macro from Preacher and Hayes (2008) for all the analyses. We used bootstrap analyses to test the effect of spirituality on well-being through positive emotions (see Fig. 3). As predicted, the total effect of spirituality on well-being was significant ($B = .33$, $SE = .11$, $p < .01$), and became non-significant when controlling for positive emotions ($B = .19$, $SE = .10$, $ns.$). Furthermore, the analyses showed that the total indirect effect was significant, with a point estimate of .14 and a 90 % BCa CI of (.01–.28). Performing the same analyses with negative emotions as the mediator did not yield significant results [total indirect effect point estimate = .03, 90 % BCa CI (–.01 to .10)].

Then, using the same emotions as in Study 1, we computed a score for self-transcendent positive emotions (awe, gratitude, love, and peace) and one for the other positive emotions (pride and amusement). We tested a model with spirituality as the predictor variable, well-being as the dependent variable, and simultaneously the two groups of positive emotions

(self-transcendent and other) as proposed mediators. As predicted the total effect of spirituality on well-being was significant ($B = .33, SE = .11, p < .01$), and became non-significant when controlling for the two mediators ($B = .19, SE = .10, ns.$). Furthermore, the analyses showed that the total indirect effect was significant, with a point estimate of .14 and a 90 % BCa CI of (.01–.28). A closer look at the specific indirect effects indicates that only the self-transcendent positive emotions were a significant mediator [point estimate of .12 and 90 % BCa CI of (.02–.29)]. This was not the case for the other positive emotions with a point estimate of .02 and a 90 % BCa CI of (–.05 to .15). The contrast between the two indirect effects was not significant [point estimate of contrast = .10, 90 % BCa CI (–.03, .37)] (Fig. 4).

3.3 Discussion

Positive emotions—and more specifically self-transcendent positive emotions—are a significant mediator of the relation between spirituality and well-being. Study 2 replicated the findings of Study 1 using a different population and a different measure of spirituality. Although the use of a different measure of spirituality prevents from showing an exact replication of Study 1s results, it is noteworthy that the findings are not restricted to a specific measure of spirituality. A limitation of the present result is that the mediation analyses were significant when using a 90 %, rather than a 95 % BCa interval. In addition, despite that only the pathway through self-transcendent positive emotions is significant and not the one through other positive emotions, the contrast between the indirect effects was not significant. We suggest that these differences are due to the lower number of participants in this study ($n = 71$) than in Study 1 ($n = 548$). Extending Study 1, Study 2 found that negative emotions were not a significant mediator of the spirituality-well-being association.

4 General Discussion

Why are religion/spirituality and well-being related? The goal of the present studies was to investigate the role of positive emotions in understanding the relation between religion/spirituality and well-being, a role that has been surprisingly neglected in past research. More specifically, we hypothesized that a category of positive emotions, self-transcendent positive emotions of awe, gratitude, love, and peace, that is particularly relevant and valued

Table 4 Means, standard deviations, and correlations for all measures (Study 2)

Variables	<i>M</i>	<i>SD</i>	1	2	3
1. Spirituality	4.1	1.0	–	–	–
2. Positive emotions	2.9	.7	.30*	–	–
Self-transcendent emotions	2.8	.8	.30*		
Other emotions	2.8	.7	.30*		
3. Negative emotions	1.8	.5	–.12	–.13	–
				–.11	
				–.11	
4. Well-being	4.1	1.0	.39**	.50***	–.38**
				.47***	
				.48***	

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

*** $p < .001$

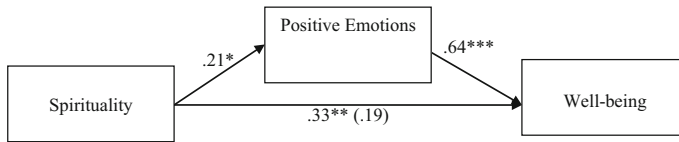


Fig. 3 Mediation of the effect of spirituality on well-being through positive emotions (Study 2). *Numbers on paths* represent unstandardized regression coefficients. * $p < .05$; ** $p < .01$; *** $p < .001$

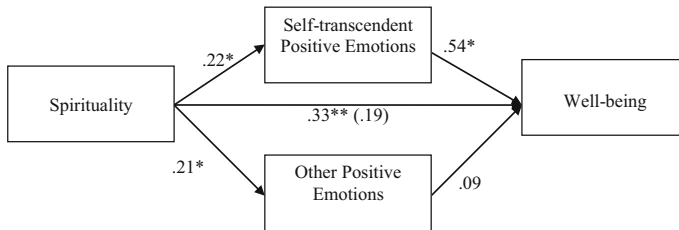


Fig. 4 Multiple mediation of the effect of spirituality on well-being through self-transcendent positive emotions (awe, gratitude, love, and peace) and other positive emotions (pride and amusement) (Study 2). *Numbers on paths* represent unstandardized regression coefficients. * $p < .05$; ** $p < .01$

in the context of religion and spirituality would be apt to explain the relation between religion and well-being over and above other positive emotions, amusement and pride. We tested these hypotheses in two studies with different samples (churchgoers and middle-aged university employees interested in meditation) from different countries (Belgium and the US). As Church attendance is, among the various religious variables, one of the most important predictors of well-being, Study 1 focused on churchgoers and their experience during their regular religious ritual, the mass. Results showed that self-transcendent positive emotions (awe, gratitude, love, and peace) partially explained the relation between religion and well-being over and above other positive emotions (amusement and pride). Study 2 replicated these findings among adults with an interest in meditation. Results showed that again, the relation between spirituality and well-being is partially explained by higher positive emotions, and more specifically, by higher self-transcendent positive emotions. However, negative emotions, measured in Study 2, did not play a significant role in explaining the spirituality-well-being relation.

Religion and spirituality are a fertile ground for the experience of positive emotions (Van Cappellen and Rimé 2014). Through their involvement in religious and spiritual practices, believers may experience positive emotions on a weekly or even daily basis. This frequency may be crucial because the broaden effect of positive emotions accumulates and compounds over time to build consequential personal and social resources (Fredrickson 2013). The present cross-sectional findings may thus reflect the accumulation and repetition of religious and spiritual experiences.

Understanding the mechanisms by which religion/spirituality exert their impact on well-being is important because it can inform future interventions that seek to improve well-being within or outside of a religious context. In religious contexts, these findings underscore that the degree, and type (and likely frequency) of positive emotions felt are not trivial but rather can improve believers' well-being. Importantly, however, self-transcendent positive emotions are not restricted to the religious or spiritual domain. Although awe, gratitude, love, and peace, are particularly elicited in the religious and spiritual domain,

these emotions also occur outside of that context and among non-religious people. For example, these emotions have been discussed in literature on peak experiences (Maslow 1964), flow (Csikszentmihalyi 1991), or chironic happiness (Wong 2011). This means that the link between religion/spirituality and well-being is at least partially explained by a mechanism that is not restricted to religious and spiritual people/settings. However, religion and spirituality may be protective factors for well-being because they have a unique footing for creating these self-transcendent positive emotions. Many characteristics of religion and spirituality are powerful elicitors of such positive emotions, such as the monumental architecture of churches and religious buildings that promotes awe (Joye and Verpooten 2013), or religious and spiritual collective practices that create amplified collective emotions (i.e. emotional effervescence à la Durkheim 1968). An interesting question is whether nonbelievers may also reap some of the benefits of religion and spirituality without turning to religion or spirituality, so long as they find reliable sources of awe, gratitude, love, and peace in their daily lives. Another interesting question is whether self-transcendent positive emotions may be more conducive to well-being than other positive emotions even for non-religious and spiritual people. All positive emotions broaden and build (see Broaden-and-Build theory, Fredrickson 2013) but it is possible that some of them allow for greater benefits in terms of well-being. Given that self-transcendent positive emotions are not focused on the self and promote prosocial behaviors, they might be particularly apt at promoting well-being through feedback loops (Weinstein and Ryan 2010).

We do not, however, suggest that positive emotions are the sole mechanism by which religion and spirituality affect well-being. Despite that in Study 1 the cognitive and social aspects of the Mass measured were not independent significant mediators, other more specific measures of these aspects may reveal unique influences on well-being. In addition, positive emotions not investigated here may also account for the religion-well-being relation, such as admiration, elevation (the emotional response to moral beauty), or inspiration, which have been shown to be relevant for spirituality (Thrash and Elliot 2004; Van Cappellen et al. 2013). However, the distinction between positive and negative emotions is not that clear-cut. Self-transcendent emotions sometimes include a small negative component such as fear for awe, or sadness (Keltner and Haidt 2003; Saroglou et al. 2008) that despite being marginal might be worth looking at more deeply. Indeed, some research has shown that mixed emotions are related to less health decline (Hershfield et al. 2013). It is also possible that different mechanisms account for the religion-well-being association than for the spirituality-well-being association. In keeping with past research, we did not hypothesize or find that religiosity or spirituality, as measured here, relate differently to well-being or positive emotions. However, at least one study has found that measures tapping more specific aspects of spirituality, for example spiritual perceptions, were related differently to well-being than religious participation was (Greenfield et al. 2009). Additional research should therefore investigate whether specific aspects of religion and spirituality relate to well-being in distinct ways. Future research should also include additional measures to test competing theories. For example, it has recently been found that when virtue (e.g. kindness) was included along spirituality in multiple regressions, spirituality became negatively related to well-being (Schuurmans-Stekhoven 2011). Future research should continue to investigate the psychological aspects of spirituality and religion that are beneficial for people's well-being. Finally, given positive emotions' role in promoting physical health (Kok et al. 2013; Pressman and Cohen 2005; Steptoe et al. 2005), future research should investigate whether positive emotions may also explain the relation between religion/spirituality and physical health.

We also do not suggest that religion and spirituality is always a good thing. Religions can also foster negative emotions, such as guilt, in their adherents (Maltby 2005). In difficult times, religion and spirituality can also be used as a negative coping strategy (e.g. feeling abandoned or punished by God or being angry at God), which is related to poorer health outcomes (Pargament 2001). Finally, religions are also related to prejudice and antisocial behaviors (Johnson et al. 2010; Saroglou et al. 2009). These findings show that religion's beneficial effects are limited and provide important nuances to the present findings.

A limit of the present work is that, as other researchers have also found, correlations between religiousness/spirituality and well-being were of small size (Cohen 1988). A meta-analysis has estimated an average effect of $r = .10$ between religiosity and general psychological well-being (Hackney and Sanders 2003). Although small, the effects are consistent across a large number of studies using a variety of methodology and design (George et al. 2002; Koenig et al. 2012) and therefore are not negligible.

Another limit of the present work is that it is cross-sectional. In our models we assumed that religiosity or spirituality *led* to greater well-being through positive emotions. Indeed, this direction of causality represents the dominant view within the religion and well-being literature and has been supported by longitudinal research (see Kashdan and Nezlek 2012; Park and Slattery 2012). However, it remains possible that greater well-being increases religiosity and spirituality through positive emotions. Indeed, causal influence need not be unidirectional: Positive emotions, in particular, have been shown to operate within frameworks of reciprocal causality indicative of a positive self-reinforcing process (Garland et al. 2011; Kok and Fredrickson 2010). Future work with longitudinal designs is necessary to pinpoint causal direction(s). Theoretically, we anticipate reciprocal relations between religion/spirituality and well-being, with positive emotions serving as mediators in both cases. For instance, religious/spiritual practices promote positive emotions (e.g. Fredrickson et al. 2008; Lambert et al. 2009), mostly self-transcendent ones (Emmons 2005), which in turn benefit well-being. In addition, feeling good about one's life and one's future can lead to increased religious and spiritual beliefs potentially through the greater openness and enhanced energy to participate in relevant practices that positive emotions may spark. The work of King et al. (2006) supports the latter view by showing that positive emotions promote people's experiences of meaning. In addition, induced feelings of self-transcendent positive emotions of awe, elevation, and admiration have been shown to increase report of religiosity and spirituality (Saroglou et al. 2008; Valdesolo and Graham 2014; Van Cappellen et al. 2013; see Park and Slattery 2012 for a similar reciprocal model that ties the concepts of religiousness/spirituality, emotions, and health).

To conclude, the two studies reported here add to a large body of evidence that shows that endorsing religious or spiritual beliefs is positively related to well-being. Critically, moving beyond this general effect to understand its mechanisms, we investigated positive emotions as one pathway through which religion and spirituality may exert their beneficial effects on well-being. Surprisingly, given the important role of positive emotions in promoting well-being and health, they have been largely neglected in past empirical research that has targeted mediating mechanisms. Results confirmed that positive emotions—especially the self-transcendent positive emotions of awe, gratitude, love, and peace that are especially valued within religious and spiritual contexts—partially explain why religion and spirituality are beneficial for people's psychological well-being.

Acknowledgments Part of Study 2 data is published in Kok, Coffey, Cohn, Catalino, Vacharkulksemsuk, Algee, Brantley, and Fredrickson (2013). Study 1 was supported by a Doctoral Fellowship from the National

Fund for Scientific Research, Belgium to Patty Van Cappellen. Study 2 was supported by National Institute of Mental Health Grant MH59615 to Barbara L. Fredrickson. The new analyses for Study 2 were rendered possible by a travel grant awarded by the National Fund for Scientific Research, Belgium FNRS; Excellence travel grant awarded by WBI-world; FSR travel grant for postdoctoral research by Université catholique de Louvain, Belgium to Patty Van Cappellen.

Appendix: Perception of the Cognitive, Social, and Emotional Aspects of Religious Attendance (English translation and original French items)

Cognitive aspect:

The mass helps me to understand the truths about faith.

La messe m'aide à comprendre les vérités de la foi.

The mass helps me to understand the meaning of the Bible.

La messe m'aide à comprendre le sens de la Bible.

The mass helps in my personal reflection.

La messe m'aide dans ma réflexion personnelle.

I particularly appreciate the homily because the ideas developed allow me to think.

J'apprécie particulièrement l'homélie, car les idées qui y sont développées me permettent de réfléchir.

I particularly appreciate the biblical texts reading because it helps me in my personal reflection.

J'apprécie particulièrement la lecture des textes bibliques, car elle m'aide dans ma réflexion personnelle.

Social aspect:

The mass allows me to be a part of the great family of believers.

La messe me permet de faire partie de la grande famille des croyants.

During the mass, I feel that I maintain strong bonds with the members of my parish.

Durant la messe, je sens que j'entretiens des liens forts avec les membres de ma paroisse.

During the mass, I feel closer to the other believers.

Durant la messe, je me sens plus proche des autres croyants.

I particularly appreciate the moment when we all say the Our Father because I feel that we all belong to one great family.

J'apprécie particulièrement le moment où nous disons tous le Notre Père car je sens que nous appartenons à une même grande famille.

I particularly appreciate collective gestures and speeches because they allow me to feel closer to others.

J'apprécie particulièrement les gestes et les paroles collectifs, car ils me permettent de me sentir proche des autres.

Emotional aspect:

During the mass, I feel gratitude.

Durant la messe, je ressens de la gratitude.

During the mass, I feel love.

Durant la messe, je ressens de l'amour.

During the mass, I feel peace.

Durant la messe, je ressens de l'apaisement.

During the mass, I feel awe.

Durant la messe, je ressens de l'émerveillement.

During the mass, I feel pride.

Durant la messe, je ressens de la fierté.

During the mass, I feel amusement.

Durant la messe, je ressens de l'amusement.

I particularly appreciate the beauty of the church and the emotions I feel when I contemplate it.

J'apprécie particulièrement la beauté de l'Église et les émotions que je ressens en la contemplant.

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