Full Length Article

Personality and conceptions of religiosity across the world's religions

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ABSTRACT

Research assessing personality traits and religiosity across cultures has typically neglected variation across religious affiliations and has been limited to a small number of personality traits. This study examines the relationship between the Big Five personality traits and their facets, two theoretically distinct measures of religiosity, and twelve other personality traits across seven religious affiliations and 61 countries/regions. The proportion of participants following a religion varied substantially across countries (e.g., Indonesia = 99%; Estonia = 7%). Both measures of religiosity were related to agreeableness, conscientiousness, happiness, and fairness; however; relations with religiosity as a social axiom were stronger and less variable across religious affiliations. Additionally, personality-religiosity links were more robust in low-development, high-conflict, and collectivist nations.

1. Personality and religiosity in context: Exploring variations across countries and religious affiliations

Religion is significant in its ubiquity and influence. As of 2015, 77% of all U.S. Americans considered religion to be important, and while religious membership is decreasing in Western countries such as the US and France, those with no religious affiliation is estimated to be only 13% worldwide by 2050 (Pew Research Center, 2015). Religiosity is directly linked with aspects of individuals' social networks, political ideology, physical health, marital satisfaction, and psychological well-being (Kim-Prieto & Diener, 2017; Malka et al., 2012; Musek, 2017; Piedmont & Wilkins, 2013; Sauerheber et al., 2021). Previous research has also demonstrated consistent relationships between religiosity and personality traits (Duriez & Soenens, 2006; Good & Willoughby, 2007; Yonker et al., 2012). Specifically, religiosity has consistently been found to be positively related to conscientiousness and agreeableness (Entringer et al., 2020; Gebauer et al., 2014; Yonker et al., 2012), as well as facets of honesty and humility (Ashton & Lee, 2019).

The current study explores the relations between personality traits and religiosity across a wide range of countries and religious affiliations. Our work goes beyond past research in several ways. First, with some

important exceptions (see Ashton & Lee, 2019; Entringer et al., 2020; Gebauer et al., 2014), most previous research has been limited to Christian denominations and a small number of W.E.I.R.D countries (i. e., Western, Educated, Industrialized, Rich, and Democratic; Henrich et al., 2010). Second, previous research typically focused exclusively on relations between religiosity and the Big Five and HEXACO traits, neglecting trait facets and other individual differences relevant to people's fundamental perceptions of the world such as general trust, optimism, narcissism, and self-construal. A third limitation of the previous literature is that studies used an assortment of different measures of religiosity, making it difficult to compare findings across assessments. Finally, to our knowledge, only one other study (see Saroglou et al., 2020) has assessed the religiosity-personality link across several different religious affiliations.

The current study moves to fill these gaps in the literature and to provide the most comprehensive assessment of the relations between personality traits and religiosity to date. Using a large, cross-cultural sample of more than 15,000 college community participants across 61 countries and one region, we first extend the extant literature by relating the Big Five personality traits, their facets, and other traits relevant to individuals' perspective of the world (e.g., optimism, trust, and self-

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construal) to two theoretically distinct measures of religiosity. We then assess the variability of these relations across seven major religious affiliations. Lastly, we then seek to assess the variation of these relations across countries by exploring contextual variables that moderate these personality and religiosity relationships.

1.1. The association between personality and religiosity

1.1.1. Religiosity and the Big Five and HEXACO traits

A recent review of the literature highlighted consistent relationships between religiosity and agreeableness, conscientiousness, and the honesty/humility factor of the HEXACO model (Ashton & Lee, 2021). Mostly in line with this review, a separate *meta*-analysis also concluded that highly religious individuals tend to score high in extraversion, conscientiousness, and agreeableness, and low in neuroticism (Lenhausen et al., 2023; Saroglou, 2002). Importantly, the latter study included several conceptualizations of religiosity and noted differences in the association with certain traits. For example, intrinsic or 'general' religiosity (i.e., guided by internal fulfillment and not social pressure) was related to agreeableness, extraversion, and conscientiousness but not neuroticism, whereas extrinsic religiosity (i.e., guided by external social pressure or the promise of reward) was only related to agreeableness, conscientiousness, and openness to experience. "Mature" religiosity and spirituality (i.e., guided by quest or a collaborative coping strategy) were related to all Big Five personality traits (Saroglou, 2002).

Other studies have assessed the relationship between religiosity and personality traits on the facet level, with mixed results. Ashton & Lee (2019) demonstrated that the altruism facet (shared by emotionality, honesty/humility, and agreeableness) and the fairness facet of honesty/humility had strong relations with religiosity across 36 countries. In another large-scale, cross-cultural assessment of personality and religiosity, Entringer and colleagues (2020) found that only in highly religious countries did personality facets predict religiosity and that across all 96 countries personality facets did not explain more variance in religiosity than did traits. Despite this contradiction, previous work over the last several decades provides evidence that specific facets may drive correlations between traits and religiosity, but that the relative strength and direction of these relations may vary across countries. For instance, Aguilar-Vafaie and Moghanloo (2008) demonstrated that among college students from Iran, the ideas/intellect facet of openness to experience was the strong predictor of increased religiosity, while other facets were largely unrelated. Conversely, Saroglou & Muñoz-García (2008) found that among college students from Spain, ideas/intellect was *negatively* related to religiosity. The relative discrepancy of personal religiosity and dominant religious affiliation between Iran and Spain may help explain this apparent contradiction. Iran is substantially more religious than Spain (Entringer et al., 2020), and whereas Iranian individuals almost exclusively follow the Islam faith, most Spaniards consider themselves Catholic (World Value Survey, 2020). This example demonstrates the importance of assessing relations with personality and religion on the facet level, and among individuals practicing different faiths.

1.1.2. Religiosity and traits focusing on perceptions of the world

Research assessing traits indicative of perceptions of the world (e.g., trust, optimism, and self-construal) expands the understanding of individual variability in religiosity because it adds psychological context for viewpoints and perspectives common among those who are and are not religious. For instance, those who see the value of religion for the self or others (i.e., religiosity as a social axiom) may have a generally positive and optimistic perspective on the world and trust that circumstances can get better with faith (Leung et al., 2007).

Research on religiosity and traits assessing general perceptions of the world is mixed. One study assessing the link between narcissism and religiosity among Iranian individuals found that individuals who scored high in religiosity tended to score high in narcissism (Daghigh et al.,

2019). Conversely, a study with a US sample found that while intrinsic religiosity was negatively related to narcissism, there was no relationship with extrinsic religiosity (Watson et al., 1987). These mixed results may be due to the differences in the conceptualization of religiosity across studies (i.e., practice-based vs. intrinsic/extrinsic distinction), or differences in religious affiliations assessed (i.e., Islam vs. Christianity).

Relationships with indicators of well-being such as happiness and optimism underscore the impact religiosity has on adaptive psychological functioning (Gebauer et al., 2012). Despite consistent findings that personal religiosity is positively related to positive affect (Kim-Prieto & Diener, 2017), research in this domain does show variability in the direction and strength of these relationships across religious affiliations (Ngamaba & Soni, 2018). For instance, Lu and Gao (2017) found that among Chinese individuals, happiness was negatively related to Christian religious practices yet positively related to Buddhist religious practices.

Research investigating self-construal almost uniformly attributes interdependent self-construal (i.e., a view of the self that emphasizes social harmony and one's connectedness with others; Markus & Kitayama, 1991) to religiosity (Croucher et al., 2010; Dooley et al., 2010, Stroink & DeCicco, 2010). Indeed, religious practice often draws a clear line between personal religiosity and interdependent self-construal. For example, emphasis on community religious activity, family connection, and respect for religious leaders relates directly to the connectedness, relational, and sociocentric values inherent in interdependent self-construals. As alluded to earlier, these underlying values differ across religious affiliations. Stroink and DeCicco (2011), for instance, found that Christians valued conformity and tradition more than Buddhists. Thus, the extent to which interdependent self-construal relates to religiosity may vary across religious affiliations.

Finally, research assessing the relation between religiosity and general trust illuminates the extent to which religiosity contributes to or is impacted by a "default trust in other people [or institutions] when sufficient information is missing to judge whether they are trustworthy or not" (Yamagishi et al., 2015, pg. 437). To our knowledge, there has been no explicit assessment of general trust and religiosity, however; one study conducted in Iran found a strong relationship between religiosity and social trust (Akbari et al., 2008). It is reasonable to expect that trust in a higher power and those in one's social circle might stem from or lead to trust in others more generally.

1.2. Religiosity and personality across countries and religious affiliations

1.2.1. Assessing personality and religiosity in cultural context

While historically, most research on the relations between religiosity and personality traits focused on Christianity in W.E.I.R.D countries, there has been a recent upswing in research assessing the relationship between personality traits and religiosity across more diverse countries. This more recent work finds both cross-cultural uniformity and variation in important personality-religiosity relationships. In terms of the former, a recent large-scale cross-cultural study utilizing over 2 million participants across 96 countries examined the relationship between personal religiosity (measured by the Single Item Religiosity Scale: "I see myself as someone who is very religious." Norenzayan & Hansen, 2006) and facets of the Big-Five. Similar to previous research, religiosity was uniformly related to agreeableness and conscientiousness (Entringer et al., 2020). When cross-country variation occurs, country-level factors help explain the impact cultural context has on the relations between personality traits and religiosity. For example, several studies consistently find that in countries high in average religiosity, more religious individuals tend to score higher in conscientiousness, agreeableness, and honesty/humility, regardless of the religious affiliation (Ashton & Lee, 2019; Gebauer et al., 2014; Saroglou, 2010; Saroglou et al., 2020).

It is important to mention that the aforementioned relations could, to some extent, vary across cultures due to variations in personality trait levels, personality structure, or response styles. Decades of research has

produced mixed results on the extent to which personality does indeed vary significantly across countries. For instance, Gelade (2013) found that countries that are geographically close to one another are more similar in their personality trait levels than those that are farther apart. On the other hand, Kajonius & Mac Giolla (2017) found support for the Similarities Hypothesis in that between-country personality trait variation across the 22 countries represented in their study was relatively small. These authors observed similar five-factor model fit across countries, similar patterns of within-country sex differences across countries, and that less than 2% of personality variation was accounted for by individuals' country of origin. Moreover, when assessing similarity in trait structure across countries, researchers have found evidence for universal three-factor (DeRaad & Peabody, 2005), five-factor (Allik et al., 2013), and seven-factor structures (Zeinoun et al., 2017). This line of work also emphasizes the impact that variation in response styles has in predicting personality trait variation across countries. Countries high on power distance and masculinity tend to use extreme responding when completing personality inventories (Johnson et al., 2005), and English-language questionnaires may be more likely to elicit middle-of-the-scale-responding (Harzing, 2006).

While research on the cultural mechanisms behind personality-religiosity relationships is limited, a small body of work assesses the impact national well-being and the propensity for conflict has on the strength of the link between religiosity and other psychological or physical outcomes. For instance, Zimmer and colleagues (2019) assessed country-level "human development," a measure of prosperity and other indications of national well-being (via the Human Development Index; UNDP, 2022), as a moderator of the relationship between religiosity and physical health. These researchers found religious people had better physical health in less developed countries. The authors posit that in less developed countries, individuals may not have reliable access to institutions outside religious institutions to participate in health-inducing activities, leading to worse health for less religious individuals (Zimmer et al., 2019). By this same logic, individuals who are highly religious from countries with low HDI scores countries and/or those from countries with a higher propensity for conflict may not have access to other contexts which promote well-being. For example, in less-developed countries, religious events may offer the principle opportunity to socialize and religious institutions may be the primary source of support services. Moreover, in these countries, individuals may rely on their religious beliefs and the social opportunities their religious practice affords to alleviate stress and improve happiness.

Cultural collectivism may also impact the relations between personality traits and religiosity. Countries that score high in cultural collectivism tend to value to group membership and cooperativity where the goals of the group outweigh those of the individual (Triandis, 2001). Previous work shows a strong positive relationship between religiosity and collectivism (Cukur et al., 2004). Thus, high collectivism may be the cultural context in which religiosity is especially relevant for certain personality traits. For instance, in cultures that emphasize cooperation among groups, higher agreeableness may be especially relevant for religious activity.

Finally, the cultural component of tightness vs looseness distinguishes cultures with strong connections to norms and traditions with low tolerance of deviant behavior (i.e., tight cultures) from those with weak social norms and high tolerance of deviant behavior (i.e., loose cultures). Previous research demonstrates that tight countries tend to have a high proportion of individuals adhering to the same dominant religion and that the most culturally tight countries tended to be those practicing Islam, Orthodox Christianity, and Catholicism (Uz, 2015).

1.2.2. Assessing personality and religiosity across religious affiliations

While recent research has better illuminated cross-cultural similarities and differences in the relations between personality and religiosity, most of this work still has not addressed variability across religious affiliations (see Saroglous et al., 2021 for an important exception). This is

an important shortcoming in two distinct ways. First, the behavioral and psychological antecedents of the relationship between personal religiosity and personality traits discussed so far vary (e.g., values, religious practices, norms, beliefs, level of social engagement), thus, we may expect the strength of these relationships to likewise vary across religions. For example, individuals practicing Islam pray five times a day whereas Buddhist practice is less regimented. Conscientiousness thus may not relate to the behavior or attitudes of someone following Islam in the same way it does to someone following Buddhism.

Second, while some countries have a single, dominant religion (e.g., Islam in Indonesia), many countries include multiple predominant religions (e.g., Islam and Christianity in Nigeria). Thus, a cross-cultural assessment of personal religiosity and personality that does not include variability across religious affiliations misses a critical cultural element – religious culture – when drawing conclusions about apparent cross-cultural similarity and differences (Cohen, 2009).

1.3. Personal religiosity or religiosity as a social axiom

Nearly all studies assessing religiosity within and across countries discussed thus far have assessed religiosity in terms of a individuals' subjective assessment of their personal religious experience (e.g., "On a scale from one to ten, how religious are you?"; Entringer et al., 2021; Gebauer et al., 2014), their intrinsic or extrinsic motivation for religiosity (e.g., "I try hard to carry my religion over into all my other dealings in life"; Allport & Ross, 1967), or discrete behaviors such as frequency of prayer or religious service attendance (Freese, 2004). This conceptualization of religiosity implies a personal connection to religion in practice or the value it has on one's own life. Religiosity measured this way has been consistently shown to have implications for physical health (Park, 2007), and mental health (Kim-Prieto & Diener, 2017). These relations make sense: the degree to which people feel they are personally religious in part dictates who they spend their time with, the places they go, how they present themselves to others, and the things they do on a daily basis.

Despite the predominance of this personal conceptualization of religiosity, some researchers argue that it obfuscates the social importance of religiosity and as well as neglecting decontextualized general beliefs about religion and the existence of a higher power (Leung et al., 2007). Assessing religiosity as a social axiom (i.e., a socially oriented general belief; Leung & Bond, 2004) adds to our understanding of religiosity by including an assessment of beliefs about the value religion has to society and to individuals (e.g., "Practicing a religion unites people with others"; "Belief in a religion helps one understand the meaning of life"), independent of one's personal experience. Religiosity as a social axiom may have predictive power independent of the degree to which an individual practices a religion or literally believes its dogma. For example, a person may not go to church or consider themselves as particularly devout; however, they may also believe that religion helps other people make good choices in life. Alternatively, a person in a country in which religious practice is ubiquitous and thus a fundamental part of their daily life may still not personally endorse positive benefits of religion, such as the potential to make people healthier, despite personal identification with the religion (Leung et al., 2012).

The social axiom approach is particularly well-suited to assessing the link between personality and religiosity across cultures (Leung et al., 2002). Recent research demonstrates that individuals across a wide range of cultures experience (perhaps surprisingly) similar situations (Guillaume et al., 2015, Lee et al., 2021), as well as experiencing problems that require similar kinds of adaptive functioning (Leung et al., 2012). Thus, it is increasingly apparent that it is worthwhile for cross-cultural research to focus on comparisons with constructs that apply to everyone, such as the degree to which they are inclined to accept religion as a solution to fundamental human problems (Leung et al., 2012).

1.4. Current study

The current project presents a comprehensive exploration of the relationship between personality traits and religiosity to date. While our data do not speak to the directionality of the personality-religiosity relationship, we are well-equipped to assess the cultural context in which these relations are more and less relevant.

Over 15,000 people across 60 countries and one world region and seven major religious affiliations reported the extent to which or not they followed a religion and, for those who did, their specific religious affiliation. They then completed two theoretically distinct measures of religiosity (personal religiosity and religiosity as a social axiom), measures of the Big Five personality traits and their facets, as well as ten other personality traits (e.g., honesty/humility, optimism, narcissism, self-construal). These data enable us to systematically and comprehensively assess cross-country variation of religiosity, the relationships between personal religiosity, religiosity as a social axiom, and personality traits, and the extent to which these relationships vary across religious affiliations. Moreover, existing country-level data allow us to also explore these relations within the cultural context. Specifically, we utilized several relevant extant country-level variables (e.g., HDI) to help explain the variation between religiosity and personality traits across countries.

While the above review of the literature might allow some tentative hypothesis generation, due to the uniqueness of our dataset (see below for a thorough description), the current project is explicitly exploratory. In collaboration with over 100 researchers, we collected culturally relevant data from over 15,000 individuals across 61 countries (and one region) speaking over 40 languages. This international collaboration yielded the inclusion of survey measures developed outside the U.S. and draws from a diverse set of theoretical perspectives. Thus, instead of hypotheses, our analyses were motivated by five research questions:

1. How religious are people around the world, in terms of the percentage of those following a religion, self-reported personal religiosity, and general beliefs about religion (i.e., religiosity as a social axiom)?
2. To what extent do personal religiosity and religiosity as a social axiom differ across countries and religious affiliation?
3. Do the relationships between religiosity and personality vary across religious affiliations?
4. Do country-level factors help explain the variation in the relationships between personality and religiosity across countries?

2. Methods

Below we report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study.

2.1. Participants

Participants ($N = 15,264$[2]) were recruited by local collaborators from 60 countries and one region[3] (see Table 1). The majority of participants classified themselves as female (71% female[4]) and were recruited from university communities (average age = 22.34 years). Participants either volunteered or were granted course credit, small

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[2] Data from 3 data collection sites had fewer than 50 participants and were not included.

[3] Due to its cultural distinction from China, Hong Kong participants are considered a separate sample from their mainland Chinese counterparts. Thus, while we have included it in our list of countries, we acknowledge that Hong Kong is not a country and is instead a special administrative region.

[4] Due to the large gender imbalance, all analyses were conducted separately for male and female participants and then averaged together.

Table 1
Demographic Information by Country and one Region.

Country	Total N	% Female	Mean Age
United States	1366	67	19.86
Switzerland	755	84	22.35
Italy	717	65	21.86
Senegal	635	47	23.31
Germany	458	74	24.36
Mainland China	432	48	22.63
Spain	419	85	19.73
Chile	386	66	21.47
Philippines	337	68	19.69
Turkey	329	68	21.09
Brazil	310	72	23.69
Canada	304	79	21.85
Netherlands	301	81	20.14
Palestine	295	83	22.17
Estonia	293	84	25.88
South Korea	281	58	22.35
South Africa	256	66	22.20
Mexico	247	58	23.85
Denmark	246	79	22.92
Ukraine	244	77	20.62
Japan	243	62	22.56
Poland	234	83	22.35
France	231	84	22.58
Malaysia	230	70	21.52
Greece	225	80	22.57
India	221	50	22.38
Croatia	218	65	21.46
Australia	196	76	19.84
Thailand	196	77	19.27
Czech Republic	193	81	22.65
Serbia	185	86	19.72
Colombia	181	74	21.68
Hungary	178	60	21.76
Romania	177	57	22.84
Israel	173	61	25.42
Latvia	169	83	24.87
Vietnam	168	77	19.05
Taiwan	162	77	19.71
Norway	159	74	23.89
Russia	159	78	21.90
Portugal	157	87	21.77
Bulgaria	152	70	25.02
Slovakia	148	70	22.41
Lithuania	145	78	20.26
Hong Kong, China	144	58	18.99
Jordan	141	81	19.87
Argentina	140	79	24.28
Georgia	140	80	20.29
Kenya	139	65	21.17
Singapore	136	78	20.93
United Kingdom	136	89	25.64
Bolivia	135	58	21.01
Nigeria	135	33	24.72
Indonesia	131	52	21.83
Sweden	130	70	†
New Zealand	129	86	19.19
Slovenia	123	57	20.59
Pakistan	114	50	20.61
Austria	113	81	21.26
Uganda	93	65	22.63
Peru	74	61	22.66
World Sample	**15,264**	**71**	**21.93**

Note. † = Data not available.

gifts, or monetary compensation for their participation.

2.2. Procedure

The participants were recruited locally by our international collaborators. Each participant received a unique ID and was directed to the study's custom-built website (current link: ispstudy.ucr.edu).

Participants first acknowledged informed consent, and then completed a series of individual difference measures assessing daily behavior, situational experience, and several individual differences (e.g., personality, religiosity, happiness). The present set of analyses is part of a larger study that seeks to explore cross-country variation and similarity of situational experience and individual differences. The variables included in this larger project, as well as the current set of analyses were included to accomplish a broad goal.

This study was not pre-registered prior to data collection or data analysis. While we could conceivably have offered predictions based on previous research and theories, this study was strictly exploratory from the beginning and any theoretical connections developed as part of that exploration. All data, materials, and R code are available at: osf.io/fqwtc/?view_only=b08e9c72c42f499d953f636d562670f2.

2.3. Measures

The analyses below are part of the International Situations Project (ISP), a large-scale cross-cultural study seeking to assess cross-cultural variation and similarity in situation experience, daily behavior, and several individual differences including the Big Five personality traits, happiness, narcissism, optimism, and religiosity, among others. The measures included in the ISP were chosen in collaboration with international collaborators (all of whom are psychologists) to accomplish this broad goal and include several measures developed outside the US (e.g., Interdependent Happiness Scale). International collaborators residing in non-English speaking countries translated each measure into their local language. Each translated measure was then back-translated into English and compared to the original version to ensure the item's meaning was maintained through the translation process. All discrepancies were then resolved. Using this method, all measures were translated into 41 languages.

Personal religiosity. Participants were asked to report how religious they were on a scale from 1 to 10 (i.e., "On a scale from 1 to 10, how religious are you?"). We also included an option for participants to select "Prefer not to answer". This single-item measure is similar to that used in previous research (Norenzayan & Hansen, 2006).

Religiosity as a social axiom. Religiosity as a social axiom was measured with a 17-item scale assessing personal beliefs relating to the value religion has on society (Leung et al., 2012; e.g., "Belief in a religion helps one understand the meaning of life"; 1 = *strongly disbelieve* to 5 = *strong believe*). We also included an option for participants to select "Prefer not to answer". In response to a request from our collaborators in Arabic countries, for participants in Jordan and Palestine all original reverse-coded items were revised to be positively worded (e.g., original reverse-coded item: "Religion slows down human progress", revised: "Religion promotes human progress") and scored accordingly.

Religious affiliation. To collect data on participants' religious affiliations, they were first asked whether they follow a religion (yes/no), and, if they answered in the affirmative, they were asked to report what religion they followed, by typing their answer into a free-response box. We then translated and coded these responses into seven major religious categories: Buddhism, Catholicism, Christianity-Orthodox, Christianity-Unspecified, Hinduism, Judaism, and Islam. Responses that fell outside these religions and/or did not capture a sufficient number of participants' religious affiliation were coded as 'other' (e.g., Mormonism, Spirituality, God), and represented only 2.78% of the total response across all countries. Finally, 2.18% of participants indicated that they were religious, yet chose to not indicate specify which religion they followed when prompted (see Table 3).

Personality. Participants completed a series of measures assessing individual differences. Personality was measured using the 60-item Big Five Inventory 2 (BFI2; Soto & John, 2017) in which each of the Big Five traits are represented by three facets (4 items each). The facet structure for each trait is as follows: extraversion (facets: sociality, assertiveness, energy), agreeableness (facets: trust, respect, compassion),

conscientiousness (facets: productiveness, responsibility, organization), and negative emotionality (the opposite of emotional stability; facets: anxiety, depression, emotional volatility). Participants rated whether they agreed or disagreed with each statement (e.g., "I am someone who is outgoing") on a five-point scale (1 = *disagree strongly* to 5 = *agree strongly*).

Participants also completed the 10-item Honesty/Humility subscale (e.g., "I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed"; 1 = *strongly disagree* to 5 = *strongly agree*) of the HEXACO measure of personality (facets: sincerity, fairness, greed, modesty; Ashton, & Lee, 2009), and the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013) which assesses narcissistic tendencies in terms of its rivalry and admiration facets (e.g., "I deserve to be seen as a great person"; 1 = *strongly disagree* to 5 = *strongly agree*).

To measure levels of dispositional optimism, participants completed the 6-item Life Orientation Test-Revised (LOT-R; e.g., "In uncertain times, I usually expect the best"; 1 = *strongly disagree* to 5 = *strongly agree;* Sheier et al., 1994). Finally, participants completed the 5 item General Trust Scale (Yamagishi et al., 2015) which assesses the extent to which people view others as generally trustworthy (e.g., "Most people are basically honest"; 1 = strongly disagree to 5 = strongly agree).

Happiness. Happiness was measured using the Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999) and the Interpersonal Happiness Scale (IHS; Hitokoto & Uchida, 2015). The SHS is a 4-item scale developed in the US (e.g., "In general, I consider myself…" 1 = *not a very happy person* to 7 = *a very happy person*), and the IHS is a 9-item scale developed in Japan (e.g., "I believe that I and those around me are happy"; 1 = *strongly disagree* to 5 = *strongly agree*). See Gardiner et al., 2020 for a comparison of these measures across countries.

Self-construal. Self-construal assesses individuals' independent (i. e., unitary, separate from the social context) versus interdependent (i.e., closely connected with others, fluid, contextually embedded) self-image. Participants completed three subscales of the Self-Construal Scale (Vignoles et al., 2016): self-expression (high scorers) versus harmony (low scorers; e.g., "You think it is good to express openly when you disagree with others"; 1 = *Doesn't describe me at all* to 9 = *Describes me exactly*), self-interest (high scorers) versus commitment to others (low scorers; e.g., "You protect your own interests, even if it might sometimes disrupt your family relationships"; 1 = *Doesn't describe me at all* to 9 = *Describes me exactly*), and consistency (high scorers) versus variability (low scorers; e.g., "You behave in the same way even when you are with different people."; 1 = *Doesn't describe me at all* to 9 = *Describes me exactly*).

Tightness. Cultural tightness was assessed with the 6-item Tightness-Looseness Scale (Gelfand et al., 2006). This measure asks participants to express the extent to which they agree with statements on the strength of social norms in their country. High scores indicated perceptions of residing in a tight country (e.g., "There are many social norms people are supposed to abide by in this country") and low scores indicated perceptions of living in a loose country (e.g., "People in this country have a great deal of freedom in how they want to behave in most situations" (reverse coded).

Country-level Variables. The current analyses utilized previously and separately collected country-level variables publicly available from various sources. We selected variables that would both theoretically relate to a countries religious system of belief and underscore the impact cultural context has on the strength and direction of personality-religiosity relationships. First, the Human Development Index (HDI) is a composite measure encompassing life expectancy, educational opportunities, and standard of living (UNDP, 2022). HDI scores were accessible for all ISP countries, with the exception of Taiwan. The recorded HDI scores ranged from.49 (Uganda & Senegal) to.95 (Norway), with higher values indicating better national well-being.

Next, we used country-level collectivism scores available for 55 countries from the Responsiblism scale (Talhelm, 2022). The measure of

responsibilism was developed as an alternative method for assessing collectivism cross-culturally and has been validated in over 90 countries. The recorded collectivism scores ranged from 3.37 (Denmark) to 4.75 (China) with higher values indicating more collectivistic cultures.

Finally, we utilized the Global Peace Index (GPI; Institute for Economics & Peace, 2023) in 60 countries to assess general cultural peace and conflict. The GPI country-level scores ranged from 1.25 (Denmark) to Ukraine (3.29), with higher scores representing more conflict and lower scores representing more peace.

3. Results

The current study utilizes a large international dataset to first assess how religious college students are around the world[5] and across religious affiliations in terms of (1) the relative percentage of people in each country report following any religion, (2) average personal religiosity ratings across countries, and (3) average general beliefs about the benefit religion has to individuals and society (i.e., religion as a social axiom). We then work to provide a more comprehensive exploration of the relationship of religiosity and personality traits by conducting a series of correlations between the Big Five, their facets, and 10 other personality traits with two theoretically distinct measures of religiosity. Finally, we assess the variability in mean levels of religiosity and their relationship with personality traits across seven religious affiliations and utilize previously collected country-level factors to explain cross-country variation in these relationships.

All mean-level comparisons of religiosity measures reported below were transformed into POMP, or Percent of Maximum Possible, scores to allow comparability between measures. POMP scores are computed by dividing each participants' composite score by the total maximum score for that measure (e.g., 5 or 10) and then multiplying by 100 to get a percentage. POMP scores will thus range from 0 to 100 (Cohen et al., 1999).

3.1. How religious are people around the world?

We first assessed the international differences of the percentage of people who indicated they followed any religion, personal religiosity (i. e., "How religious are you on a scale from 1 to 10"), and religiosity as a social axiom. Importantly, these three indicators were highly related (lowest $r = .62$). Thus, there were commonalities in country rankings across indicators. The percentage of individuals who followed any religion ranged from 99% (Indonesia) to 7% (Estonia) with 48% of our world sample indicating that they follow some religion (see Table 2). Notably, in a quarter of the countries included in our sample, at least 75% of participants indicated following at least one religion.

Unsurprisingly, countries with the highest percentage of people following a religion also tended to be those with the highest personal religiosity and religiosity as a social axiom. For instance, in Malaysia, Indonesia, Senegal, and Palestine nearly all participants indicated following a religion and these countries also were in the top five in average personal religiosity and religiosity as a social axiom. There were a few instances in which the two conceptualizations of religiosity did not align. Estonia, for example, has the lowest percentage of individuals who follow a religion (7%) and yet on average scored near the midpoint of the religiosity as a social axiom scale (POMP score = 61.74, $SD = 15.64$). Likewise, while 41% of people in Austria indicate following a religion, the religiosity as a social axiom score was in the bottom quarter of

countries' POMP scores (56.99, $SD = 11.6$), and personal religiosity was the fourth lowest (POMP score = 25.79, $SD = 24.78$).

3.2. To what extent does religiosity vary across religious affiliation?

We next explored the extent to which religiosity as a social axiom and personal religiosity varied across religious affiliation. First, the largest number of the participants in our study stated their religion as Christianity-Unspecified (34.91%) followed by Catholicism (26.76%) and Islam (23.58%). Across all affiliations, participants indicated religiosity levels above the midpoint. For both religiosity indicators, Buddhism and Judaism were significantly similar as the lowest rated. Also, Christian-Unspecified, Christian-Orthodox, and Judaism shared similar average religiosity as a social axiom rating. Notably, Islam had the highest religiosity as a social axiom (POMP = 74.04, $SD = 19.13$) and personal religiosity (POMP = 83.25, $SD = 11.14$) scores (see Table 3). To contextualize these results within countries, Table 4 depicts religious affiliations across countries among those that report a religious affiliation.

3.3. Which religious are predominant in different countries?

We next sought to determine which personality traits were related to religiosity. To compare the strength of these relationships across measures of religiosity, we ran a series of multilevel models (MLM) for both measures with the Big Five personality traits (plus facets), honesty/humility (plus facets), happiness, perceptions of countries' tightness, facets of self-construal, optimism, narcissism (plus facets), and trustworthiness as predictors. For all models, participants were nested within countries. All models were run separately for each trait and included random slopes and intercepts as well as controlling for gender. In line with previous research, results indicated that the strongest predictors of religiosity from the Big Five traits were agreeableness and its facets, followed by conscientiousness and its facets. The Honesty/Humility facet of fairness was also a strong predictor of both religiosity as a social axiom but more so for religiosity as a social axiom. Both measures of religiosity were also positively related to both measures of happiness and negatively related to the self-interest facet of self-construal (see Table 5).

3.4. Do the relations between personality traits and religiosity vary across religious affiliations?

Next, we sought to determine whether the relationships described above varied across religious affiliation. For each religion (i.e., Buddhism, Catholicism, Christianity, Christianity-Orthodox, Hinduism, Judaism, and Islam) we correlated each personality trait variable and both personal religiosity (see Table 6a) and religiosity as a social axiom (see Table 6b).

For each individual difference variable, we ran Chi-square model fit comparisons to assess the differences between models which fix all slopes of relationships between religiosity and individual differences to be equal (*Model 1*) and a one in which slopes are allowed to vary across religious affiliations (*Model 2*). In these analyses, a significant Chi-square difference indicated significant variation across religions in the strength of the relationship between that individual difference variable and religiosity (see the $\Delta\chi2$ column in Tables 6a and 6b). To minimize Type 1 error, we conservatively set our significance level to $p < .001$.

First, relationships with personality traits varied more for personal religiosity than for religiosity. Specifically, there was significant variability across religious affiliations for relationships between personal religiosity and respect (facet of agreeableness), conscientiousness, negative emotionality (driven by emotional volatility facet), the rivalry facet of narcissism, and trustworthiness (see Table 6a). The relationship between conscientiousness and personal religiosity varied significantly across religions, indicating that some religious affiliations (i.e., Islam,

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[5] While we our sample is mostly college students, it should be noted that these results translate to a more age-representative sample when compared to similar previously collected data. For instance, there is a strong country-level correlation between those practicing a religion in our sample, and those who consider religion an important part of their daily life as measured by the Gallup World Poll ($r(59) = .83$; Gallup World Poll, 2017).

Judaism) are associated with organization, productivity, and responsibility more than others (i.e., Buddhism, Catholicism, Christianity, Hinduism). Personal religiosity also varied across religions in its relationship with the respect facet of agreeableness with strong positive relationships seen among Muslim, Jewish, and Christian-Orthodox participants and near zero relationships seen among Hindu, Christian, Catholic, and Buddhist participants. The observed variability between personal religiosity and negative emotionality and its emotional volatility facet was driven by the large negative relationship among Islamic participants and near zero relationship among all other participants. Finally, the variation with personal religiosity and the rivalry facet of narcissism was driven primarily by the strong positive relationship among Buddhist participants and near zero, or slightly negative relationships across participants from all other religions (see Table 6a).

Conversely, religiosity as a social axiom only varied significantly across religions in its relationship with narcissism (driven by the rivalry facet) and individuals' perceptions of their countries' degree of tightness (see Table 6b). Thus, religiosity as a social axiom demonstrated much stronger uniformity in its relationships with individual differences than did personal religiosity. Specifically, religiosity as a social axiom showed similar positive relationships with agreeableness and its facets, the fairness facet of honesty/humility, optimism, and conscientiousness and its facets across each religious affiliation. Religiosity in practice showed consistent negative relationships with the depression and emotional volatility facets of negative emotionality as well as with the self-interest facet of independent self-construal. Of note, religiosity in practice also saw a fair amount of uniformity in its positive relationship with optimism, fairness, and subjective happiness (see Table 6b).

Moreover, supplemental analyses revealed that for agreeableness (and its facets) and conscientiousness (and its facets), relationships with personal religiosity are significantly stronger for countries with high rates of religious affiliation, relative to those with low rates (see Supplementary Materials). For example, in Indonesia where 99% of our participants indicated that they follow a religion, the correlation between agreeableness and personal religiosity is $r(129) = .27$, while in Sweden, where only 16% of participants indicated that they follow a religion, the correlation is $r(128) = .08$. Significant interactions were also found for happiness and trustworthiness. These analyses underscore the moderating effect of the ubiquity of religiosity across countries.

Taken together, these results illuminate how personality traits are related to religiosity regardless of what religion one follows and which vary as a function of the specific traditions, rituals, and practice-based behaviors associated with specific religious affiliations. Finally, as discussed more below, these findings also demonstrate the importance of the theoretical distinction between assessing religious beliefs as the extent to which one feels one is religious (personal religiosity) and one's general beliefs about religion's impact on individuals and society (religiosity as a social axiom).

3.5. Do country-level factors help explain the variation in the relationships between personality and religiosity across countries?

Lastly, we examined country-level variation in the relations between personality and religiosity to assess the extent to which country-level variables explain the variation in the relationships across countries. Because of the large number of potential trait x religiosity relationships (37 traits/facets x 2 measures of religiosity), we limited our assessment to the traits of Conscientiousness and Agreeableness and their facets.[6] These two traits have the most consistent relationships with religiosity based on past findings and these relationships were replicated in our own sample.

We first tested whether the relationship between each trait/facet and each measure of religiosity varied significantly across countries with a Chi Square comparison between models with and without random slopes. Results for each model are available in the Supplementary Materials but all relationships had statistically significant variation across countries. We next tested for significant interaction effects between trait/facet four theoretically selected country-level variables and each trait/facet x religiosity relationship. They were selected from external datasets and consisted of the Human Development Index (HDI), Global Peace Index (GPI), Collectivism, and country religiosity as measured by the Gallup World Poll. These country-level variables were chosen because of their theoretical relationship with religiosity and because they represent key cultural factors that impact individuals' daily lives.

Human Development Index (HDI). There was a statistically significant negative interaction effect of HDI on the relationship between agreeableness and religiosity as a social axiom ($\beta = -.02$, $p = .004$) but not for personal religiosity and agreeableness. On the facet level, only compassion had a significant interaction while respectfulness and trust did not. Thus, the relationship between religiosity as a social axiom and agreeableness, specifically compassion, was stronger in countries lower on HDI. The relationship between conscientiousness and religiosity had a statistically significant interaction effect on both measures of religiosity for HDI. This effect was replicated on the facet level for organization, however; responsibility and productivity only had significant interaction effects for religiosity as a social axiom. These interaction effects were also negative, meaning the relationship between conscientiousness and religiosity is weaker in more developed nations.

Global Peace Index (GPI). The GPI is a measure of peace and conflict for each country, with higher scores indicating greater conflict. There was a statistically significant interaction effect for GPI on the relationship between agreeableness and both measures of religiosity. Specifically, countries experiencing more conflict had a stronger relationship between religiosity and the personality facets of compassion and trust. For conscientiousness, there was a statistically significant interaction effect for both measures of religiosity by GPI across all three facets of conscientiousness and both measures of religiosity (except for responsibility and the religiousness measure ($\beta = .01$, $p = .12$)). Thus, countries experiencing more conflict had a stronger relationship between religiosity and conscientiousness.

Collectivism. Collectivism was a statistically significant moderator of the relationship between agreeableness and both measures of religiosity. At the facet level, this pattern was only true for the facet of trust where compassion had a significant interaction effect for religiosity as a social axiom but not religiousness, and respectfulness had no significant interaction effects. These results suggest that countries higher on collectivism had a stronger positive relationship between religiosity and trust. For conscientiousness, there were few interaction and inconsistent interactions across facets and measures of religiosity. Collectivism was a significant moderator of the relationship between religiosity as a social axiom and conscientiousness, but this effect did not reach statistical significance for any of the facets (although the effects were all in the same direction). A significant interaction effect for the facet of productivity and religiousness was found ($\beta = .02$, $p = .03$) but not for the overall trait of conscientiousness ($\beta = .01$, $p = .14$).

Overall, we found significant variation across countries between personality and religiosity for the traits of agreeableness and conscientiousness. The variation is at least partially explained by the country-level factors of HDI, conflict, and collectivism. Broadly, personality-religiosity relationships are more strongly positive in countries with low HDI, more conflict, and higher collectivism. Additionally, the interaction effects were more common for religiosity as a social axiom than religiousness for all of the country-level variables and both traits.

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[6] We include parallel analyses for extraversion, neuroticism, and openness to experience in the supplementary analyses located on our project's OSF project page available at osf.io/fqwtc/?view_only=b08e9c72c42f499d953f636d562670f2.

4. Discussion

This study sought to provide a systematic and comprehensive assessment of religiosity across countries and religious affiliations. Results demonstrate that countries vary greatly in the percentage of individuals who report following a religion with a range from 99% (Indonesia) to 7% (Estonia). With some interesting exceptions, countries with high rates of religious affiliation also had high levels of average personal religiosity (rated on a scale from 1 to 10) and religiosity as a social axiom. Personal religiosity and religiosity as a social axiom did not vary significantly across Jewish, Christian, Christian-Orthodox, Catholic, Hindu, and Buddhist religions. Individuals following the Islam faith, however, were significantly more religious as measured by both indicators.

Our findings concerning relations between personality traits and personal religiosity mostly aligned with previous research (see Ashton & Lee, 2019; Entringer et al., 2020; Gebauer et al., 2014) in that personal religiosity was positively related to agreeableness, conscientiousness, happiness, and the fairness facet of honesty/humility. Also, in line with the theoretical distinction, relations between personality traits and personal religiosity varied more across religious affiliations than relations between personality traits and religiosity as a social axiom.

4.1. Religiosity across countries and religious affiliations

The 61 countries and one region in our dataset ranged considerably in the percentage of participants indicating that they follow any religion. In just under half of our countries (31), 40% or more of individuals follow a religion, and in ten countries, over 80% of individuals indicate following a religion. On the other side of the spectrum, Estonia has the lowest proportion of religious individuals at 7% followed by Vietnam (11%), Japan (14%), and Sweden (16%). Unsurprisingly, countries with 99–96% of religious participation also scored among the highest in personal religiosity and religiosity as a social axiom. While highly correlated, theoretically, whether or not someone follows a religion is not necessarily indicative of the general beliefs they hold about the positive benefits of religion. Accordingly, while Estonia has the lowest percentage of individuals following a specific religion, it did not have the lowest average of religiosity as a social axiom (ranked 35 of 62 countries). Likewise, only 11% of Vietnamese participants indicated that they followed a religion yet it ranked 16th out of 62 countries in religiosity as a social axiom. In these two examples, individuals may not identify themselves as religious, yet still recognize the value of religion for society. Also, only 16% of participants in Mainland China indicate following a religion yet they rank around the middle of countries in the

strength of their personal religiosity. This finding replicates research conducted by the Pew Research Center that only 11% of residents report following a formal religion while 26% report participating in religious activities (Pew Research Center, 2023).

In terms of relative ranking of religiosity across religious affiliations, Buddhism and Hinduism were the lowest ranked and Islam was the highest ranked (across both conceptualizations of religiosity). That said, unsurprisingly, all religions had average ratings above the scales' midpoint. When assessing similarities of average scores across religions, Buddhism was similar to Hinduism for both personal religiosity and religiosity as a social axiom. Also, Catholicism was similar to Judaism in average rating of religiosity, yet similar to Orthodox Christianity in average ratings of personal religiosity. Likewise, Christianity-Unspecified was similar to Orthodox Christianity and Judaism in religiosity as a social axiom, yet unlike any religion in personal religiosity (significantly higher among all religions except Islam).

Taken together, these analyses suggest that an individual's religious affiliation influences that individual's personal religiosity and religiosity-as-a-social-axiom. Religious groups vary greatly in their beliefs, practices, values, and social cohesion (Saroglou, 2011). One potential explanation for these religious group differences is the level of dogmatic beliefs and acceptance of alternative religious views. Hinduism and Buddhism have less dogmatic beliefs and greater acceptance of alternative views and have the lowest religiosity-as-a-social-axiom scores. Islam has more dogmatic beliefs and less acceptance of alternative views and has the highest religiosity-as-a-social-axiom score (Moore & Leach, 2016; Smart, 1996).

Another potential explanation is the religious groups' connection to cultural/national identity. Supplemental analysis review that Christianity and Catholicism are important in many countries and are thus are perhaps less tied to cultural identity, and these groups have the highest general religiosity scores. In several countries, Islam, Judaism and Hinduism are the only religion practiced (e.g., Judaism in Israel, Islam in Pakistan) and thus are strongly tied to cultural identity and have some of the lowest general religiosity scores (Smart, 1996). These are just two potential explanations for these differences, and future research should explore how the content of specific religious beliefs, practices, and values of a religious group contributes to variability of religiosity among members.

4.2. Religiosity and personality traits beyond the Big Five

Recent research has used large cross-cultural datasets to assess relationships between religiosity and personality traits, commonly with the Big Five, HEXACO, and their facets. The current project conceptually

Table 2
Religiosity across Countries.

Country	% Follow a religion	M$_{personal religiosity}$ (SD)	M$_{religiosity as a social axiom}$ (SD)
Indonesia	99%	66.78 (26.31)	87.92 (11.88)
Malaysia	98%	76.01 (27.97)	87.58 (15.57)
Pakistan	97%	62.72 (24.47)	84.71 (15.56)
Senegal	96%	84.58 (24.95)	82.44 (15.76)
Jordan	93%	59.65 (25.08)	73.56 (15.80)
Palestine	91%	69.95 (24.55)	78.31 (11.41)
Thailand	88%	44.46 (29.17)	67.35 (17.88)
Kenya	86%	68.68 (25.72)	77.93 (19.81)
Uganda	84%	67.62 (24.19)	77.76 (13.93)
Nigeria	80%	71.63 (24.33)	77.38 (12.66)

Table 2 (*continued*)

Philippines	79%	61.05 (20.60)	71.58 (13.51)
Israel	74%	54.30 (23.87)	71.65 (17.42)
Georgia	73%	50.50 (27.01)	63.76 (16.65)
Greece	68%	46.83 (18.49)	65.98 (11.15)
Poland	68%	50.63 (27.22)	63.33 (16.08)
Singapore	65%	50.89 (31.31)	69.15 (18.39)
Slovakia	64%	52.53 (24.06)	69.01 (14.02)
South Africa	64%	51.50 (21.19)	63.63 (13.34)
United States	64%	50.16 (25.14)	69.62 (14.47)
Bulgaria	59%	46.23 (18.89)	64.57 (8.29)
Brazil	58%	49.61 (22.24)	65.75 (14.93)
India	57%	50.40 (24.44)	64.74 (13.69)
Mexico	53%	54.12 (31.16)	65.43 (17.50)
Colombia	52%	51.13 (20.52)	64.25 (10.18)
Italy	52%	43.48 (26.81)	58.78 (16.08)
Croatia	50%	45.64 (22.58)	63.82 (14.97)
Ukraine	49%	44.68 (20.75)	61.22 (10.96)
Turkey	46%	47.05 (29.60)	68.10 (20.21)
Romania	44%	48.41 (26.61)	61.13 (15.73)
Bolivia	43%	43.26 (26.88)	58.83 (16.22)
Austria	41%	32.77 (26.07)	55.85 (16.69)
Portugal	41%	43.02 (26.74)	65.73 (15.44)
Slovenia	41%	25.79 (24.78)	56.99 (11.60)
Denmark	38%	27.63 (17.99)	55.04 (13.10)
Peru	36%	41.80 (29.69)	61.06 (17.78)
Taiwan	36%	41.44 (28.98)	64.93 (18.38)
Chile	35%	41.89 (32.23)	62.32 (18.89)
Hungary	35%	38.03 (25.64)	64.61 (14.80)
Argentina	34%	38.11 (25.34)	55.89 (14.90)
Germany	34%	33.63 (24.68)	59.24 (15.34)
Australia	33%	30.70 (18.70)	61.34 (13.82)
Belgium	32%	27.47 (24.43)	58.57 (14.06)
Lithuania	31%	41.20 (23.41)	60.79 (13.33)
Norway	30%	24.67 (17.84)	54.50 (12.25)
South Korea	30%	29.42 (28.10)	59.30 (15.80)
Canada	29%	31.15 (21.55)	58.16 (13.42)
Switzerland	29%	31.06 (26.06)	60.31 (16.89)
Russia	23%	39.21 (26.95)	57.91 (15.20)
Serbia	23%	29.43 (29.34)	57.67 (17.97)
France	22%	30.93 (14.90)	60.88 (11.14)
New Zealand	22%	29.27 (22.24)	57.37 (12.59)
Netherlands	21%	25.49 (28.73)	55.18 (16.08)
Hong Kong, China	19%	36.55 (19.86)	63.82 (10.99)
Czechia	18%	36.49 (24.59)	59.55 (11.92)
Spain	18%	24.96 (27.64)	51.81 (15.94)
United Kingdom	18%	26.38 (28.67)	56.11 (16.93)

Table 2 (*continued*)

Latvia	17%	28.79 (23.59)	54.16 (14.05)
Mainland China	16%	28.01 (29.52)	55.84 (17.77)
Sweden	16%	43.05 (14.41)	63.05 (11.79)
Japan	14%	31.11 (28.30)	61.91 (15.04)
Vietnam	11%	43.33 (28.28)	68.07 (14.92)
Estonia	7%	32.43 (20.67)	61.74 (14.64)
World	**48%**	**44.11**	**64.45**

Note. Sorted by "% Follow a religion", which indicates the percentage of participants who answered yes to the question: "Do you follow a religion?" (yes/no). "Mpersonal religiosity" indicates average scores on a single-item question asking participants how religious they think they are, balanced for gender. "$M_{religiosity}$" indicates average scores on 17-item religiosity as a social axiom questionnaire, balanced for gender. Measures have been converted to POMP scores for comparability. Red shading represents the lowest vales, yellow-orange shading represents values with the 50th percentile, and green values represent the highest values.

Note. Sorted by "% Follow a religion", which indicates the percentage of participants who answered yes to the question: "Do you follow a religion?" (yes/no). "Mpersonal religiosity" indicates average scores on a single-item question asking participants how religious they think they are, balanced for gender. "$M_{religiosity}$" indicates average scores on 17-item religiosity as a social axiom questionnaire, balanced for gender. Measures have been converted to POMP scores for comparability. Red shading represents the lowest vales, yellow-orange shading represents values with the 50th percentile, and green values represent the highest values.

Table 3
Religiosity across Religious Affiliations.

Religion	% of world sample (*n*)	Personal religiosity *M* (SD)	Religiosity as a social axiom *M* (SD)
Do not follow a religion	43.82 % (6,690)	22.48 (17.19)	54.15 (13.39)
Do follow a religion	48.12 % (7,345)	66.87 (21.88)	75.71 (13.55)
Christian, Unspecified	32.77 % (2,407)	66.39$_c$ (22.22)	74.63$_c$ (13.51)
Catholic	25.61 % (1,881)	64.44$_b$ (20.39)	72.88$_b$ (12.83)
Islamic	22.57 % (1,658)	75.04$_d$ (19.13)	83.25$_e$ (11.14)
Buddhist	5.11 % (375)	55.49$_a$ (21.70)	69.30$_a$ (10.88)
Christian, Orthodox	4.37 % (321)	61.02$_{ac}$ (22.03)	69.79$_b$ (13.21)
Hindu	2.44 % (179)	59.17$_a$ (20.67)	69.21$_d$ (12.59)
Jewish	2.18 % (160)	54.72$_{bc}$ (27.83)	72.70$_{ad}$ (17.05)
Other	2.78 (204)	64.71 (22.16)	74.83 (11.60)
No religion reported	2.18 (160)	53.75 (31.75)	66.75 (11.86)

Note. Shared subscripts within columns indicate that values are not significantly different at the $p < .05$ level. Measures have been converted to POMP scores for comparability. .81% (1,229) of participants chose not to disclose whether they followed a religion or not.

replicated some of this work and extended it to assessments of two theoretically distinct measures of religiosity and ten other personality traits in addition to the Big Five. First, we replicated previous findings that highly religious people (both personal and in their positive general beliefs about religion) tend to score high in agreeableness, conscientiousness, the fairness facet of honesty/humility, and happiness (Saroglou, 2011). Also, consistent with prior work, people that value religiosity in general also tend to be low in self-interest and more likely to make sacrifices for others such as their family (facet of independent self-construal).

From a religion-influences-personality standpoint, these relationships imply that people develop certain personality traits that help them adapt to customs, values, and norms associated with religious practice. From the personality-influences-religion theoretical perspective, people high in certain traits make people more inclined to endorse religious practice or more likely to appreciate its value to individuals and society.

The international nature of our study enables us to provide some evidence for one perspective over the other. Under the assumption that people do not commonly select into their country of origin, if religion influences personality, we may expect relationships between personal

religiosity and particular personality traits to be stronger in countries in which religiosity is ubiquitous, or nearly ubiquitous. To test this possibility, we conducted supplementary analyses assessing the extent to which a country's prevalence of religiosity moderated the relationship between personality traits and religiosity. These analyses found that that relationships between personal religiosity and agreeableness (and its facets), conscientiousness (and its facets), happiness, and trustworthiness were stronger in countries in which religiosity is near ubiquitous. Personal religiosity may thus accentuate certain traits already related to religiosity (conscientiousness and agreeableness, happiness) but not others (extraversion, openness, negative emotionality, honesty/humility, narcissism, self-construal).

The possibility should be noted that these results could be affected by cross-country differences in personality structure or response styles. As mentioned previously, research suggests that country-level factors such as power-distance and English-speaking influences how participants respond to personality trait questionnaires. However, some research, cited earlier, suggests that country-level differences in personality are smaller than sometimes presumed (Kajonius & Mac Giolla, 2017; Allik et al., 2013). Future research should systematically test whether differences in structure or response style importantly moderate the relations between personality traits and other important and consequential individual differences, such as religiosity.

4.3. Personality and religiosity in cultural context

Our analyses also explore the impact important cultural factors has on the strength of the relations between personality and religiosity. Our results found that, broadly, associations between conscientiousness and religiosity and agreeableness and religiosity were more strongly positive in countries that are less developed (low HDI), in conflict (high GPI), and more collectivistic. First, in countries that are less developed and experience more conflict, individuals may turn to their religious institutions for social support, important resources, and comfort knowing that a higher power has their best interest in mind. Thus, a significant opportunity for them to develop high agreeableness and conscientiousness are in their increased religious involvement. Second, cultural environments that are less developed and experience more conflict represent 'strong situations' in which throughout the bulk of their days, individuals' behavior is more predicted by the situation they are in than by their personality traits (Meyer et al., 2010). However, religious activities provide an opportunity to express individual personality (e.g., high agreeableness and conscientiousness), thus, the relationships between traits and religiosity are stronger than those in countries the offer

Table 4
Religious affiliations across countries.
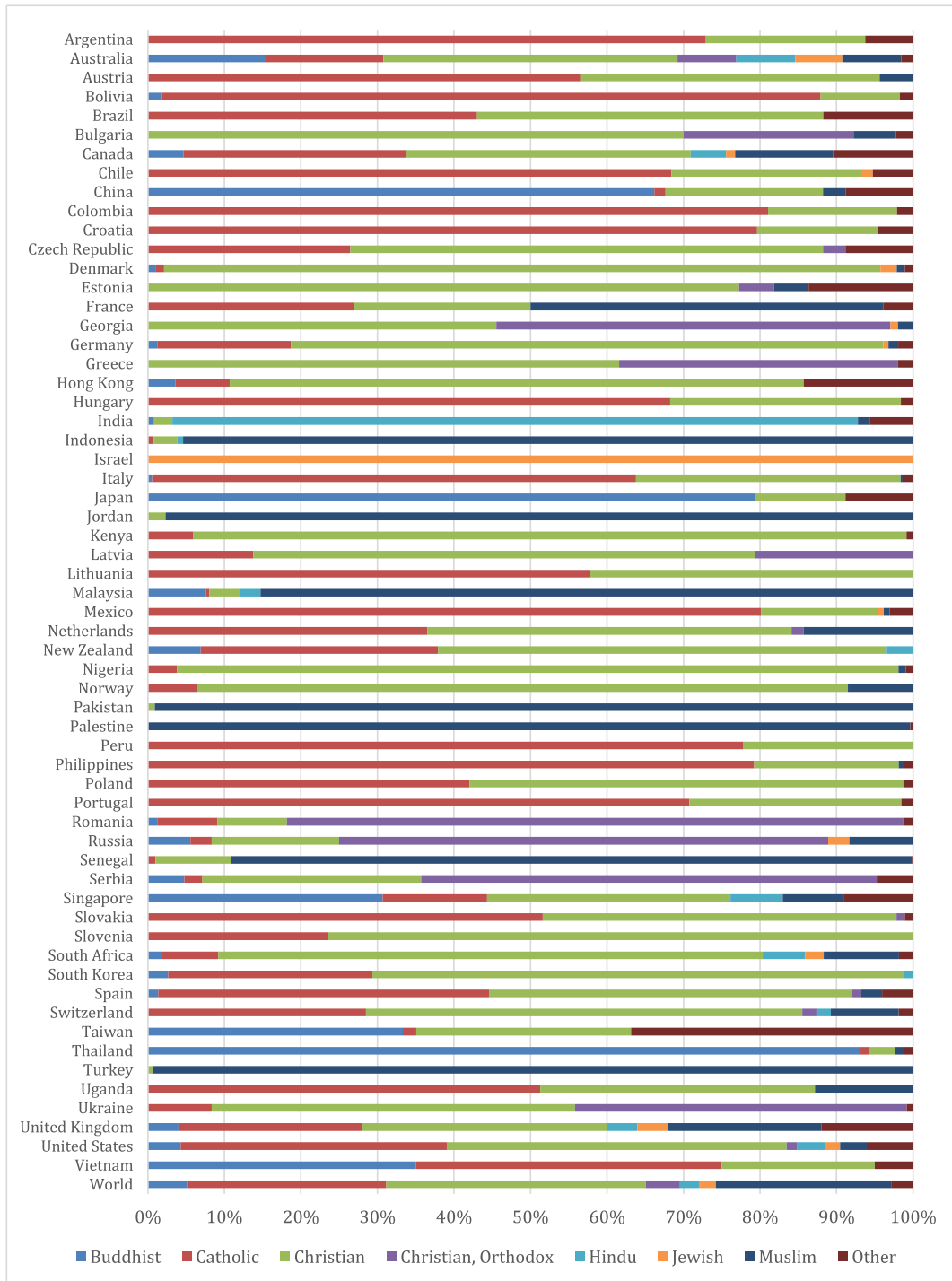
wider opportunities to express individual personality. This may also be especially true for countries high in collectivism, in which religious institutions represent opportunities to come together as a community and both support those in the community with compassion and trust.

4.4. Distinctions between personal religiosity and religiosity as a social axiom

A distinctive contribution of our study was its inclusion of two theoretically distinct measures of religiosity. Personal religiosity assesses individuals' subjective evaluation of how religious they are on a scale from 1 (not at all religious) to 10 (highly religious). Religiosity as a social axiom assesses general beliefs religion and its benefits to individuals (e.g., "Religious people are more likely to maintain moral standards"), society (e.g., "Practicing a religion unites people with others"), as well as its relation with scientific thinking (e.g., "Religious beliefs lead to unscientific thinking", reverse coded). Not surprisingly, the two measures were highly correlated with one another ($r = .74$)

Table 5

Country-level MLM of personality traits and personal religiosity and religiosity as a social axiom.

	Religiosity as a social axiom	Personal religiosity
Religiosity as a social axiom	-	.65 [.59, .70]
Personal religiosity	.65 [.59, .70]	-
Extraversion	.06 [.04, .08]	.06 [.04, .08]
Sociability	.03 [.01, .05]	.04 [.02, .06]
Assertiveness	.03 [.01, .05]	.04 [.02, .05]
Energy	.09 [.06, .11]	.07 [.05, .09]
Agreeableness	.18 [.16, .20]	.12 [.10, .14]
Compassion	.16 [.14, .18]	.11 [.08, .13]
Respect	.13 [.11, .14]	.08 [.06, .10]
Trust	.15 [.12, .18]	.10 [.08, .12]
Conscientiousness	.10 [.08, .13]	.11 [.09, .13]
Organization	.08 [.06, .10]	.09 [.06, .11]
Productive	.09 [.07, .11]	.10 [.08, .12]
Responsible	.07 [.05, .10]	.07 [.05, .10]
Negative Emotionality	-.07 [-.09, -.05]	-.06 [-.07, -.04]
Anxiety	-.02 [-.04, .00]	-.02 [-.03, .00]
Depression	-.11 [-.13, -.09]	-.08 [-.10, -.07]
Emotional volatility	-.04 [-.06, -.02]	-.03 [-.05, -.02]
Openness	.01 [-.02, .04]	-.03 [-.06, -.01]
Intellectual curiosity	-.03 [-.06, .00]	-.06 [-.09, -.03]
Aesthetic appreciation	.02 [-.01, .04]	-.02 [-.05, .00]
Creativity	.03 [.01, .04]	.01 [-.01, .03]
Honesty-Humility	.12 [.09, .14]	.06 [.04, .08]
Sincerity	.03 [.01, .05]	.01 [-.01, .03]
Fairness	.19 [.16, .21]	.13 [.11, .15]
Greed	.05 [.03, .06]	.02 [.00, .04]
Modesty	.00 [-.02, .02]	-.05 [-.07, -.03]
Subjective Happiness	.14 [.11, .16]	.12 [.10, .15]
Interdependent Happiness	.11 [.09, .13]	.09 [.07, .11]
Tightness	.00 [-.02, .02]	-.02 [-.04, -.01]
Self-construal		
Self-Expression	-.04 [-.06, -.02]	-.02 [-.04, .00]
Self-Interest	-.14 [-.17, -.12]	-.10 [-.13, -.08]
Consistency	.05 [.03, .07]	.06 [.04, .08]
Optimism	.15 [.12, .17]	.09 [.07, .11]
Narcissism	-.04 [-.07, -.02]	.01 [.00, .03]
Admiration	-.09 [-.11, -.07]	-.03 [-.05, -.01]
Rivalry	.02 [-.01, .04]	.05 [.03, .07]
General Trust	.12 [.10, .15]	.06 [.04, .07]

Note. Each trait was run independently in MLM while including random slopes and intercepts and controlling for gender. Standardized Beta coefficients are shown in the table along with their 95% Confidence Interval. Due to the large sample size, correlations over .05 are statistically significant.

suggesting that people who consider themselves personally religious also value religion in general as a benefit to the self and society. Likewise, we found similar relationships with personality traits across the two measures (e.g., conscientiousness, fairness, subjective happiness). But nonetheless they are far from being equivalent.

Our findings on the relative variability of these relationships across religious affiliations demonstrate a key distinction. Because personal religiosity in part speaks to the frequency of religious practices and the magnitude of values, and because these aspects of religion vary across religious affiliations, we would expect the relationships between personal religiosity and consequential personality traits to vary across religions. Conversely, religiosity as a social axiom assesses general beliefs about religion that are not necessarily dictated by personal experience or a specific religious belief system. Thus, religiosity as a social axiom would not be expected to vary in its relationship with personality traits across religious affiliations. We do see this pattern in our data: relations between personal religiosity and six personality traits vary significantly across religions whereas only one personality trait (the rivalry facet of

Table 6a

Correlations with practice-based religiousness and individual differences across religious affiliations.

Trait	Buddhist	Catholic	Christian, Unspecified	Christian, Orthodox	Hindu	Jewish	Islam	$\Delta\chi^2$
Extraversion	-.03	.07	.04	-.01	.01	-.02	.00	0.28
Sociability	-.05	.04	-.01	-.03	.14	.00	-.08	3.98
Assertiveness	.04	.11	.07	-.01	-.08	.01	.03	0.67
Energy	-.05	.04	.05	.02	-.05	-.08	.05	3.86
Agreeableness	.08	.04	.01	.16	.03	.15	.07	1.35
Compassion	.12	.03	-.01	.14	.06	.06	.04	2.73
Respect	.04	.00	.00	.15	-.02	.14	.17	16.83*
Trust	.03	.06	.04	.06	.03	.16	-.06	12.71
Conscientiousness	.06	.08	.07	.10	.08	.18	.24	15.96*
Organization	.02	.04	.05	.08	.10	.12	.20	12.90
Productive	.08	.11	.10	.08	.05	.18	.23	8.55
Responsible	.06	.04	.01	.07	.02	.15	.16	8.90
Negative Emotionality	.04	-.05	-.04	-.04	.00	-.03	-.15	13.49*
Anxiety	.00	-.03	.00	.00	.01	.00	-.09	4.70
Depression	.05	-.07	-.05	.00	-.01	-.09	-.12	6.36
Emotional volatility	.05	-.03	-.04	-.09	-.01	.00	-.15	15.94*
Openness	.15	.07	.08	.03	-.11	-.07	.01	1.31
Intellectual curiosity	.12	.03	.04	-.02	-.14	-.11	.00	0.18
Aesthetic appreciation	.10	.07	.07	.03	-.01	-.02	.04	0.17
Creativity	.12	.05	.09	.05	-.10	-.04	-.03	5.98
Honesty-Humility	.10	.09	.07	.10	-.07	.17	.00	7.35
Sincerity	.05	.07	.05	.03	-.01	.20	-.02	7.74
Fairness	.11	.11	.13	.14	-.03	.12	.03	5.43
Greed	.20	.07	.06	.07	-.12	-.05	-.01	5.56
Modesty	-.12	-.02	-.09	.03	-.04	.15	.00	5.68
Tightness	.00	-.03	.00	-.12	-.02	-.07	.00	0.86
Self-construal								
Self-Expression	.08	.04	-.02	.02	.09	-.06	-.06	6.55
Self-Interest	-.05	-.06	-.07	-.13	.05	-.18	-.06	0.44
Consistency	-.01	.11	.04	.08	.13	.09	.03	2.23
Optimism	.05	.12	.10	-.02	-.03	.16	.05	0.29
Narcissism	.14	.06	.07	-.07	-.02	-.03	-.03	6.81
Admiration	.05	.01	.04	-.09	.04	-.06	-.04	1.85
Rivalry	.19	.09	.09	-.03	-.06	.01	-.01	10.11*
General Trust	.11	.00	-.06	.02	-.13	.09	.08	11.02*
Subjective happiness	.03	.07	.13	.12	.02	.15	.14	2.83
Interdependent happiness	.04	.02	.03	.13	.03	.05	.11	2.78
n	375	1881	2407	321	179	160	1658	

Note. $\Delta\chi^2$ *p < .001, significance indicates that the relationship between religiosity and the personality trait varies significantly across religious affiliations. Green-shaded values indicate positive relations and red-shaded correlations indicate negative correlations. The darker the shade is, the larger the correlation.

narcissism) varies in its relationship with religiosity as a social axiom across religions.

Interestingly, participants' subjective evaluation of their countries' social norms (tightness vs. looseness), also varied in its relationship with religiosity as a social axiom. This variability again makes sense: religious affiliations and beliefs are often intimately connected to culture. In some cultures, the level of tightness, or strict adherence to cultural values and norms, may be defined in part by the extent to which beliefs surrounding a specific dominant religious affiliation *are* the dominant cultural value and norms. In our data, for Hinduism, religiosity as a social axiom is negatively related to cultural tightness, whereas in Islam, it is positively related to tightness. In other words, individuals practicing Hinduism in

tight cultures tend to hold *less* positive views of the benefits of religion. Conversely, those practicing Islam in tight countries tend to hold *highly* positive views of religion. More research is needed to understand how variations in the relationship between religious values and personality traits interact with the larger cultural context.

These findings underscore the importance of considering the variability of religious affiliation, especially when exploring connections with the commonly used personal religiosity assessment method. They also illuminate the benefit of including a measure of religiosity as a social axiom to uncover the value of religiosity separately from religious affiliation and personal religious practice.

Table 6b

Correlations with religiosity as a social axiom and individual differences across religious affiliations.

Trait	Buddhist	Catholic	Christian, Unspecified	Christian, Orthodox	Hindu	Jewish	Islam	$\Delta\chi^2$
Extraversion	0.03	0.09	0.04	0.02	0.13	-0.03	0.03	1.32
Sociability	0.00	0.06	-0.03	-0.02	0.09	0.03	-0.03	4.96
Assertiveness	0.04	0.09	0.06	0.02	0.10	-0.02	0.03	1.20
Energy	0.03	0.08	0.08	0.07	0.12	-0.08	0.08	0.002
Agreeableness	0.19	0.09	0.13	0.15	0.17	0.25	0.12	0.98
Compassion	0.20	0.06	0.07	0.12	0.17	0.20	0.04	6.08
Respect	0.13	0.02	0.10	0.15	0.12	0.18	0.12	3.12
Trust	0.10	0.12	0.14	0.07	0.08	0.22	0.11	0.36
Conscientiousness	0.16	0.08	0.10	0.05	0.18	0.30	0.05	4.46
Organization	0.12	0.04	0.07	0.05	0.10	0.26	0.07	0.02
Productive	0.16	0.10	0.13	0.03	0.14	0.23	0.03	7.84
Responsible	0.12	0.05	0.04	0.05	0.18	0.27	0.01	5.89
Negative Emotionality	-0.01	-0.09	-0.10	-0.06	-0.16	-0.11	-0.08	0.003
Anxiety	0.05	-0.05	-0.05	-0.01	-0.07	-0.02	-0.02	0.15
Depression	-0.07	-0.11	-0.10	-0.04	-0.20	-0.16	-0.09	0.22
Emotional volatility	0.00	-0.06	-0.11	-0.08	-0.13	-0.09	-0.08	0.23
Openness	0.11	0.04	0.11	0.14	0.01	-0.10	0.09	1.57
Intellectual curiosity	0.12	0.05	0.08	0.06	-0.01	-0.23	0.08	4.31
Aesthetic appreciation	0.12	0.02	0.08	0.14	0.00	0.02	0.05	1.29
Creativity	0.01	0.04	0.09	0.13	0.02	-0.05	0.07	0.33
Honesty-Humility	0.20	0.09	0.11	0.08	0.06	0.26	0.18	3.76
Sincerity	0.09	0.04	0.02	0.02	0.09	0.23	0.07	0.18
Fairness	0.25	0.13	0.18	0.13	0.11	0.29	0.22	2.57
Greed	0.16	0.05	0.07	0.05	-0.04	-0.06	0.04	0.20
Modesty	-0.01	-0.01	-0.02	0.00	-0.03	0.17	0.10	9.09
Tightness	-0.07	0.01	0.07	-0.05	-0.12	0.03	0.11	14.66*
Self-construal								
Self-Expression	-0.06	0.01	-0.09	-0.07	0.02	-0.05	-0.07	4.68
Self-Interest	-0.15	-0.10	-0.11	-0.15	-0.04	-0.25	-0.23	7.52
Consistency	0.07	0.06	0.03	0.02	0.04	0.13	-0.05	9.91
Optimism	0.18	0.14	0.18	0.03	0.10	0.29	0.16	1.41
Narcissism	0.00	0.02	0.01	-0.11	-0.12	-0.16	-0.15	17.00*
Admiration	-0.06	-0.05	-0.03	-0.14	-0.07	-0.21	-0.17	8.47
Rivalry	0.05	0.08	0.04	-0.05	-0.15	-0.07	-0.10	18.94*
General Trust	0.10	0.15	0.04	0.09	-0.08	0.19	0.10	4.54
Subjective happiness	0.08	0.09	0.17	0.07	0.11	0.23	0.18	5.43
Interdependent happiness	0.06	0.07	0.11	0.11	-0.08	0.18	0.16	6.25
n	375	1881	2407	321	179	160	1658	

Note. $\Delta\chi^2$ *$p < .001$, significance indicates that the relationship between religiosity and the personality trait varies significantly across religious affiliations. Green-shaded values indicate positive relations and red-shaded correlations indicate negative correlations. The darker the shade is, the larger the correlation.

Note. $\Delta\chi^2$ *$p < .001$, significance indicates that the relationship between religiosity and the personality trait varies significantly across religious affiliations. Green-shaded values indicate positive relations and red-shaded correlations indicate negative correlations. The darker the shade is, the larger the correlation.

4.5. Limitations and Future directions

The current study provides a systematic and comprehensive exploration of the relationship between personal religiosity, religiosity as a social axiom, and personality traits across countries and religious affiliations. That said, it is not without its limitations. First, our sample consisted of mostly college students. While college is a particularly transformative time in one's life in which individuals are forming values independent from their family's values, a more representative sample would enable us to explore the impact age and gender has on one's religiosity and their relationship with personality traits. That said, it should also be noted that although college students are less religious in

general, in our data more religious college students are in more religious countries. Indeed, our sample's percentage of those following a religion across countries was strongly correlated ($r(60) = .83$) with the Gallup World Poll sample's response to the question "Is religion an important part of your daily life?" (Gallup, 2020).

Next, as is true with all research assessing individual differences across countries, this study likely attains less than perfect measurement invariance in its assessment of personality traits and religiosity. Indeed, because of the large number of groups to be compared (i.e., 61 countries and 7 religious affiliations assessed in 40 languages), tests of invariance would certainly fail to attain stringent thresholds and thus would add little if any useful information (Funder & Gardiner, 2023). We argue that

this inevitability does not signal a lack of meaningful cross-country differences, but rather reflects the psychometric limitations of assessing measurement invariance itself. We are left with the inevitable conclusion concerning cross-cultural differences: Pay attention to the data, but interpret with caution.

Finally, the initial exploratory nature of our study limited our ability to test pre-registered hypotheses. Future work should build off this and other cross-country and cross-religion studies to test hypotheses guided by theoretical differences in religiosity measures, and cultural evidence towards understanding whether personality is caused by religion, or the other way around.

5. Authr's note

All data, materials, and R code are available at: osf.io/fqwtc/? view_only=b08e9c72c42f499d953f636d562670f2.

6. Author contributins

EB wrote the manuscript and contributed to data preparation and analysis. GG and DL led data analysis. NS and DF helped with the analysis conceptualization and NS served as an expert on religious studies. JS and members of the ISP contributed to the development of the manuscript. The members of the ISP translated the materials, recruited participants, and gathered data at their respective local institutions.

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Funding acquisition, Investigation, Project administration, Resources, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

All data, materials, and R code are available at: osf.io/fqwtc/?view_only=b08e9c72c42f499d953f636d562670f2

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jrp.2024.104496.

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