

Believing, Bonding, Behaving, and Belonging: The Cognitive, Emotional, Moral, and Social Dimensions of Religiousness across Cultures

Journal of Cross-Cultural Psychology
2020, Vol. 51(7-8) 551–575
© The Author(s) 2020
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/0022022120946488
journals.sagepub.com/home/jcc



Vassilis Saroglou¹ , Magali Clobert^{1,2}, Adam B. Cohen³,
Kathryn A. Johnson³ , Kevin L. Ladd⁴, Matthieu Van
Pachterbeke¹, Lucia Adamovova⁵, Joanna Blogowska¹,
Pierre-Yves Brandt⁶, Cem Safak Çukur⁷, Kwang-Kuo
Hwang⁸ , Anna Miglietta⁹ , Frosso Motti-Stefanidi¹⁰,
Antonio Muñoz-García¹¹ , Sebastian Murken¹²,
Nicolas Roussiau¹³, and Javier Tapia Valladares¹⁴

Abstract

Based on theorization on the four basic dimensions of religiousness, *Believing*, *Bonding*, *Behaving*, and *Belonging*, and corresponding cognitive, emotional, moral, and social motives and functions of religion, we developed a measure and investigated cross-cultural consistency of the four dimensions as well interindividual and cross-cultural variability. Data were collected from 14 countries varying in religious heritage: Catholicism, Protestantism, Orthodox Christianity, Judaism, Islam, and Buddhism/Taoism ($N = 3,218$). Beyond their high interrelation and common personality correlates, that is, agreeableness and conscientiousness, the four dimensions were distinct across cultures and religions, less interrelated in Eastern Asia compared to the West, differentially preferred across cultural zones, and characterized by distinct features. Believing and bonding, to which spirituality was primarily related, were preferred in Western secular

¹Catholic University of Louvain, Belgium

²National Fund for Scientific Research, Belgium

³Arizona State University, USA

⁴Indiana University South Bend, USA

⁵Slovak Academy of Sciences, Slovakia

⁶University of Lausanne, Switzerland

⁷Yıldırım Beyazıt University, Turkey

⁸National Taiwan University, Taipei

⁹University of Turin, Italy

¹⁰National and Kapodistrian University of Athens, Greece

¹¹University of Granada, Spain

¹²University of Marburg, Germany

¹³University of Nantes, France

¹⁴University of Costa Rica, Costa Rica

Corresponding Author:

Vassilis Saroglou, Department of Psychology, Université catholique de Louvain, Place du Cardinal Mercier 10, Louvain-la-Neuve, B 1348, Belgium.

Email: vassilis.saroglou@uclouvain.be

societies. Behaving and belonging, valued in religious societies, were importantly related to fundamentalism, authoritarianism, and low openness. Bonding and behaving were primordial in, respectively, Israel and Turkey. Furthermore, belonging (marked by extraversion) and bonding were uniquely associated with increased life satisfaction, whereas believing was uniquely related to existential quest and decreased life satisfaction. Thus, the multidimensionality of religiousness seems deeply rooted in distinct psychological dispositions evident at both the individual and the cultural levels.

Keywords

religious dimensions, Big Five personality traits, cross-cultural differences, life satisfaction, closed-mindedness

Religiousness can be conceived as a global orientation of overall positive versus negative—or indifferent—attitudes regarding religion. Global religiousness is associated with many psychological outcomes at the intraindividual, interpersonal, and intergroup levels, especially when comparing believers and non-believers (Tsang & McCullough, 2003). These outcomes are partly similar across cultures (Saroglou & Cohen, 2013).

However, one must also acknowledge multidimensionality in religiousness and interindividual and cross-cultural variation in religious forms (Hill, 2013; Saroglou & Cohen, 2013). For instance, religiosity can be intrinsic or extrinsic in the underlying motivations, valuing doubt or fundamentalist, inclusive or exclusive of others, and colored by positive or negative emotionality. At the cultural level too, some groups are more strongly characterized by, for instance, intrinsic versus extrinsic (Cohen et al., 2013), or inclusive versus exclusive (Clobert et al., 2017) religiosity. Typically, religiosity that is intrinsic, questing, inclusive, and of positive emotionality is considered as positive and mature. The opposite kinds of religiosity are usually associated with negative outcomes.

We argue here that beyond such variability that distinguishes between positive and negative forms of religiosity, researchers should also be interested in a more basic distinction between four dimensions of religiosity: believing, bonding, behaving, and belonging. These dimensions reflect differences in the *nature* (cognitive, emotional, moral, and social), and not in the *quality* (positive versus negative) of motives and processes. This work investigates this distinction, its measurement, and interindividual and cultural variability across 14 countries.

Four Basic Religious Dimensions: Believing, Bonding, Behaving, and Belonging

Integrating and extending previous theory (Glock, 1962; see also Atran & Norenzayan, 2004; Hervieu-Léger, 1999; Hinde 1999), Saroglou (2011, 2014) developed theorization in which religion and religiousness are defined as including four basic dimensions, named, for convenience, as *Believing*, *Bonding*, *Behaving*, and *Belonging*. The co-existence of the four dimensions within religion makes religion unique with regard to other domains such as art, paranormal beliefs, non-organized spirituality, or ideology. Each of the four dimensions corresponds to a specific aspect of religion, kinds of religious products, and underlying ideals, as well as specific motives, to become, continue, or stop being religious, different ways to express religiousness, and distinct functions of religion.

The *believing* dimension refers to the cognitive aspects of religion, beliefs related to the transcendence, the ideal of truth, especially regarding the big existential questions, and motives and functions such as the search for meaning and epistemic certainty. The *bonding* dimension refers to the emotional aspects involved when connecting with the transcendence and the co-religionists

through religious rituals; search for oneness, awe, and inner peace; and motives and functions such as emotional regulation and attachment security.

The *behaving* dimension refers to the moral aspect of religion, implying norms and moral rules, ideals of virtue, purity, and moral order, and search for self-control and a values hierarchy. Finally, the *belonging* dimension refers to the social aspects of religion, insertion into a community, continuity with a tradition, and the search for collective identity and social self-esteem by belonging to a group with a glorious past and an eternal future.

Theoretically, these four dimensions not only detail how and why people *are* religious, but also how and why people *become* religious (see for conversion motives: Rambo & Farhadian, 2014), or *exit from* religion (see for deconversion motives: Streib et al., 2008). For instance, non-believers may find religious beliefs irrational, religious rituals unsatisfactory, religious morality hypocritical, and the religious group as inhibiting autonomy (Saroglou, 2012). Moreover, these four dimensions potentially point to different mechanisms explaining the religion-well-being link: meaning and purpose in life (Park & Slattery, 2013), positive emotions experienced in rituals (Van Cappellen et al., 2016), moral order-related hygienic behaviors (McCullough & Willoughby, 2009), and identification with and social support from the group (Hayward & Krause, 2014).

The Current Study: Psychological Distinctiveness and Cultural Variability of the Four Religious Dimensions

This work investigates the degree to which the four dimensions are, beyond their overlap due to the common underlying global pro- vs. anti-religious attitude, distinct from each other, and demonstrate psychologically meaningful variability between individuals and religious cultures. First, we created a measure aiming to tap the four dimensions of religion in the general population and then investigated its factorial structure across individuals and cultures. Second, we hypothesized that the four dimensions would differentially relate to (1) specific religious orientations, (2) basic personality traits, (3) socio-cognitive orientations, and (4) well-being. Cultural/religious groups may also differ (5) in the degree to which the four dimensions are interrelated and (6) on the relative importance attributed to each of the four dimensions. We carried out an international study to address the above questions with adult samples from 14 countries varying in religious heritage: Catholic, mixed Protestant/Catholic, Orthodox Christian, Jewish, Muslim, and Buddhist/Taoist.

Measuring the four basic dimensions of religiousness. We created a brief measure aiming to tap the four dimensions of believing, bonding, behaving, and belonging. The items were created by Western European psychologists in collaboration with psychologists in the US, all of them familiar with extant measures of religiousness. The scale's items were not selected from a greater number of items on the basis of collected data but were originally intended to be limited to 12 (see Table 1) in order to have a measure that could easily be administered to both religious and non-religious participants. The latter are often reluctant to answer too many religious items which may seem irrelevant. We wanted to include nonbelievers, since non-believers might express some degree of valuing one or another aspect of religion. Similarly, we expected that several religionists would highly endorse some, but not necessarily all, religious dimensions.

The scale construction adopted a rational-theoretical approach in a way that the items capture the breadth and specificity of each of the four religious dimensions and the respective psychological functions, as theorized by Saroglou (2011, 2014). The items were intended to be psychological in nature by referring to psychological motives and functions rather than to specific religious beliefs and practices. These psychological constructs include (1) belief in a transcendence and

Table 1. The Four Basic Dimensions of Religiousness Scale.

Dimensions	Items
Believing (Meaning)	1. <i>I feel attached to religion because it helps me to have a purpose in my life</i>
	2. <i>It is important to believe in a Transcendence that provides meaning to human existence</i>
	3. <i>Religious beliefs have important implications for our understanding of human existence.</i>
Bonding (Emotions/ Ritual)	4. <i>I like religious ceremonies</i>
	5. <i>Religious rituals, activities or practices make me feel positive emotion</i>
Behaving (Morality)	6. <i>Religion has many artistic, expressions, and symbols that I enjoy</i>
	7. <i>I am attached to the religion for the values and ethics it endorses</i>
	8. <i>Religion helps me to try to live in a moral way</i>
Belonging (Community)	9. <i>When I've got a moral dilemma, religion helps me make a decision</i>
	10. <i>In religion, I enjoy belonging to a group/community</i>
	11. <i>Belonging to a religious tradition and identifying with it is important for me</i>
	12. <i>Referring to a religious tradition is important for my cultural/ethnic identity</i>

meaning in life (believing), (2) emotional and aesthetic experience through rituals and symbols (bonding), (3) moral orientation (behaving), and (4) belongingness and social/cultural identity (belonging).

Thus, our conceptualization of different psychological aspects and motives of religiousness departs in several ways from the sociological classification of aspects of religiosity into belief, practice, and affiliation (Voas, 2007). In our model, (1) the believing dimension refers not to specific beliefs, but to religion as meaning-making and as connection with transcendence; (2) the bonding dimension denotes emotional and aesthetic experiences and not the frequency of religious practice; (3) the behaving, moral, dimension is additional; and (4) the belonging dimension focuses on attachment to a religious/cultural heritage rather than affiliation with a denomination. The above mentioned specificities of our conceptualization also apply with regard to the 15-item *Centrality of Religiosity Scale* (Huber & Huber, 2012), which aggregates but does not distinguish between five dimensions: “ideological” (beliefs), “intellectual” (religious knowledge), “experiential” (connection with God), “public practice” (religious attendance), and “private practice” (prayer).

Finally, our operationalization of the four religious dimensions is intended to be not only religiously “content-free” but also fully descriptive and non-evaluative. Distinguishing between intrinsic versus extrinsic religiosity, religion as belief in a loving versus punishing God, and religion-as-quest versus fundamentalism, each presents the risk of evaluative biases in favor of a “good” versus “bad” religion (see Cohen et al., 2005, for intrinsic vs. extrinsic religion). Departing from such perspective, we intended to operationalize the four dimensions in a value-neutral way. We thus measured (1) religion as meaning-making, be it in a fundamentalist or symbolic way, (2) religion as an experience through rituals, replete with positive emotions or not, (3) religion as a set of values and norms, whether favoring collectivist and “hygienic” morality or promoting care for others and justice, and (4) religion as an attachment to a community, with identity being potentially inclusivist or exclusivist.

Interindividual variability: Distinct psychological characteristics

Since the organized major world religions integrate the four dimensions, we expected the four religious dimensions to be inter-related and, to some extent, associated with similar outcomes. However, we expected them to also be distinct, as tapping distinct psychological motives and functions of religiousness, and thus show differential associations with (1) two key (quasi)

religious orientations—spirituality and fundamentalism, (2) the Big Five personality traits, (3) three socio-cognitive orientations denoting rigidity-flexibility in the existential, epistemic, and socio-political domains, that is, respectively, existential quest, need for closure, and authoritarianism, and (4) life satisfaction. The hypotheses are detailed below.

Note that the distinctiveness between the four dimensions in intercorrelations and associations with various outcomes should be clearer to the point each of them denotes something specific beyond a global indiscriminate, pro- versus anti-, religious attitude. In other words, one can conceive religiousness as the combination of the four dimensions, but also as a multidimensional construct where, beyond a global pro-religious attitude, one may be interested only or primarily in religious meaning (believing), emotions (bonding), norms (behaving), or community (belonging).

Spirituality and fundamentalism. All four dimensions should be related to the importance of spirituality in one's life. Most religious people consider spirituality as an important part of their religion (Zinnbauer & Pargament, 2005). However, as already hypothesized in an earlier theorization (Saroglou, 2011, in particular Table 2), we expected the importance of *spirituality* in one's life to be primarily associated with the *believing* and *bonding* dimensions. This is because spirituality is defined by the belief in transcendence and a search for meaning, and also because spirituality implies an experiential dimension of connection with the transcendence and inter-connectedness with others (MacDonald, 2000). The behaving and belonging dimensions could be less involved because, unlike religiosity, modern spirituality is not associated with the endorsement of strict and collectivistic morality (Deak & Saroglou, 2015). Instead, spirituality emphasizes autonomy and individuality and often indifference toward institutionalized forms of religion (Johnson et al., 2018; Zinnbauer & Pargament, 2005).

Similarly, all four dimensions should be related to *fundamentalism*, which is an authoritarian religiosity (Rowatt et al., 2013). High versus low fundamentalism, in the general population, maps onto high versus low religiosity, and there exist cognitive, emotional, moral, and social forms of fundamentalism (Saroglou, 2016). Indeed, the meaning-making process is made intratextually (Hood et al., 2005), religious experience is marked by fear and hate (Strozier et al., 2010), self-control-oriented norms are preferred over prosocial values (Johnson et al., 2016), and ingroup favoritism often results in outgroup derogation (Rowatt et al., 2013). However, as already hypothesized for religious orthodoxy and orthopraxy in an earlier theorization (Saroglou, 2011, in particular Table 2), we expected *believing*, *behaving*, and *belonging* to be more strongly related to fundamentalism than bonding. Fundamentalism is greatly concerned with literalism, moral order, group exclusivity, and social conformity.

Big Five personality traits. Previous research has shown that religiousness, across its several forms, including fundamentalism and spirituality, is related to agreeableness and conscientiousness. Orthodoxy and fundamentalism, and sometimes traditional religiosity too, are additionally related to low openness to experience, whereas spirituality is positively associated with this trait. Religiosity is unrelated to neuroticism and extraversion, though, in some cultures, it may reflect positive emotionality, that is, high extraversion and/or low neuroticism (Saroglou, 2010, 2017).

We thus expected all four religious dimensions to relate positively to agreeableness and conscientiousness. It is through beliefs and narratives, experiences in rituals, values and norms, and the formation of a community that religion enhances oneness with others and self-control and life goals to achieve. Similarly, religion attracts people with prosocial and order-oriented tendencies in the cognitive, emotional, moral, and/or social domains.

Nevertheless, the *bonding* dimension, because of its emotional character and the eminently social aspect of the emotions in collective rituals, should reflect *agreeableness* in a stronger way or uniquely, compared to the other three religious dimensions; and the *behaving* dimension, as it involves moral orientation and order, was expected to be more clearly related to

conscientiousness. Moreover, the *behaving* and *belonging* dimensions, because of the underlying social conformity and attachment to a tradition, should be negatively related to *openness to experience*. *Extraversion* could be positively related to the *bonding* and the *belonging* dimensions because of their social aspect. Finally, we did not expect *neuroticism* to particularly relate to any specific religious dimension, because we had operationalized the measure to tap religious dimensions that neither are colored by a fundamentalist or liberal tendency nor denote specifically positive or negative emotionality.

Existential quest, need for closure, and authoritarianism. Religious orthodoxy and fundamentalism typically relate to socio-cognitive orientations denoting rigidity and closed-mindedness, such as low existential quest and high need for closure, dogmatism, and authoritarianism. In contrast, religious quest, symbolic belief, and modern spirituality, are either unrelated to the above constructs or related to them in the opposite direction from orthodoxy or fundamentalism (Rowatt et al., 2013).

What about mere religiosity, that is, the common believing and practicing of most believers, who are neither dogmatic nor social rebels? Research in Western societies indicates that common religiosity reflects the need for closure, that is, epistemic motivation for answers and a search for order and predictability in one's own internal and external world (Duriez, 2003). Similarly, common religiosity is often related to authoritarianism, though to a lesser extent than fundamentalism (Wink et al., 2007), and is not accompanied by high existential quest (Deak & Saroglou, 2015; Van Pachterbeke et al., 2012).

Thus, we expected all four dimensions to denote low flexibility in the existential quest domain (not highly valuing doubt and openness to the possibility of changing beliefs in the future), the epistemic domain (need for closure, in terms of order and predictability), and the sociopolitical orientation of authoritarianism. However, we expected the *behaving* and *belonging* dimensions to be more strongly (or uniquely compared to the other dimensions) associated with low existential quest and high need for closure and authoritarianism.

Life satisfaction. We also investigated whether the four religious dimensions differentially predict life satisfaction. In principle, all of them could contribute to well-being. As previously mentioned, the link between religiousness and well-being can be at least partly explained by religious beliefs, emotional experience in rituals, self-control-oriented "hygienic" practices, and group-based factors (Park & Slattery, 2013). However, the *belonging* and the *bonding* dimensions of religiousness may have a major role given their direct influences on well-being through respectively, social support and social identity (Hayward & Krause, 2014), and experience of and regulation of emotions (Park & Slattery, 2013). The influences of the *behaving* and the *believing* dimensions may be less obvious because it is unclear whether high clarity and certainty in existential beliefs and normative practices are related to well-being (Napier & Jost, 2008) or to obsessionality (Lewis & Loewenthal, 2018).

Cross-cultural/religious variation

Based on previous theorization having identified these four aspects (beliefs, emotions in rituals, values, and community) across religions (Glock, 1962; see also Atran & Norenzayan, 2004; Hinde, 1999; Saroglou, 2011, 2014), as well as research indicating, to some extent, similar functions of religiousness across cultural contexts (Saroglou & Cohen, 2013), we first expected the four dimensions to be identifiable across religions and countries. Furthermore, research also points out to notable cross-cultural differences in the psychological characteristics of religions (Joshani & Gebauer, 2020; Saroglou, 2019; Saroglou & Cohen, 2013). Beyond their universality, the four dimensions should allow us to identify meaningful and interesting cross-cultural/

religious differences. Religious cultures should differ in the degree to which the four dimensions are interrelated, as well as in the preponderance they attach to one or more of the four dimensions.

Degree of interrelations between the religious dimensions across cultures. In Western monotheistic contexts, the different aspects of religion seem to be more integrated with each other, compared to Eastern Asian contexts (Saroglou, 2011). Eastern religions, compared to the monotheisms, imply a weaker connection between a personal god and moral order (Stark, 2001). The search for personal control is less relevant in Eastern Asian religious contexts, compared to the Western Christian context (Sasaki & Kim, 2011). Similarly, Eastern Asian religiosity, compared to Christian religiosity, has been found to relate to tolerance rather than prejudice of ethnic and religious outgroups, and this is because of Easterners' higher tolerance of contradiction (Clobert et al., 2017). Thus, we hypothesized that the interrelations between the four dimensions should be weaker in a cultural context marked by Buddhism/Taoism (in this study, in Taiwan) compared to Western societies marked by monotheistic religions.

Differences in the preponderance of the four dimensions within cultures. We expected an interesting source of cross-cultural variance to be the emphasis that a specific religious culture gives to one or the other religious dimensions (Saroglou, 2011). First, Protestantism in the West strongly accentuates the importance of faith, belief, and meaning-making, assumed to be at the heart of intrinsic religiosity (Cohen et al., 2005). We thus expected the *believing* dimension to be preponderant (higher means compared to the other dimensions) in countries of the Protestant tradition, including ones with mixed Catholic and Protestant influences. Second, because of the importance of rituals in connecting people, the *bonding* dimension should be preponderant in contexts emphasizing the role of collective rituals in maintaining tradition and culture, such as Judaism and Orthodox Christianity, which emphasize ritual as constitutive of religion (Cohen et al., 2013; Roudometof, 2010). Moreover, because of its emphasis on emotions, the bonding dimension should be strong in cultural contexts valuing religious emotional expression and where religiosity reflects positive emotionality (e.g., the US; Saroglou, 2017).

Third, a major specificity of Islam across countries, compared to other religious civilizational zones, is its emphasis on traditional morality (Norris & Inglehart, 2004). We thus expected the *behaving* dimension to be preponderant in a Muslim context (in this study, Turkey). Finally, religion has played a critical role in nourishing the ethnic identity in nations marked by the uniqueness of language and religion and located in the frontiers of civilizations historically conflicting (Huntington, 1996). Therefore, in line with previous theorization (Saroglou, 2011, 2016), we explored whether the *belonging* dimension is preponderant in Israel, Greece, and Turkey, the Eastern Mediterranean area.

Summary of the Expectations

We predicted that four religious dimensions, believing, bonding, behaving, and belonging (denoting the cognitive, emotional, moral, and social aspects of religiousness, respectively) would be distinct, though inter-related, and demonstrate interindividual and cultural variability. We expected that: (1) the four-factor structure of the scale we created to measure the four dimensions would be observable across individuals and countries of various religious traditions; (2) spirituality would be more importantly associated with the believing and bonding dimensions; and (3) fundamentalism would be associated with all dimensions, in particular the believing, behaving, and belonging dimensions.

Further, (4) agreeableness and conscientiousness should be positively associated with all dimensions, but (4a) agreeableness should be related most strongly or uniquely to the bonding

dimension, and (4b) conscientiousness to the behaving dimension; and (5) extraversion should be related to the bonding and belonging dimensions. Moreover, although all four dimensions would reflect order-oriented socio-cognitive orientations (low existential quest and high need for closure and authoritarianism), we expected (6) the behaving and belonging dimensions to most clearly reflect these orientations and low openness to experience. Further, (7) all four dimensions should be associated with life satisfaction, but particularly the bonding and belonging dimensions.

Finally, we expected cross-cultural differences. First, (8) the four dimensions would be more strongly interrelated in Western monotheistic compared to East Asian contexts. Second, (9a) believing would be predominant in Protestantism, (9b) bonding in the US, (9c) bonding and belonging in Orthodox Christianity and Judaism, and (9d) behaving in Islam.

Method

Participants

In total, 3,218 participants (M age = 21.82, SD = 4.95, 70.8% female), students mostly in the humanities and social sciences, from 14 countries took part voluntarily in the study. The countries included were Belgium (BE), Costa Rica (CR), France (FR), Germany (DE), Greece (GR), Israel (IL), Italy (IT), Poland (PL), Slovakia (SK), Spain (ES), Switzerland (CH), USA (two samples, from Arizona and Indiana), Turkey (TK), and Taiwan (TW). Following the general recommendations made by Wolf and colleagues (Wolf et al., 2013) regarding the sample size requirements for CFAs, we estimated that a sample size of 150 participants per country was necessary to evaluate a four-factor model with three indicators per factor (with loadings set at 0.80) to obtain statistical power at the recommended 0.80 level (Cohen, 1988). In all but one sample, the N varied from 150 to 271 (500 in Spain). In all but one country, data were collected during 2010 to 2012 (in Italy, in 2016). In addition to the measures below, participants completed measures of religious prejudice and positive and negative emotions not reported here.

Measures

The Four Basic Dimensions of Religiousness Scale (4BDRS). Participants completed the 12-item scale designed to measure four distinct dimensions of religiousness, with three items per dimension (see Table 1). The items assessed positive attitudes toward and endorsement of (interest on, attachment to, investment on, valuing) (1) religious meaning-beliefs, that is, the Believing dimension, (2) religious ritual-emotions, that is, the Bonding dimension, (3) religious morality-norms, that is, the Behaving dimension, and (4) religious community-tradition, that is, the Belonging dimension. Participants rated on a 7-point Likert scale their agreement (from 1 = *totally disagree* to 7 = *totally agree*) with each item.

Religiosity, spirituality, and fundamentalism. We provided participants with a three-item index of general, personal *religiosity* measuring the importance of God in life, the importance of religion in life, and the frequency of prayer (across countries, α s ranged from .80 to .95), a one-item index of the importance of *spirituality* in life, and the *Religious fundamentalism* scale (short, 12-item; Altemeyer & Hunsberger, 2004) (α s ranged from .75 to .95 across countries) (7-point Likert scales).

Personality, socio-cognitive orientations, and life satisfaction. The Ten-Item Personality Inventory (Gosling et al., 2003) was used to measure the *Big Five personality traits*: extraversion,

Table 2. Change of Goodness of Fit (RMSEA) in Multigroup CFA for All Measures Other than the 4BDRS.

RMSEAs for	Unconstrained	Constrained 1	Constrained 2	Constrained 3
Religious fundamentalism	0.027	0.028 ($\Delta < 0.01$)	0.037 ($\Delta < 0.01$)	0.040 ($\Delta = 0.013$)
Big Five personality traits	0.031	0.032 ($\Delta < 0.01$)	0.042 ($\Delta = 0.011$)	0.039 ($\Delta < 0.01$)
Existential quest	0.040	0.038 ($\Delta < 0.01$)	0.049 ($\Delta < 0.01$)	0.049 ($\Delta < 0.01$)
Need for closure	0.041	0.038 ($\Delta < 0.01$)	0.047 ($\Delta < 0.01$)	0.046 ($\Delta < 0.01$)
Authoritarianism	0.028	0.028 ($\Delta < 0.01$)	0.043 ($\Delta = 0.015$)	0.042 ($\Delta = 0.014$)
Life satisfaction	0.025	0.024 ($\Delta < 0.01$)	0.044 ($\Delta = 0.019$)	0.043 ($\Delta = 0.018$)

Note. Significant results are given in bold.

agreeableness, conscientiousness, neuroticism, and openness to experience. Participants also completed measures of *existential quest*, *need for closure*, and *authoritarianism*. Specifically, to measure flexibility on one's own attitudes toward existential issues, that is, valuing doubt and being open to the possibility of changing one's own beliefs, we used the 9-item Existential Quest Scale (Van Pachterbeke et al., 2012) (α s ranged from .64 to .82 across countries). To measure the epistemic need for order and structure in the internal world and for "an answer on a given topic, any answer . . . compared to confusion and ambiguity," we used nine items from the need for order and need for predictability subscales of the Need for Closure Scale (Webster & Kruglanski, 1994) (α s ranged from .57 to .84 across countries). These two facets constitute the most representative dimensions of the construct and clearly relate to religiosity per se, not necessarily a rigid one (Duriez, 2003). We also administered 12 items from the Right-Wing Authoritarianism scale (Funke, 2005) (α s ranged from .52 to .73 across countries). Finally, participants completed the Satisfaction with Life Scale (Diener et al., 1985), with five items (α s ranging from .78 to .87 across countries). In all measures, 7-point Likert scales were used.

Translations and cross-cultural equivalence. The survey was carried out in English (US), French (BE, CH, FR), Spanish (CR, ES), and, in the predominant spoken language for the remaining countries, that is, Chinese, German, Greek, Hebrew, Italian, Polish, Slovak, and Turkish. In most cases, validated translations were already available for the measures of personality, authoritarianism, need for closure, fundamentalism, and life satisfaction. The remaining few translations, as well as the translation of the 4BDRS and the Existential Quest scale, were carried out by the respective author in each country, except for French (these two scales were originally created simultaneously in French and English). Back translations of the 4BDRS were done by collaborators of the country author; and the back translations for Chinese, Greek, and Polish were checked by the first author. The scale is free to be used, and translations can be asked of a particular country's respective co-author.

To ensure that all the other scales presented equivalent factorial structures across the 14 countries, multigroup Confirmatory Factor Analyses (CFAs) using AMOS v. 20, were conducted. We compared a model with no measurement equivalence constraints across countries with three constrained models: (1) equal factor loadings across countries (configural and metric invariance), (2) equal factor loadings and intercepts (scalar invariance), and (3) equal factor loadings, intercepts, and variances (strict invariance). Change in goodness of fit was used as an indicator of measurement equivalence. Following Cheung and Rensvold (2002), we used $\Delta RMSEA$ (less than or equal to 0.01 indicate measurement equivalence) as our principal indicator since all other Goodness of Fit Indices were found to be at least partially dependent on model complexity (e.g., number of manifest variables). Using this criterion, we, therefore, established configural and metric invariance for all the scales across countries (see Table 2). Nevertheless, scalar and strict

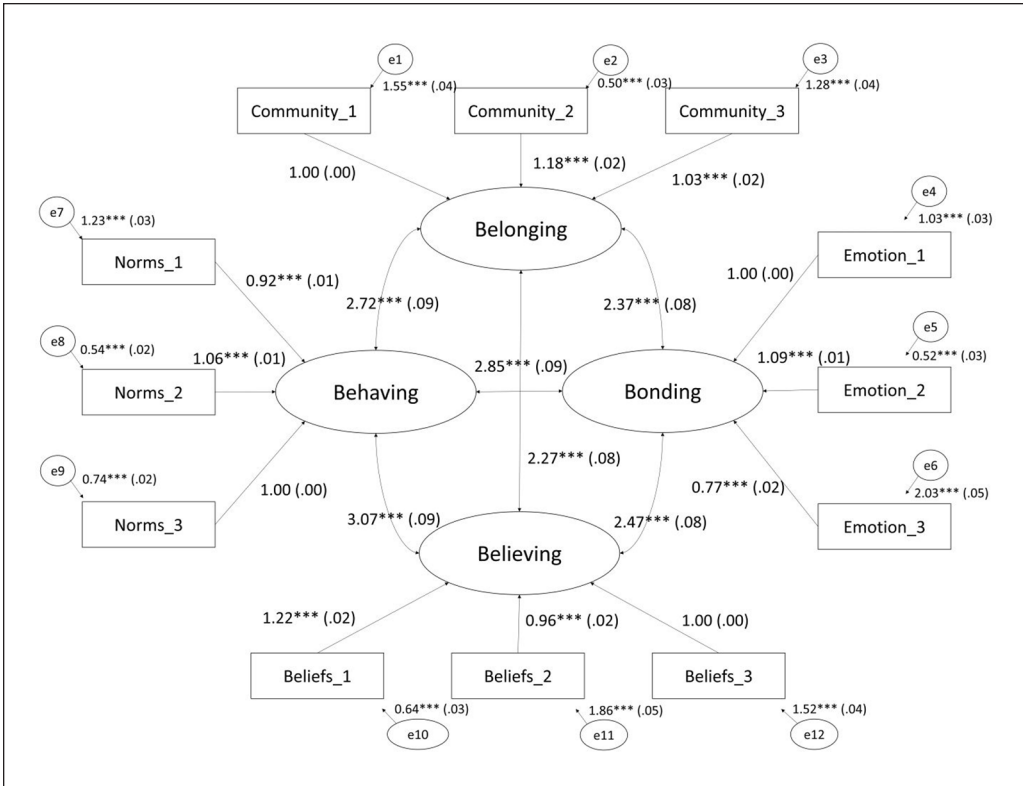


Figure 1. Confirmatory factor analysis of the Four Basic Dimensions of Religiousness Scale. Note. Numbers on paths represent unstandardized regression coefficients. Standard errors are in parentheses. *** $p < .001$.

invariance were not established for all the scales suggesting caution when considering mean differences between cultures.

Results

Factorial Structure, Reliabilities, and Convergent Validity

To confirm the distinctiveness of the four hypothesized religious dimensions, two confirmatory factor analyses (CFAs) that compared the fit of two nested models were conducted using AMOS, version 20. The first model was a single-factor model in which all items included in the scale contributed to a single underlying factor, that is, religiousness. The second model was a four-factor model corresponding to the four dimensions of religiousness theorized. Parameters were estimated by using maximum likelihood. To account for the nested structure of the data, we run multi-group CFAs (unconstrained model). Finally, we conducted a chi-square difference test and compared the Akaike information criterion (AIC) values (Bollen, 1989) to determine whether the two models were significantly different.

The four-factor model (see Figure 1) provided an acceptable to good fit ($RMSEA = 0.026$, $CFI = 0.952$, $IFI = 0.953$, $NFI = 0.932$), while the one-factor solution presented a relatively poor fit to the data, according to the usual indices ($RMSEA = 0.043$, $CFI = 0.854$, $IFI = 0.856$, $NFI = 0.835$). A significant difference between the chi-square for each model indicated that the

four-factor model was significantly better than the one-factor model: four-factor model, $\chi^2(720, N = 3218) = 2264.939$; one-factor model, $\chi^2(810, N = 3218) = 5519.660$; $\Delta\chi^2 = 3254.721$, $\Delta df = 90$, $p < .001$. The four-factor model also had a much smaller AIC value (3524.939) than the one-factor model (6599.660). Thus, overall, the four-factor model provided a better fit for the data than the single factor solution.

Moreover, in exploratory factor analyses, specifying for the extraction of a specific number of factors, followed by a varimax rotation, a four-factor model turned out to be a better solution compared to alternative models. The explained variance was highest (84%) compared to the one-, two-, and three-factor models (respectively, 68%, 74%, and 79%) and all but one items had their highest loadings in the appropriate factor (item 1, as in Table 1, had its highest loading to the behaving factor, and its second loading to the believing factor). In the three-factor solution, the items of the believing and the behaving dimensions formed a unique factor, and the ones of the belonging and bonding, respectively, two distinct ones. In the two-factor solution, the three items of the bonding dimension constituted a distinct from a first, general, factor that included all the other nine items.

Furthermore, the reliabilities were satisfactory. Across countries, the Cronbach's alphas ranged: for the Believing dimension, from 0.772 to 0.914; for the Bonding dimension, from 0.727 to 0.940; for the Behaving dimension, from 0.787 to 0.946; and for the Belonging dimension, from 0.714 to 0.924. Finally, the aggregate score of the 12 items (Cronbach's alpha = .96) was highly correlated with the three-item religiosity index (r s varied from 0.71 to 0.87 in all but one country—in Taiwan, $r = 0.57$), demonstrating convergent validity of the measure.

Cross-Cultural/Religious Measurement Equivalence

To ensure that the model described above was equivalent, first, across countries and, second, across individuals' religious affiliations, two multi-group Confirmatory Factor Analyses (CFAs) using AMOS v. 20, were conducted. We followed the analytical strategy described by Cheung and Rensvold (2002) and compared an unconstrained model, and a model constrained to present equal structural weights: (1) across the 14 countries varying in religious heritage; and (2) across convictional affiliations of participants: Catholics, Protestants, Jewish, Muslims, Orthodox, Buddhists/Taoists, agnostics, atheists, and "others."

The multigroup CFAs for the 14 countries showed that the fit indices for the unconstrained model, $\chi^2 = 2264.939$, $df = 720$, $p < .001$; $CFI = 0.952$, $RMSEA = 0.026$, McDonald's $NCI = 0.786$, $Gamma Hat = 0.998$, were overall comparable to those obtained for the model constrained to present equal structural weights, $\chi^2 = 2582.693$, $df = 832$, $p < .001$; $CFI = 0.946$, $RMSEA = 0.026$, McDonald's $NCI = 0.762$, $Gamma Hat = 0.998$. The difference between the constrained and unconstrained model was not significant according to most indexes [$\Delta CFI = -0.006$ (difference < 0.01), $\Delta RMSEA = 0.000$ (difference < 0.01), Δ McDonald's $NCI = -0.02$ (difference < -0.02), Δ Gamma Hat = 0.000 (difference < -0.005), except for the Chi-square test ($\Delta\chi^2 = 317.754$, $\Delta df = 112$, $p < .001$). Thus, the scale shows dimensional invariance (four factors) and configural invariance (items' correspondence with the appropriate factor) across the 14 countries. Importantly, these results also applied to the two non-Western non-Judeo-Christian countries, that is, Turkey and Taiwan, where the four-factor model provided an acceptable to good fit (respective RMSEAs = 0.80, 0.100, CFIs = 0.968, 0.909, IFIs = 0.911, 968, NFIs = 0.949, 0.878), and was each time significantly better than the one-factor model.

The multi-group CFAs for the different convictional affiliations of participants showed that the fit indices for the unconstrained model, $\chi^2 = 1773.588$, $df = 432$, $p < .001$; $CFI = 0.946$, $RMSEA = 0.032$, McDonald's $NCI = 0.798$, $Gamma Hat = 0.998$, and for the model constrained to present equal structural weights, $\chi^2 = 2033.424$, $df = 496$, $p < .001$; $CFI = 0.938$, $RMSEA = 0.032$, McDonald's $NCI = 0.774$, $Gamma Hat = 0.997$, were quite similar. The

Table 3. Interrelations (Mean Correlations Across Countries Weighted by Sample Size) Between the Religious Measures, and Partial Correlations Controlling for Religiosity (in Parentheses).

	Believing	Bonding	Behaving	Belonging
Religiosity	0.75 [0.73, 0.76]	0.62 [0.59, 0.64]	0.78 [0.77, 0.79]	0.73 [0.72, 0.75]
Spirituality	0.61 [0.59, 0.63] (0.16 [0.13, 0.20])	0.51 [0.49, 0.54] (0.12 [0.09, 0.16])	0.59 [0.51, 0.61] (0.06 [0.03, 0.10])	0.55 [0.53, 0.58] (0.05 [0.02, 0.09])
Rel. fundamentalism	0.57 [0.55, 0.60] (0.23 [0.20, 0.27])	0.45 [0.42, 0.48] (0.12 [0.08, 0.15])	0.60 [0.57, 0.62] (0.25 [0.22, 0.28])	0.53 [0.51, 0.56] (0.18 [0.15, 0.22])
Believing		0.68 [0.66, 0.70] (0.41 [0.38, 0.44])	0.81 [0.80, 0.82] (0.54 [0.52, 0.57])	0.72 [0.70, 0.73] (0.38 [0.35, 0.41])
Bonding			0.67 [0.65, 0.69] (0.37 [0.34, 0.40])	0.69 [0.67, 0.71] (0.44 [0.41, 0.47])
Behaving				0.78 [0.77, 0.80] (0.49 [0.47, 0.52])

Note. $N = 3,157-3,165$ (3,109). Except for < 0.06 ($p < .01$), all correlation coefficients are significant at the $p < .001$ level. In brackets: 95% confidence intervals.

difference between the constrained and unconstrained model was not significant: $\Delta CFI = -0.008$ (difference < 0.01), $\Delta RMSEA = 0.000$ (difference < 0.01), Δ McDonald's $NCI = -0.02$ (difference < -0.02), Δ Gamma Hat = -0.001 (difference < -0.005), except for the Chi-square difference ($\Delta\chi^2 = 259.836$, $\Delta df = 64$, $p < .001$). Multi-group CFA analyses therefore showed the structural (metric and configural) equivalence of the Four Basic Dimensions of Religiousness Scale across religious/convictional groups.

More conservative constrained models were additionally tested to establish scalar (i.e., factor loadings and intercepts equal across countries) and strict (i.e., factor loadings, intercepts, and variances equals across countries) measurement invariance but significantly deteriorated the model fit. Adequate configural and metric invariances suggest that correlation and regression analyses can be confidently conducted using this scale across countries but that we should be cautious if comparing means across countries as scalar and strict invariances are not achieved (Steenkamp & Baumgartner, 1998).

Correlations Between the Religious Measures across Cultures

We subsequently examined the intercorrelations between the four dimensions as well as the correlations between the four dimensions and the three other religious measures, that is, religiosity (3-item index), fundamentalism, and spirituality. To account for the nested structure of the data, instead of simple correlations we computed the mean of correlations across countries weighted by the sample size (for such an approach, see Gebauer et al., 2017). The four dimensions were highly intercorrelated, and, when controlling for religiosity, the coefficients of intercorrelations decreased (see Table 3) suggesting their partial distinctiveness beyond the common indiscriminate pro-religious attitude.

As expected, all four dimensions were correlated with religiosity, spirituality, and fundamentalism. When controlling for religiosity (indiscriminate pro-religious attitude), as predicted, spirituality was related more strongly to the believing and bonding dimensions (0.16 and 0.12), and fundamentalism was related more strongly to the believing, behaving, and belonging dimensions (0.23, 0.25, and 0.18) compared to the bonding one (see also Table 3).

To test the hypothesis that the degree of intercorrelations between the four dimensions is moderated by the monotheistic versus the non-monotheistic character of the country's religious

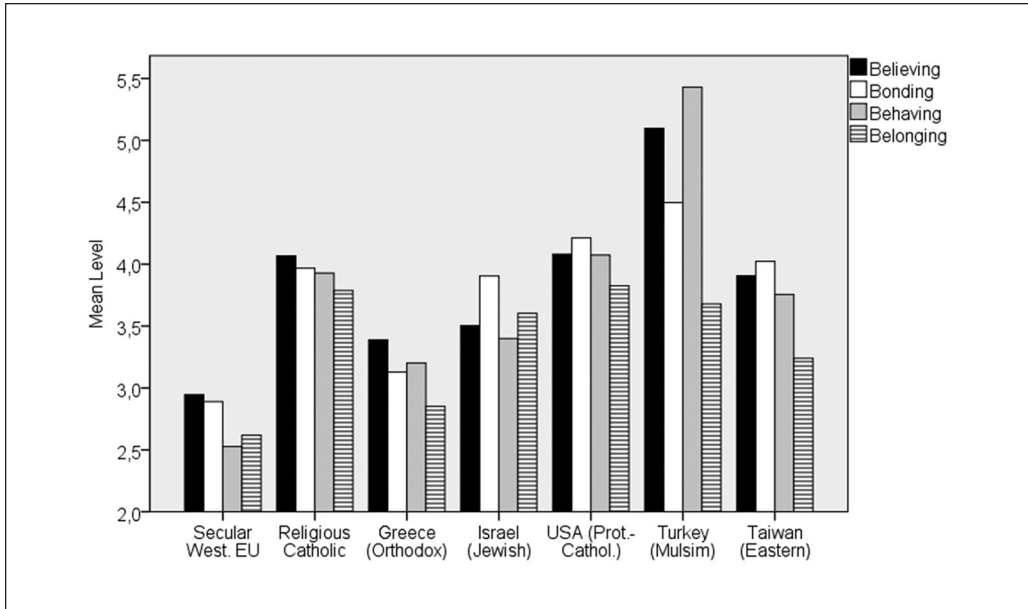


Figure 2. Mean level of the four religious dimensions by religious cultural zone.

Note. Secular Western EU countries: Belgium, Germany, France, Spain, and Switzerland. Religious Catholic countries: Costa Rica, Italy, and Poland. USA: Indiana and Arizona. The scale ranges from 1 to 7, but the restricted range depicted here is from 2 to 5.5 to facilitate the visibility of the Figure.

tradition, we compared the intercorrelations between the four dimensions in Taiwan, a country of Eastern (Buddhist/Taoist) tradition, with the intercorrelations between the four dimensions in all the other 13 countries. In all cases, the intercorrelations were lower in Taiwan (r s varied from .31 to .68), compared to the countries of monotheistic traditions (r s varied from .70 to .84), all z s > 5.68, p s < .001.

Mean Differences Across and Within Cultures

Mean levels of the four religious dimensions, by country, differed and were correlated with indicators of country-level religious practice, that is, weekly prayer and weekly attendance, as measured by the Pew Research Center (2018), thus providing convergent validity of the 4BDRS at the collective level. Specifically, the country's mean level of weekly prayer was related to the country's mean level of the behaving ($\rho = .75, p = .003$) and the believing ($\rho = .55, p = .050$) dimensions; and, again at the country-level, weekly attendance was related most strongly to the behaving dimension ($\rho = .77, p = .002$), but also to the other three religious dimensions (ρ s varied from .56 to .65, all p s < .05).

Furthermore, we explored whether, within specific religious cultures, there were differences between the mean levels of the four dimensions, with some of them being more preponderant than the others in certain cultures. To do so, we grouped the 14 countries into seven religious-cultural zones, partly following the Inglehart and Welzel (2013) world map of civilizational zones: Catholic religious countries (CR, IT, PL, SK), secular Western European countries (BE, FR, DE, ES, CH; all of Catholic or mixed Protestant-Catholic tradition), USA (predominantly Protestant but also Catholic), Greece (Christian Orthodox), Israel (Jewish), Turkey (Muslim), and Taiwan (Buddhism/Taoism). For each cultural zone (see Figure 2), we computed a repeated

Table 4. Means of the Four Religious Dimensions, by Religious Cultural Zone, and Comparisons Within Religious Cultural Zones.

	M (SD)				Comparisons		
	Believing ^a	Bonding ^b	Behaving ^c	Belonging ^d	dfs	F	η ²
Secular W. EU	2.94 (1.7) ^{c,d}	2.89 (1.6) ^{c,d}	2.53 (1.7) ^{a,b,d}	2.62 (1.7) ^{a,b,c}	3,198	69.18***	.055
Relig. Catholic	4.07 (1.9) ^{b,c,d}	3.97 (1.8) ^{a,d}	3.93 (1.9) ^{a,d}	3.79 (1.9) ^{a,b,c}	3,752	12.49***	.016
Greece	3.38 (1.6) ^{b,d}	3.13 (1.5) ^{a,d}	3.21 (1.8) ^d	2.85 (1.5) ^{a,b,c}	3,259	9.41***	.055
Israel	3.50 (1.8) ^b	3.90 (1.9) ^{a,c,d}	3.40 (1.9) ^b	3.60 (1.8) ^b	3,144	7.24***	.047
USA	4.08 (1.8) ^d	4.21 (1.8) ^{c,d}	4.07 (1.9) ^{b,d}	3.82 (1.9) ^{a,b,c}	3,408	15.00***	.035
Turkey	5.10 (1.8) ^{b,c,d}	4.51 (1.9) ^{a,c,d}	5.44 (1.9) ^{a,b,d}	3.68 (1.9) ^{a,b,c}	3,246	144.85***	.369
Taiwan	3.91 (1.3) ^{c,d}	4.02 (1.3) ^{c,d}	3.76 (1.3) ^{a,b,d}	3.24 (1.2) ^{a,b,c}	3,232	34.45***	.128

Note. Letters indicate significant differences, $p < .05$. W. EU = Western European.
 *** $p < .001$.

Table 5. Differences in Mean Importance of the Four Religious Dimensions, by Religious Cultural Zone.

Significant differences	M _{diffs}	SDs	t-tests
Secular West. European			
Believing, Bonding > Behaving	0.42, 0.36	1.07, 1.35	13.55***, 9.27***
Believing, Bonding > Belonging	0.33, 0.27	1.23, 1.21	9.37***, 7.73***
Behaving < Belonging	-0.09	0.99	-3.19**
Religious Catholic			
Believing > Bonding, Behaving	0.10, 0.14	1.33, 1.07	1.99*, 3.72***
Bonding, Behaving > Belonging	0.18, 0.14	1.29, 1.19	3.86***, 3.27***
Greece (Orthodox Christian)			
Believing > Bonding > Belonging	0.25, 0.28	1.38, 1.39	2.31*, 2.53*
Behaving > Belonging	0.35	1.21	3.68***
Israel (Jewish)			
Bonding > Believing, Behaving, Belonging	0.40, 0.51, 0.30	1.59, 1.56, 1.36	3.07**, 3.92***, 2.69**
USA (Protestant, Catholic)			
Bonding > Behaving > Belonging	0.14, 0.25	1.27, 1.12	2.21*, 4.47***
Believing > Belonging	0.26	1.21	4.45***
Turkey (Muslim)			
Behaving > Believing > Bonding > Belonging	0.33, 0.60, 0.82	0.96, 1.31, 1.58	5.43***, 7.16***, 8.17***
Taiwan (East. Asian religions)			
Believing, Bonding > Behaving	0.15, 0.27	1.04, 1.37	2.22*, 2.97**
Believing, Bonding > Belonging	0.67, 0.78	1.24, 1.46	8.21***, 8.23***
Behaving > Belonging	0.52	1.15	6.87***

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

measure ANOVA analysis (see Table 4 for the means, *F*s, *dfs*, and η²s) and subsequent paired t-tests when the results were significant (see Table 5).

In all cultural zones, the ANOVA results were significant. The subsequent paired t-tests showed that, in the secularized Western European countries, believing and bonding were evaluated higher than the behaving and the belonging dimensions. The behaving dimension was even lower than the belonging dimension. In the religious Catholic countries, the believing dimension

was higher than the bonding and behaving dimensions, which in turn were higher than the belonging dimension. Similarly, in Greece, believing was more important than bonding, which in turn was higher than the belonging dimension; the behaving dimension was in the middle, not differing from the believing and the bonding dimensions.

In Israel, the bonding dimension was the highest compared to the other three, which did not differ with each other on importance. In the US, the bonding dimension was of slightly higher importance compared to the behaving dimension, which in turn was higher than the belonging dimension, with the believing dimension located between, and not differing from, the bonding and the behaving dimensions. In Turkey, the behaving dimension was scored the highest, being thus higher than the believing dimension, which in turn was higher than the bonding dimension, followed by the lowest belonging dimension. Finally, in Taiwan, the believing and bonding dimensions were invested to a more important degree than the behaving and belonging dimensions, with the latest one being lower than behaving.

In sum, belonging was the lowest in almost all zones. Bonding was the highest in Israel, whereas behaving was the highest in Turkey. In the religious Catholic countries, the US, and Greece, with slight differences in the rank order, believing, bonding, and behaving were overall equally valued, more than the belonging dimension. In secular Europe and Taiwan, the believing and bonding dimensions were more valued than the other two dimensions, with the behaving being slightly preferred over the belonging in Taiwan, whereas the opposite being the case in secular Europe.

Relationships with Relevant Psychological Constructs

Correlations. To examine similarities and differences between the four religious dimensions in their psychological correlates (personality traits, socio-cognitive orientations, and life satisfaction), we first computed correlational analyses, in which we also included, for comparison reasons, global religiosity and the index of spirituality. Mean correlations across countries weighted by sample size were used to account for the hierarchical structure of the data.

All six religious measures were positively associated with *agreeableness*, *conscientiousness*, and certainty- and order-related socio-cognitive orientations in the existential (low *existential quest*), epistemic (high *need for closure*), and sociopolitical (high *right-wing authoritarianism*) domains (see Table 6). Religiosity and spirituality were related to high *extraversion*, which was also associated with the belonging dimension. *Neuroticism* was unrelated to any religious measure. *Openness to experience* was related positively to spirituality, but negatively to the behaving and the belonging religious dimensions. Finally, all religious measures (except spirituality) were positively associated with *life satisfaction*.

Religiousness being conceptualized as the thoughts, feelings, values, and identity of people in reference to perceived transcendence, one could also conceive of the 4BDRS as composing a global measure of religiousness, with all items contributing to the average score. Correlational analyses between the aggregate score of the 12 items and the psychological variables under study showed associations similar to the ones with the three-item index of religiosity (as in Table 6): extraversion (0.04), agreeableness (0.14), conscientiousness (0.10), existential quest (−0.19), need for closure (0.30), and right-wing authoritarianism (0.42).

Unique relationships. Second, to further investigate unique relationships of the four religious dimensions with the various psychological correlates, data were analyzed via Generalized Structural Equation Modeling (path analyses) using the Stata software, version 15. To account for the nested structure of the data, the random effect of country (random intercept) was included in each model. Given the number of dependent variables and as a means of streamlining the presentation of results and reducing inflation of the alpha level (due to a wide number of

Table 6. Coefficients of Correlations Between the Religious Measures and the Other Psychological Variables (Mean Correlations Across Countries Weighted by Sample Size).

Individual differences	Four religious dimensions				Belonging	
	Religiosity	Spirituality	Believing	Bonding		Behaving
Personality						
Extraversion	0.04* [0.01, 0.07]	0.05** [0.01, 0.08]	0.01 [-0.03, 0.04]	0.03 [-0.01, 0.06]	0.01 [-0.03, 0.04]	0.04* [0.01, 0.07]
Agreeableness	0.13*** [0.10, 0.16]	0.10*** [0.06, 0.13]	0.09*** [0.06, 0.12]	0.09*** [0.05, 0.12]	0.11*** [0.07, 0.14]	0.09*** [0.05, 0.12]
Conscientiousness	0.12*** [0.09, 0.15]	0.06*** [0.03, 0.10]	0.08*** [0.05, 0.12]	0.07*** [0.03, 0.10]	0.09*** [0.06, 0.13]	0.09*** [0.06, 0.12]
Neuroticism	0.02 [-0.02, .05]	0.03 [-0.01, 0.06]	0.01 [-0.02, 0.05]	-0.02 [-0.05, 0.02]	0.01 [-0.03, 0.04]	0.00 [-0.04, -0.03]
Open. to experience	-0.02 [-0.05, 0.01]	0.12*** [0.09, 0.16]	-0.02 [-0.05, 0.02]	0.02 [-0.02, 0.05]	-0.06*** [-0.09, -0.02]	-0.04* [-0.08, -0.01]
Life satisfaction	0.04* [0.01, 0.07]	0.03 [-0.01, 0.07]	0.04* [0.01, 0.08]	0.10*** [0.06, 0.13]	0.07*** [0.03, 0.10]	0.08*** [0.05, 0.11]
Socio-cognition						
Existential quest	-0.10*** [-0.13, -0.06]	0.06*** [0.03, 0.10]	-0.03 [-0.06, 0.01]	-0.06*** [-0.10, -0.03]	-0.08*** [-0.12, -0.05]	-0.08*** [-0.12, -0.05]
Need for closure	0.16*** [0.13, 0.20]	0.12*** [0.08, 0.15]	0.18*** [0.14, 0.21]	0.15*** [0.11, 0.18]	0.20*** [0.16, 0.23]	0.19*** [0.15, 0.22]
Authoritarianism	0.34*** [0.31, 0.37]	0.18*** [0.14, 0.21]	0.31*** [0.28, 0.34]	0.27*** [0.23, 0.30]	0.35*** [0.32, 0.38]	0.33*** [0.30, 0.36]

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

analyses run), three models were tested. They grouped, respectively, (1) the personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience) as predictors, (2) the three socio-cognitive orientations (existential quest, need for closure, and authoritarianism), and (3) life satisfaction, as outcomes. In each model, all four religious dimensions were entered as outcomes (Model 1) or predictors (Models 2 and 3), and age and gender were added as control variables. Among the four dimensions, no VIF value exceeded 4.5, which is below the value of 5, a commonly recommended threshold in the context of SEM, above which multicollinearity may be problematic (Hair et al., 2009; Kline, 1998). Regression coefficients are provided in Figure 3.

As far as the *basic personality traits* are concerned, paralleling the correlational analyses, the first model (Figure 3, top) showed that agreeableness and conscientiousness were associated with all four dimensions of religiosity. Extraversion was uniquely related to the belonging dimension, while neuroticism was not predictive of any religious dimension. Openness to experience negatively predicted the behaving and belonging dimensions.

The model including the *socio-cognitive orientations* (Figure 3, middle panel), showed that the believing dimension was uniquely related to high existential quest, whereas the behaving and belonging dimension were predicting low existential quest and high authoritarianism. Moreover, the behaving dimension of religiosity was uniquely predictive of a high need for closure. The bonding dimension was unrelated to any socio-cognitive construct. Finally, *life satisfaction* (Figure 3, bottom) was predicted positively by the bonding and belonging dimensions and negatively by the believing one.

Discussion

With data from 14 countries, mostly in Europe, but also in the Americas, Asia, and the Middle East, we provide initial evidence that religiousness can be conceived and measured as a multidimensional construct of individual differences, with four interrelated but distinct dimensions: *believing*, *bonding*, *behaving*, and *belonging*. These dimensions concern the cognitive, emotional, moral, and social aspects of religiousness, respectively.

Four Interrelated Yet Distinct Dimensions of Religiousness across Cultures

We provided evidence of the psychometric qualities of the measure, in terms of reliability, convergent and discriminant validity, and invariance of the factorial structure across countries differing in religious heritage (Catholic, mixed Protestant-Catholic, Orthodox Christian, Jewish, Muslim, and Buddhist/Taoist) and individuals differing in religious affiliation. Moreover, we found both similar and different relationships of the four dimensions with other religious orientations (i.e., the importance of spirituality in one's life and fundamentalism), and psychological variables (i.e., personality traits, life satisfaction), and the socio-cognitive orientations of existential quest, authoritarianism, and need for closure.

As sharing common variance, that is, general indiscriminate pro-religious attitude in the general population, the four dimensions were highly interrelated. Moreover, they were all correlated with spirituality and fundamentalism, high agreeableness and conscientiousness, as well as life satisfaction and low flexibility (low existential quest, high need for closure and authoritarianism). However, when controlling for common variance in partial correlations and regressions, each of the four dimensions uniquely compared to the other three, or some of them additionally, were differentially associated with distinct religious orientations and psychological characteristics; and the four dimensions showed meaningful cultural variability in terms of their interrelations and mean importance within cultures (for a synthesis, see Figure 4). Only agreeableness

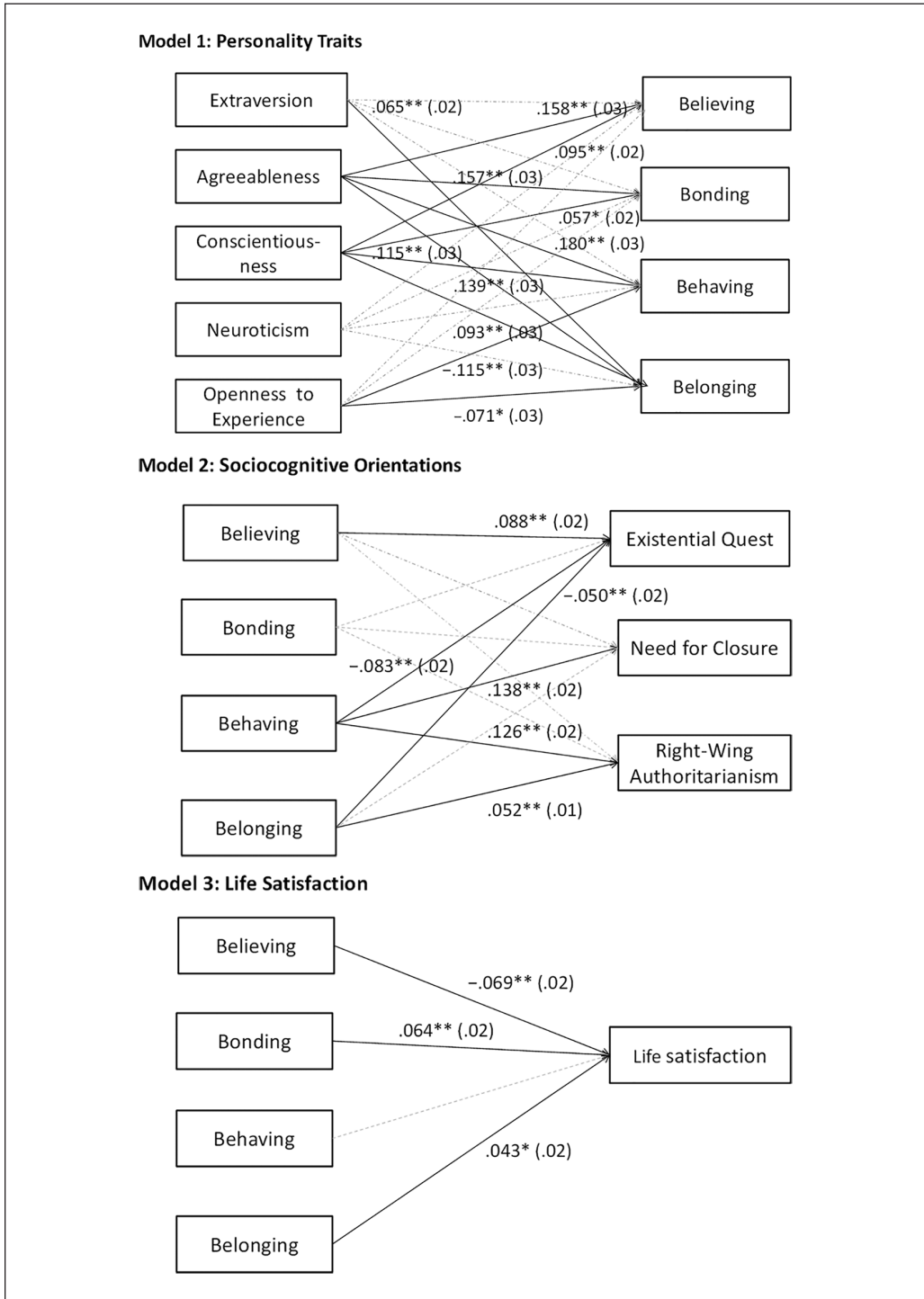


Figure 3. GSEM analyses of the unique effects of personality traits on the four religious dimensions (Top), and of the four religious dimensions on socio-cognitive orientations (Middle) and life satisfaction (Bottom). Note. Numbers on paths represent unstandardized regression coefficients. Standard errors are in parentheses. Discontinued lines stand for non-significant coefficients.
 * $p < .05$. ** $p < .01$.

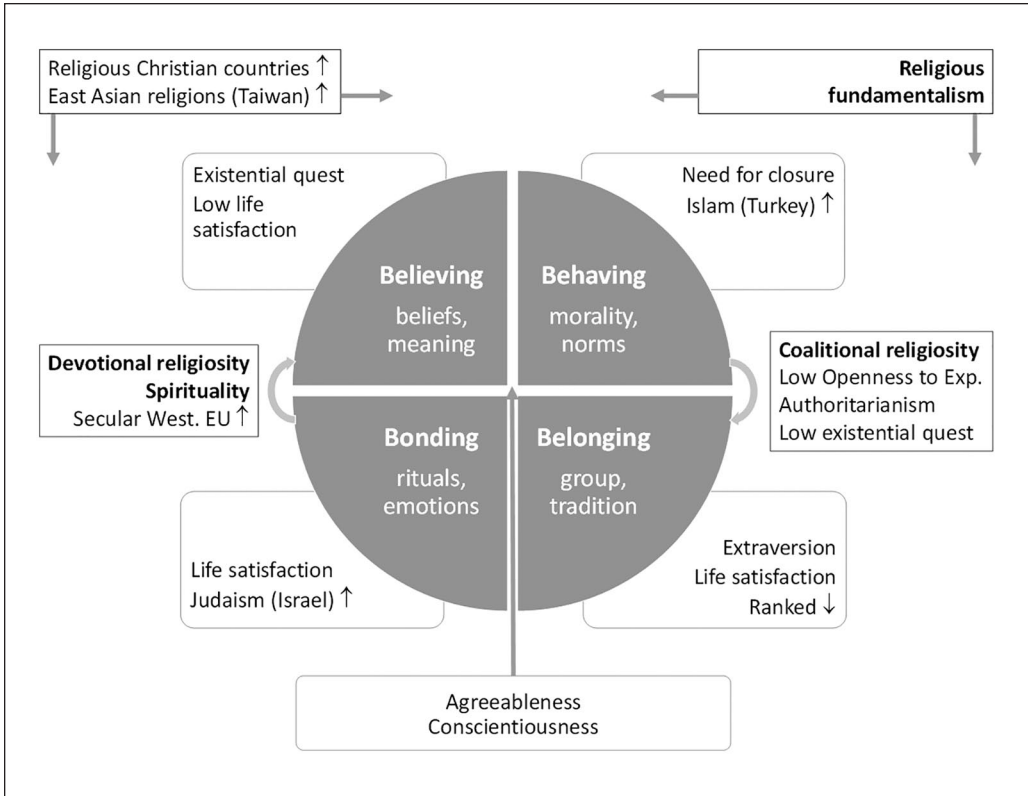


Figure 4. Synthesis of the main findings on the characteristics of the four dimensions of religiousness.

and conscientiousness did not show, unlike what we hypothesized, stronger or unique relationship with a specific religious dimension. This suggests that the links of these two personality factors with religiousness are broad, well covering all aspects of religiousness—cognitive, emotional, moral, and social.

Interindividual and Cultural Variability

The believing and bonding dimensions were the important components of *spirituality* and were preponderant in the secularized Western European countries with Catholic or mixed Catholic-Protestant traditions. The behaving and the belonging dimensions, and to some extent the believing one, were associated with *fundamentalism*. These findings confirm ideas developed in an earlier theorization (Saroglou, 2011, Table 2), in which believing *and* bonding were hypothesized to underlie devotional *spirituality*, believing *and* behaving were thought to underlie *orthodoxy*, and behaving *and* belonging to underlie group moralism/*orthopraxy*. It was also postulated (Saroglou, 2011) that the interrelations between the four dimensions should be stronger in monotheistic contexts compared to Eastern religious ones, because of the integrative character, within the former religions, of dogmas, ethics, rites, and community into a unified set. This hypothesis was also confirmed here.

Consistent with our conceptualization of the believing dimension as being qualitatively neutral, thus sustaining either a literal or a symbolic faith, the *believing* dimension seemed to underlie fundamentalism, but also high existential quest. In line with research showing that culture

moderates the religion-openness association (Gebauer et al., 2014), mixed-model analyses revealed a cross-level interaction between the believing dimension and country-level religiosity in predicting existential quest, $b = -0.0717$, $SE = 0.017$, $t(3011, 787) = -4.148$, $p < .001$: the association was positive in less religious countries but negative in more religious countries. In religious cultures, believers “swim along the stream,” whereas in non-religious cultures, they may “swim against the stream” (Gebauer et al., 2014).

The *bonding* dimension was predictive of life satisfaction. Because this dimension encompasses connectedness with the transcendence and others, an appreciation for the artistic aspects of religion, and the positive emotions experienced in collective rituals, it is not surprising that this dimension was associated with subjective well-being. This dimension was slightly preponderant: in an Eastern Asian religious context privileging meditation; in the US, where individual religious experience and emotional expression are favored; and particularly in Israel, where Judaism highly values the role of collective rituals.

The items measuring the *behaving* dimension were intended to be neutral, that is, not explicitly oriented toward a morality of care and justice or toward collectivist and self-control-oriented values. They simply referred to “values,” “ethics,” and “moral dilemmas.” Nevertheless, this dimension was uniquely associated with a high need for closure; and the behaving and belonging dimensions were uniquely associated with high authoritarianism and low existential quest and openness to experience. These findings suggest a somewhat conservative, moralistic view of religion; or confirm the idea that religious morality is closer to normative deontology rather than prosocial consequentialism (Deak & Saroglou, 2015; Piazza & Landy, 2013). In line with research showing that traditional morality is highly endorsed in Muslim cultures (Norris & Inglehart, 2004), the behaving dimension was the most important, compared to the other dimensions, in the Turkish cultural context.

The *belonging* dimension seemed, in most cultures, to be appreciated less than the other three dimensions. The low endorsement of the belonging dimension may reflect broad contemporary tendency of des-identification from religious groups (Molteni & Biolcati, 2018) or may be due to the young age of participants. The belonging dimension was also uniquely related to extraversion, a factor encompassing gregariousness and sociability, and was predictive, in the regressions, of high life satisfaction. These findings seem to highlight the critical importance that social support and social identity have for the positive association between religion and well-being (Hayward & Krause, 2014).

Limitations and Generalizability

The present research has several limitations, and we caution that the results presented here should be considered as providing initial, not definitive, evidence. First, the measure we developed was designed to be brief and, despite good reliability and informative distinctiveness of each dimension, the measure probably does not fully capture all the psychological aspects of each of the four dimensions. Second, whereas configural and metric invariances were satisfactory, scalar and strict invariances of the 4BDRS across cultures were weak. Caution is needed before considering differences between cultural zones as solid—note though that we focused here on mean differences within cultures. Further studies should solidify the psychometric qualities of the measure (e.g., test-retest reliability).

Third, the four dimensions did not behave fully differently. Note though that the four dimensions not only are interrelated, but are conceptualized very broadly to include many possible ways through which the cognitive, emotional, moral, and social motives are expressed within a religion. Our approach is thus different from other multidimensional approaches of religion showing important differences between qualitatively positive versus negative aspects of religion: intrinsic versus extrinsic motivation, symbolic versus literal interpretation, or inclusivist versus

exclusivist identity. It is thus likely that the believing, bonding, behaving, and belonging perspective is a necessary but perhaps subtler approach showing weaker in size religious differences.

We also acknowledge generalizability concerns. All samples were composed of young adults. Thus, the results may not generalize to older or less educated adult populations (see Dillon, 2007). Additionally, although the research presented here extends beyond the US and Western Europe, other cultures were underrepresented. The one East Asian country of Buddhist/Taoist tradition (Taiwan) and the one country of Muslim tradition (Turkey) do not reflect the diversity across these religious traditions. However, the measure has already proved useful, and some research using the 4BDRS has been published with national data from France, India, Indonesia, Iran, Italy, Mexico, Netherlands, and Nicaragua, in addition to Costa Rica and Taiwan with national data from the present work (Clobert et al., 2017; Cohu et al., 2018; Daghigh et al., 2019; Dimitrova, 2014; Dimitrova & Domínguez Espinosa, 2017a, 2017b; Kumar et al., 2020; Ruslan et al., 2020; Tapia Valladares et al., 2013).

Conclusion

Beyond variability between fundamentalists and questers, or intrinsic versus extrinsic religious orientation, it is also theoretically important to elucidate the individual and cultural similarities and differences between the cognitive, emotional, moral, and social dimensions of being or becoming religious—or irreligious. Understanding differences in religiousness as being related to believing, bonding, behaving, and belonging can be integrated into more general psychological and cross-cultural research regarding basic human motives (e.g., understanding, trusting, controlling, self-enhancing, and belonging; Fiske, 2014), perception and information processing (e.g., cognitive-experiential theory; Epstein, 2014), and dimensions of human development (e.g., cognitive, emotional, moral, and social). It is not to be excluded that the difficulty of locating religion/spirituality within established multidimensional cultural models (e.g., Hofstede's dimensions of national culture, Schwartz's pancultural values) may come from the fact that religion is malleable, being more convictional, affective, moralistic, or communitarian across cultures.

Authors' Note

Data in Israel were collected by Sonia Roccas who sadly passed away before the manuscript's submission.

Acknowledgments

We thank Jochen Gebauer for his thoughtful comments and statistical advice on an earlier draft of the manuscript.

Declaration of Conflicting Interests


The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.


Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.


ORCID iDs

Vassilis Saroglou  <https://orcid.org/0000-0002-8294-9142>

Kathryn A. Johnson  <https://orcid.org/0000-0002-9482-9041>

Kwang-Kuo Hwang  <https://orcid.org/0000-0001-6411-2667>

Anna Miglietta  <https://orcid.org/0000-0002-8571-5093>

Antonio Muñoz-García  <https://orcid.org/0000-0002-7812-0163>

References

Publications having used the 4BDRS are preceded by an asterisk.

- Altemeyer, B., & Hunsberger, B. (2004). A revised Religious Fundamentalism Scale: The short and sweet of it. *International Journal for the Psychology of Religion, 14*(1), 47–54. https://doi.org/10.1207/s15327582ijpr1401_4
- Atran, S., & Norenzayan, A. (2004). Religion's evolutionary landscape: Counterintuition, commitment, compassion, communion. *Behavioral and Brain Sciences, 27*(6), 713–770. <https://doi.org/10.1017/S0140525X04000172>
- Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods and Research, 17*(3), 303–316. <https://doi.org/10.1177%2F0049124189017003004>
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5
- *Clobert, M., Saroglou, V., & Hwang, K.-K. (2017). East Asian religious tolerance vs. Western monotheist prejudice: The role of (in)tolerance of contradiction. *Group Processes and Intergroup Relations, 20*(2), 216–232. <https://doi.org/10.1177%2F1368430215603458>
- Cohen, A. B., Gorvine, B. J., & Gorvine, H. (2013). The religion, spirituality, and psychology of Jews. In K. I. Pargament, J. J. Exline, & J. W. Jones (Eds.), *APA handbook of psychology, religion, and spirituality (Vol. 1, pp. 665–679)*. American Psychological Association.
- Cohen, A. B., Hall, D. E., Koenig, H. G., & Meador, K. G. (2005). Social versus individual motivation: Implications for normative definitions of religious orientation. *Personality and Social Psychology Review, 9*(1), 48–61.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.
- *Cohu, M., Maisonneuve, C., & Testé, B. (2018). Construction et validation de l'échelle de mesure des croyances relatives à la laïcité [Construction and validation of a measure of beliefs relative to "laïcité"]. *Psychologie Française, 63*(4), 337–356. <https://doi.org/10.1016/j.psfr.2017.09.001>
- *Daghigh, A., DeShong, H. L., Daghigh, V., Niazi, M., & Titus, C. E. (2019). Exploring the relation between religiosity and narcissism in an Iranian sample. *Personality and Individual Differences, 139*(1), 96–101. <https://doi.org/10.1016/j.paid.2018.10.040>
- Deak, C., & Saroglou, V. (2015). Opposing abortion, gay adoption, euthanasia, and suicide: Compassionate openness or self-centered moral rigorism? *Archive for the Psychology of Religion, 37*(3), 267–294. <https://doi.org/10.1163%2F15736121-12341309>
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71–75. https://psycnet.apa.org/doi/10.1207/s1532752jpa4901_13
- Dillon, M. (2007). Age, generation, and cohort in American religion and spirituality. In J. A. Beckford & N. J. Demerath, III (Eds.), *The Sage handbook of the sociology of religion* (pp. 526–546). Sage. <http://dx.doi.org/10.4135/9781848607965.n26>
- *Dimitrova, R. (2014). The big four dimensions of religiousness and life satisfaction among Dutch and Italian young adults. In M. Mikucka & F. Saraccino (Eds.), *Life satisfaction: Perceptions, social influences and implications for long-term health*. Nova Publishers.
- *Dimitrova, R., & Domínguez Espinosa, A. d. C. (2017a). Factorial structure and measurement invariance of the Four Basic Dimensions of Religiousness Scale among Mexican males and females. *Psychology of Religion and Spirituality, 9*(2), 231–238. <https://psycnet.apa.org/doi/10.1037/rel0000102>
- *Dimitrova, R., & Domínguez Espinosa, A. d. C. (2017b). Relationships between religiousness and life satisfaction among emerging adults in Mexico and Nicaragua. In R. Dimitrova (Ed.), *Well-being of youth and emerging adults across cultures* (pp. 225–234). Springer International.
- Duriez, B. (2003). Vivisecting the religious mind: Religiosity and motivated social cognition. *Mental Health, Religion and Culture, 6*(1), 79–86. <https://doi.org/10.1080/1367467031000085928>
- Epstein, S. (2014). *Cognitive-experiential theory: An integrative theory of personality*. Oxford University Press.
- Fiske, S. T. (2014). *Social beings: Core motives in social psychology* (3rd ed.). Wiley.
- Funke, F. (2005). The dimensionality of right-wing authoritarianism: Lessons from the dilemma between theory and measurement. *Political Psychology, 26*(2), 195–218. <https://doi.org/10.1111/j.1467-9221.2005.00415.x>

- Gebauer, J. E., Bleidorn, W., Gosling, S. D., Rentfrow, P. J., Lamb, M. E., & Potter, J. (2014). Cross-cultural variations in Big Five relationships with religiosity: A sociocultural motives perspective. *Journal of Personality and Social Psychology, 107*(6), 1064–1091. <https://psycnet.apa.org/doi/10.1037/a0037683>
- Gebauer, J. E., Sedikides, C., & Schrade, A. (2017). Christian self-enhancement. *Journal of Personality and Social Psychology, 113*(5), 786–809. <https://psycnet.apa.org/doi/10.1037/pspp0000140>
- Glock, C. Y. (1962). On the study of religious commitment. *Religious Education, 57*(Research Suppl.), S98–S110. <https://doi.org/10.1080/003440862057S407>
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*(6), 504–528. [https://doi.org/10.1016/S0092-6566\(03\)00046-1](https://doi.org/10.1016/S0092-6566(03)00046-1)
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate data analysis*. Prentice Hall.
- Hayward, D., & Krause, N. (2014). Religion, mental health, and well-being: Social aspects. In V. Saroglou (Ed.), *Religion, personality, and social behavior* (pp. 254–280). Psychology Press.
- Hervieu-Léger, D. (1999). *Le pèlerin et le converti: La religion en mouvement [The pilgrim and the convert: Religion in movement]*. Flammarion.
- Hill, P. C. (2013). Measurement assessment and issues in the psychology of religion and spirituality. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (pp. 48–74). Guilford.
- Hinde, R. A. (1999). *Why gods persist: A scientific approach to religion*. Routledge.
- Hood, R. W., Jr., Hill, P. C., & Williamson, W. P. (2005). *The psychology of religious fundamentalism*. Guilford.
- Huber, S., & Huber, O. W. (2012). The Centrality of Religiosity Scale (CRS). *Religions, 3*(3), 710–724. <https://doi.org/10.3390/rel3030710>
- Huntington, S. P. (1996). *The clash of civilizations and the remaking of world order*. Simon & Schuster.
- Inglehart, R., & Welzel, C. (2013). *The WVS cultural map of the world*. <http://piketty.pse.ens.fr/files/InglehartWelzel2011.pdf>
- Johnson, K. A., Hook, J. N., Davis, D. E., Van Tongeren, D. R., Sandage, S. J., & Crabtree, S. A. (2016). Moral foundation priorities reflect US Christians' individual differences in religiosity. *Personality and Individual Differences, 100*, 56–61. <https://doi.org/10.1016/j.paid.2015.12.037>
- Johnson, K. A., Sharp, C. A., Okun, M. A., Shariff, A. F., & Cohen, A. B. (2018). SBNR identity: The role of impersonal God representations, individualistic spirituality, and dissimilarity with religious groups. *International Journal for the Psychology of Religion, 28*(2), 121–140. <https://doi.org/10.1080/10508619.2018.1445893>
- Joshanloo, M., & Gebauer, J. E. (2020). Religiosity's nomological network and temporal change: Introducing an extensive country-level religiosity index based on Gallup World Poll data. *European Psychologist, 25*(1), 26–40. <https://psycnet.apa.org/doi/10.1027/1016-9040/a000382>
- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. Guilford.
- *Kumar, S., Ranjeeta, J., & Reena, S. (2020). Confirmatory factor analysis and measurement invariance testing of the Four Basic Dimensions of Religiousness Scale in India. *Psychology of Religion and Spirituality*. Advance online publication. <https://psycnet.apa.org/doi/10.1037/rel0000305>
- Lewis, C. A., & Loewenthal, K. M. (Eds.). (2018). Religion and obsessionality: Obsessive actions and religious practices [special issue]. *Mental Health, Religion, and Culture, 21*(2), 117–122. <https://doi.org/10.1080/13674676.2018.1481192>
- MacDonald, D. A. (2000). Spirituality: Description, measurement, and relation to the Five Factor model of personality. *Journal of Personality, 68*(1), 153–197. <https://doi.org/10.1111/1467-6494.t01-1-00094>
- McCullough, M. E., & Willoughby, B. L. B. (2009). Religion, self-control, and self-regulation: Associations, explanations, and implications. *Psychological Bulletin, 135*(1), 69–93. <https://psycnet.apa.org/doi/10.1037/a0014213>
- Molteni, F., & Biolcati, F. (2018). Shifts in religiosity across cohorts in Europe: A multilevel and multidimensional analysis based on the European Values Study. *Social Compass, 65*(3), 413–432. <https://doi.org/10.1177%2F0037768618772969>
- Napier, J. L., & Jost, J. T. (2008). Why are conservatives happier than liberals? *Psychological Science, 19*(6), 565–572. <https://psycnet.apa.org/doi/10.1111/j.1467-9280.2008.02124.x>

- Norris, P., & Inglehart, R. (2004). *Sacred and secular: Religion and politics worldwide*. Cambridge University Press.
- Park, C. L., & Slattery, J. M. (2013). Religion, spirituality, and mental health. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (2nd ed., pp. 540–559). Guilford.
- Pew Research Center. (2018). *The age gap in religion around the world*. <http://www.pewforum.org/>
- Piazza, J., & Landy, J. F. (2013). “Lean not on your own understanding”: Belief that morality is founded on divine authority and non-utilitarian moral thinking. *Judgment and Decision Making*, 8(6), 639–661.
- Rambo, L. R., & Farhadian, C. (Eds.). (2014). *The Oxford handbook of religious conversion*. Oxford University Press.
- Roudometof, V. (2010). The evolution of Greek Orthodoxy in the context of world historical globalization. In V. Roudometof & V. N. Makrides (Eds.), *Orthodox Christianity in 21st century Greece* (pp. 23–38). Ashgate.
- Rowatt, W. C., Shen, M. J., LaBouff, J. P., & Gonzalez, A. (2013). Religious fundamentalism, right-wing authoritarianism, and prejudice. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (2nd ed., pp. 457–475). Guilford.
- *Ruslan, R., Ariela, J., & Handayani Sutanto, S. (2020). The influence of religiosity to marriage satisfaction among parents of children with Down syndrome. *Jurnal Psikologi Ulayat: Indonesian Journal of Indigenous Psychology*, 7(1), 99–110. <https://doi.org/10.24854/jpu103>
- Saroglou, V. (2010). Religiosity as a cultural adaptation of basic traits: A five factor model perspective. *Personality and Social Psychology Review*, 14(1), 108–125. <https://doi.org/10.1177/1088868309352322>
- Saroglou, V. (2011). Believing, bonding, behaving, and belonging: The big four religious dimensions and cultural variation. *Journal of Cross-Cultural Psychology*, 42(8), 1320–1340. <https://doi.org/10.1177/108886831038309352322>
- Saroglou, V. (2012). Adolescents’ social development and the role of religion: Coherence at the detriment of openness. In G. Trommsdorff & X. Chen (Eds.), *Values, religion, and culture in adolescent development* (pp. 391–423). Cambridge University Press.
- Saroglou, V. (2014). Conclusion: Understanding religion and irreligion. In V. Saroglou (Ed.), *Religion, personality, and social behavior* (pp. 361–391). Psychology Press.
- Saroglou, V. (2016). Intergroup conflict, religious fundamentalism, and culture. *Journal of Cross-Cultural Psychology*, 47(1), 33–41. <https://doi.org/10.1177/10888683155621174>
- Saroglou, V. (2017). Culture, personality, and religiosity. In A. T. Church (Ed.), *The Praeger handbook of personality across cultures* (Vol. 2, pp. 153–184). Praeger.
- Saroglou, V. (2019). Religion and related morality across cultures. In D. Matsumoto & H. C. Hwang (Eds.), *The handbook of culture and psychology* (2nd ed., pp. 724–785). Oxford University Press.
- Saroglou, V., & Cohen, A. B. (2013). Cultural and cross-cultural psychology of religion. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (2nd ed., pp. 330–353). Guilford.
- Sasaki, J. Y., & Kim, H. S. (2011). At the intersection of culture and religion: A cultural analysis of religion’s implications for secondary control and social affiliation. *Journal of Personality and Social Psychology*, 101(2), 401–414. <https://doi.org/10.1037/a0021849>
- Stark, R. (2001). Gods, rituals, and the moral order. *Journal for the Scientific Study of Religion*, 40(4), 619–636. <https://doi.org/10.1111/0021-8294.00081>
- Steenkamp, J. B. E., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research*, 25(1), 78–90. <https://doi.org/10.1086/209528>
- Streib, H., Keller, B., Csöff, R., & Silver, C. F. (2008). *Deconversion: Qualitative and quantitative results from cross-cultural research in Germany and the United States of America*. Vandenhoeck & Ruprecht.
- Strozier, C. B., Terman, D. M., & Jones, J. W. (Eds.). (2010). *The fundamentalist mindset*. Oxford University Press.
- *Tapia Valladares, J., Rojas, M., & Villalobos, M. (2013). Fundamentalismo religioso entre jóvenes universitarios de Costa Rica: Conservadurismo político y espiritualidad sin religion. *Revista de Ciencias Sociales*, 139, 115–135.
- Tsang, J., & McCullough, M. E. (2003). Measuring religious constructs: A hierarchical approach to construct organization and scale selection. In C. R. Snyder (Ed.), *Handbook of positive psychological assessment* (pp. 345–360). American Psychological Association.

- Van Cappellen, P., Toth-Gauthier, M., Saroglou, V., & Fredrickson, B. L. (2016). Religion and well-being: The mediating role of positive emotions. *Journal of Happiness Studies*, *17*(2), 485–505. <https://doi.org/10.1007/s10902-014-9605-5>
- Van Pachterbeke, M., Keller, J., & Saroglou, V. (2012). Flexibility in existential beliefs and worldviews: Introducing and measuring existential quest. *Journal of Individual Differences*, *33*(1), 2–16. <https://psycnet.apa.org/doi/10.1027/1614-0001/a000056>
- Voas, D. (2007). Surveys of behavior, beliefs and affiliation: Micro-quantitative. In J. A. Beckford & N. J. Demerath III (Eds.), *The Sage handbook of the sociology of religion* (pp. 144–166). Sage.
- Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, *67*(6), 1049–1062. <https://psycnet.apa.org/doi/10.1037/0022-3514.67.6.1049>
- Wink, P., Dillon, M., & Prettyman, A. (2007). Religiousness, spiritual seeking, and authoritarianism: Findings from a longitudinal study. *Journal for the Scientific Study of Religion*, *46*(3), 321–345. <https://doi.org/10.1111/j.1468-5906.2007.00361.x>
- Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models: An evaluation of power, bias, and solution propriety. *Educational and Psychological Measurement*, *73*(6), 913–934. <https://doi.org/10.1177/0013164413495237>
- Zinnbauer, B. J., & Pargament, K. I. (2005). Religiousness and spirituality. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (pp. 21–42). Guilford.