# Are Religions Growing or Declining? Self-Reported Religion and Personality ${ }^{*}$ 

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It is not clear whether religions are on the rise or fall today. The present study investigated whether personality trait factors can predict the combined growth of religious affiliations and non-affiliations (i.e., the number of people who self-identify with a religion or do not identify with any religion) across socio-cultural contexts through an analysis of online survey data collected from 111 countries and 4,270 individuals. In a multiple-discriminant analysis, religion self-reports constituted three independent dimensions. Religious affiliations and nonaffiliations (whether a person identifies as a member of a specific religion or identifies him/ herself as an atheist or agnostic) formed separate clusters along one axis, while on the other two, they did not. Across countries, religions' growth rates significantly predicted the trait factor configuration classifying religious affiliations (seeing oneself as a member of a specific religion) differently from non-affiliations (seeing oneself as an atheist or an agnostic). The personality profile grouping affiliations together with non-affiliations had a non-significant relationship with religions' growth rates. In sum, although self-identifying with no religion (i.e., agnosticism and atheism) might not replace affiliating with a religion in the short run, it can show a non-significant trend toward competing with adhering to most popular religions. The results may have implications for understanding the impact of religious pluralism on religions' growth rates and the different growth trends associated with the complexity of religious affiliations.
Keywords: religious affiliation, religious non-affiliation, religion growth rates, personality

## Highlights:

- Personality can help classify religious affiliations with non-affiliations.
- Religious non-affiliations might not replace religious affiliations in general.
- Religious non-affiliations may potentially grow with religious affiliations.
- Some religious affiliations may have the potential to grow faster than others.

[^0]It is not clear whether religions today are gaining or losing popularity. After being the fastest-growing preference in the 20th century, Atheism and Agnosticism (i.e., the rejection of or skepticism toward a deity's existence usually representing transcendence in religions) lost their popularity to religious affiliations in more recent decades (Johnson \& Grim, 2013). On the other hand, a mathematical model of religion categories predicted the religion's future extinction in some countries (Abrams, Yaple \& Wiener, 2011). A recent study found that the prevalence of atheists can increase from $3 \%$ to up to $26 \%$ when less stigmatizing data-collection techniques are used (Gervais \& Najle, 2018). The present study explores how religious affiliations may or may not be growing today. Specifically, it investigates whether distinct personality profiles could predict the growth in religious affiliations and non-affiliations (i.e., selfidentification of a person with a religion vs. no religion) in recent decades.

Religion concerns dynamic interaction between personality and culture (see, e.g., Kashima, 2016; Saroglou, 2016). Personality factors can interact with human-made environments through niche construction to ultimately predict religious affiliations and non-affiliations. Through niche-finding, social, cultural, and economic environments may select the aspects of religiousness linked with personality, facilitating or restricting whether one will identify with a religion in a specific time and place. As a result, particular personality profiles can correlate with religious affiliations and non-affiliations in a given environment and culture.

In characterizing the connection between religion and the individual, the term religiousness broadly refers to "transcendence in one's own life" (Saroglou, 2010, p.109). As different from religiousness, spirituality emphasizes an individual's independence from the established religious traditions and beliefs, while fundamentalism describes authoritarian attitudes, beliefs, and practices. Religiousness, spirituality, and fundamentalism associate with specific personality factor configurations (see e.g., Saroglou, 2010), and socio-cultural environments can moderate this association (Gebauer et al., 2014). For example, the personality-religiousness association can correlate with four significant dimensions of religiousness, believing, bonding, behaving, and belonging, which, in turn, can differentiate different religious-cultural zones globally, such as Asian religions, Islam, Catholicism, Protestantism, Orthodox Christianity, Judaism, and secularism (Saroglou et al., 2020).

Some empirically identified religious-cultural zones including Islam, Catholicism, Protestantism, Orthodox Christianity, Judaism directly map onto religion self-reports such as Muslim, Catholic, Protestant, Orthodox-Christian, and Jewish (Saroglou et al., 2020). One religious-cultural zone, secularism, does not involve a specific religion, hence, may be thought to map onto affiliating with no religion such as Atheism and Agnosticism. Thus, the existence of personalitylinked religious-cultural zones suggests that personality factor configurations may correlate with how distinctly individuals self-identify with a religion or no religion. Such a possible connection can, in turn, shed light on whether religions' population growth may concern the richness of all religious affiliations and nonaffiliations in addition to the religious affiliation vs. non-affiliation distinction. It may be too simplistic to think of the correlates of religions' possible growth or
decline as the motivation to self-identify with a particular religion or no religion in a specific socio-cultural environment. Several personality configurations can correlate with the potential growth of specific religious affiliations and nonaffiliations across various cultural contexts.

In the present study, a secondary data analysis investigates the connection between personality scores, on the one hand, and religious affiliation and nonaffiliation data collected from 111 countries at both individual and country levels on the other. At the individual level, a multiple-discriminant analysis can reveal the personality dimensions correlating with self-reported religion categories. Because personality is only meaningful as part of a socio-cultural environment in predicting specific religious affiliations (Gebauer et al., 2014; Saroglou et al., 2020), it is essential to analyze the personality-religion link at both the societal and the individual levels. At the country level, random intercept models with countries as the group-level variable can help determine the correlation between specific personality profiles and religions' growth rates. The religious affiliation vs. non-affiliation distinction might not solely map onto the personality correlates of self-reported religion categories. Personality factor configurations linked with religions' growth rates across societies can also characterize self-identifications with a religion and no religion together.

## Method

## Sample

A dataset including 4,270 people's responses to the International Personality Item Pool Big Five scales (Goldberg et al., 2006) was available through an open-source data repository (https://openpsychometrics.org/_rawdata, accessed on July 6, 2017). The data collection took place before 2015 online through a website (https://openpsychometrics.org). Participants gave their informed consent after completing tests. Specifically, survey users were asked if their answers were accurate and their data could be used for research. The dataset included only the accuracy-confirmed data. Participants rated ten items for each big-five factor ( 50 in total) on a 1-to-5 scale. The dataset also had many demographic variables, including 12 self-reported religion categories (Agnostic, Atheist, Buddhist, Christian/Catholic, Christian/Mormon, Christian/Other, Christian/Protestant, Hindu, Jewish, Muslim, Sikh, Other).

## Measure

The number of religions' adherents for each year between 2000 and 2010 was available from the World Religion Project Global Religion Database (http://www.thearda. com/Archive/Files/Descriptions/WRPGLOBL.asp, accessed March 15, 2018). This dataset did not have information about some religions and Atheism as different from Agnosticism. Therefore, Agnostic and Atheist became a new category of no religion and Christian/Mormon and Christian/Other a new category of Christian/Other in religions' growth rate analyses. The number of adherents of a total of 10 religion categories (No religion, Buddhist, Christian/ Catholic, Christian/Other, Christian/Protestant, Hindu, Jewish, Muslim, Sikh, Other) helped calculate the most recent, 10-year annual growth rate (from 2000 to 2010) for these categories by using the formula previously used by Johnson and Grim (2013) in their demographic analysis of religions' growth rates:

The dataset also recorded participants' ISO country codes based on the technical information about internet users' access to the personality test website. People from 111
countries completed online surveys. It was possible to access the population numbers for most countries from the World Bank Database (https://data.worldbank.org/indicator/sp.pop. totl?end=2017\&start=1960, accessed April 25, 2018). The formula used above to calculate the annual growth rate of religions also helped calculate each country's population's annual growth rate between 2000 and 2010.

Other demographic variables in the dataset included education (less than high school, high school, university, graduate degree), gender (male, female, other), race (Asian, Arab, Black, Indigenous Australian/Native American/White, Other), age, and sexual orientation (heterosexual, bisexual, homosexual, asexual, other). The race categories overlapped with the major ones used by US Census Bureau with the exceptions that Native Hawaiian or Other Pacific Islander was not included, Native people were combined with White, and Arab was added as a separate category. There were also variables measuring whether one was a native speaker of English, marital status (never married, currently married, previously married), where one grew up (countryside, suburban, urban), and voting in a national election within a past year. Lastly, some variables measured handedness (right, left, both) and how many children one's mother had. In total, there were 11 control variables.

## Data Analysis

Before classifying religion self-reports as a function of personality factor configurations, adjusting for the other demographic factors' effects on personality factors was necessary. There were five personality variables, all Big-Five factors, to classify religions. Each Big-Five variable turned into an unstandardized residual score after getting regressed on 11 binarycoded demographic factors. Demographic factors indicate a within culture variation. Hence, they are independent of the religious-cultural zones impacting specific religious affiliations (Saroglou et al., 2020). Therefore, demographic variables were binary coded (the largest category $=1$ [vs. 0]) to reduce the number of factors creating an indirect variance in selfreported religions' classification. The 11 binary-coded demographic characteristics consisted of having more than high school education, growing up in an urban area, being female, heterosexual, white, never married, native speaker of English, age, right-handedness, lastelection voter, and the birth-family size. The effect size of all 11 demographic factors on each Big-Five trait factor ranged from $R^{2}=.02$ to $R^{2}=.08$, leaving sufficient variance for carrying out multiple discriminant analyses.

A random intercept model included participants' countries as the grouping variable. Countries were preferred over the religion categories as the grouping variable because of producing a higher degree of freedom in the analysis at the group level, increasing the power to reject a false null hypothesis. Calculations used REML estimation. The 10 -year average population growth rate of religions from 2000 to 2010 was a group-level predictor variable. Because religions' growth closely connects with countries' population growth (Johnson \& Grim, 2013), the latter was included as a predictor at the group level alongside 11 binary-coded predictors (the category with the highest $N=1$ ) measured across participants. The dependent variable was each discriminant function and Big-Five personality trait factor raw score across participants. Unlike the multiple discriminant analysis, the personality factor scores were raw in the random-intercept model because demographics were included as separate predictors.

There were eight fitted models, one for each of the five Big-Five trait factors and three discriminant functions. The discriminant function scores were used in some analyses as dependent variables to see if meaningful personality factor configurations per se may also correlate with religions' growth rates. When a particular personality trait factor was a dependent variable, the other personality factors became a predictor. Likewise, when a discriminant function score became a dependent variable, the other two dimension scores became a predictor of the model. Controlling for the effects of personality factors on one another or discriminant function scores on one another in the models served to determine
the independent, unique effects of personality factors or their meaningful configurations. Analyses tested the connection between personality factors or discriminant function scores and religions' growth rates. The effect size $\left(\omega^{2}\right)$ calculations followed the recommendations of Xu (2003). R statistical software nlme package carried out random intercept model analyses. All analysis codes are available through the corresponding author upon request.

## Results

Selected demographic data broken down by self-reported religion appear in Table 1. The education level and gender composition were not too different among different religions. Most people who affiliated with Christian denominations, Judaism, and no religion were white. Participants in other categories were primarily Asian. Correlations among important individual-level study variables appear in Table 2.

Table 1
Major sample characteristics by religion categories

|  | Agn. | Athe. | Bud. | Cath. | Prot. | Mrm. | Chr. <br> Oth. | Hind. | Sikh | Mslm. | Jew | Oth. Rel. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. of People | 620 | 658 | 105 | 835 | 445 | 41 | 658 | 173 | 19 | 227 | 58 | 371 |
| No. of Countries | 61 | 63 | 25 | 51 | 37 | 8 | 47 | 19 | 7 | 38 | 7 | 38 |
| \%Education |  |  |  |  |  |  |  |  |  |  |  |  |
| LTHS | 13.1 | 16.1 | 10.5 | 15.8 | 13 | 19.5 | 16.1 | 11.6 | 26.3 | 10.1 | 24.1 | 11.3 |
| HS | 41.9 | 42.7 | 46.7 | 47.5 | 37.8 | 39 | 46.7 | 22.5 | 21.1 | 36.6 | 34.5 | 50.4 |
| Univ. | 31.5 | 28.6 | 23.8 | 24.8 | 31.2 | 24.4 | 26.3 | 19.1 | 36.8 | 33 | 20.7 | 26.4 |
| Grad. | 13.2 | 12.2 | 19 | 10.8 | 17.1 | 14.6 | 10.2 | 45.1 | 15.8 | 19.4 | 20.7 | 10.8 |
| Total | 99.6 | 99.5 | 100 | 98.9 | 99.1 | 97.5 | 99.2 | 98.3 | 100 | 99.1 | 100 | 98.9 |
| \%Race |  |  |  |  |  |  |  |  |  |  |  |  |
| Asian | 9.2 | 9.3 | 62.9 | 17.8 | 13.7 | 7.3 | 5.9 | 84.4 | 89.5 | 52.4 | 3.4 | 11.6 |
| Arab | 0.6 | 0.2 | 1 | 0.7 | 0 | 2.4 | 0.5 | 0 | 0 | 22 | 0 | 0.8 |
| Black | 1.3 | 0.9 | 1.9 | 5.1 | 8.8 | 2.4 | 18.4 | 2.9 | 0 | 3.5 | 1.7 | 4.6 |
| White | 77.6 | 81.8 | 27.6 | 58.6 | 70.3 | 80.5 | 63.8 | 2.3 | 0 | 6.2 | 87.9 | 67.9 |
| Other | 11.1 | 7.8 | 6.7 | 16.8 | 6.3 | 7.3 | 10.2 | 10.4 | 10.5 | 12.8 | 6.9 | 14.6 |
| Total | 99.8 | 99.8 | 100 | 99 | 99.1 | 100 | 98.8 | 100 | 100 | 96.9 | 100 | 99.5 |
| \%Gender |  |  |  |  |  |  |  |  |  |  |  |  |
| Male | 35.2 | 45.7 | 41.9 | 29.1 | 28.3 | 39 | 28.1 | 46.2 | 26.3 | 37 | 39.7 | 29.9 |
| Female | 63.4 | 53.3 | 56.2 | 70.1 | 71.5 | 61 | 71.4 | 53.8 | 73.7 | 63 | 60.3 | 68.7 |
| Other | 1.1 | 0.8 | 1.9 | 0.7 | 0.2 | 0 | 0.3 | 0 | 0 | 0 | 0 | 1.3 |
| Total | 99.7 | 99.8 | 100 | 99.9 | 100 | 100 | 99.8 | 100 | 100 | 100 | 100 | 100 |

Legend. Grad = graduate degree; Univ = university degree; HS = high school degree; LTHS = less than high school degree; Agn = Agnostic; Athe = Atheist; Bud = Buddhist; Cath $=$ Catholic; Prot $=$ Protestant; Mrm = Mormon; Chrs. Oth $=$ Other Christian; Hind $=$ Hindu; Mslm $=$ Muslim; Jew $=$ Jewish; Oth. Rel $=$ Other religion member.
Table 2
Bivariate correlations among critical study variables

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1. Education | 1 | . 001 | -.036* | . 038 | -. 040 | -.32*** | $-.15{ }^{* * *}$ | . $42^{* * *}$ | . 14 *** | . $17^{* * *}$ | . $10{ }^{* * *}$ | .12 ${ }^{* * *}$ | -.12*** |
| 2. Urban |  | 1 | . $043^{* *}$ | -. 03 | -. $232{ }^{* * *}$ | .051** | $-.248^{* *}$ | -.040** | -.082*** | . 006 | -. 022 | -.040* | -. 009 |
| 3. Female |  |  | 1 | -. 026 | -. 018 | . 016 | . $035^{*}$ | -.067*** | -. 139 *** | . 007 | -. 011 | .201*** | . $211^{* * *}$ |
| 4. Heterosexual |  |  |  | 1 | .089*** | -.082*** | .070*** | .077*** | -. 030 | . $095{ }^{* * *}$ | . $088{ }^{* * *}$ | . $062^{* * *}$ | -. $115^{* * *}$ |
| 5. White |  |  |  |  | 1 | -.093*** | . $353{ }^{* * *}$ | . $107{ }^{* * *}$ | . $145^{* * *}$ | . 006 | . $060{ }^{* * *}$ | . $058{ }^{* * *}$ | -. 009 |
| 6. Never married |  |  |  |  |  | 1 | -.072*** | $-0.635^{* * *}$ | -.048** | -.209*** | -. 079 *** | -. $122^{* * *}$ | .149*** |
| 7. English |  |  |  |  |  |  | 1 | . 034 * | .062*** | . 023 | .034* | .096*** | .003* |
| 8. Age |  |  |  |  |  |  |  | 1 | .089*** | . $190{ }^{* * *}$ | . $075^{*}$ | . $147^{* * *}$ | -. $164^{* * *}$ |
| 9. Openness |  |  |  |  |  |  |  |  | 1 | . $075{ }^{* * *}$ | .194** | .139*** | -.105*** |
| 10. Conscientiousness |  |  |  |  |  |  |  |  |  | 1 | . $083{ }^{* * *}$ | .159*** | -. $241^{* * *}$ |
| 11. Extraversion |  |  |  |  |  |  |  |  |  |  | 1 | .299*** | -.250*** |
| 12. Agreeableness |  |  |  |  |  |  |  |  |  |  |  | 1 | $-.106^{* * *}$ |
| 13. Neuroticism |  |  |  |  |  |  |  |  |  |  |  |  | 1 |

[^1]
## Multiple Discriminant-Function Analysis of Self-Reported Religion

The 12 self-reported religion categories (Agnostic, Atheist, Buddhist, Christian/Catholic, Christian/Protestant, Christian/Mormon, Christian/Other, Hindu, Jewish, Muslim, Sikh, and Other Religion) constituted the multiplediscriminant analysis dependent variable. The independent variable was the residual score of each of the five personality factors after getting regressed on 11 demographic variables as described earlier. The initial analysis's hit ratio ( $22.7 \%$ ) was not more than what would be expected by chance ( $8.33 \%$ ) by at least $25 \%$ as the acceptable cut-off margin. After re-grouping four Christian denominations into one category of Christian, the hit ratio became 47.4\%, meeting the requirement of at least $25 \%$ difference from chance ( $11.1 \%$ ). Variances of groups were not equal, indicated by a significant Box's M test, $F(120,54061)=2.291, p<.001$. However, the sample size for valid cases was large ( $N=3,873$ ), and the log determinants of the nine groups to be classified were comparable (range $=[-5.2,-2.5]$ ), making it possible to proceed with the multiple discriminant analysis.

The multiple discriminant analysis determined three significant dimension functions for classifying nine self-reported religion categories, $R^{2}=.07, p<$ $.001, R^{2}=.01, p=.001$, and $R^{2}=.01, p=.014$ for the first, second, and the third dimension function, respectively. Function coefficients and matrix correlations for all predictors appear in Table 3. We can only consider variables that showed a consistent correlation with dimension functions at the level of $r=.3$ or above across two association indices. Therefore, we can characterize Function 1 as increased agreeableness and conscientiousness and decreased openness. As shown in Figure 1, at the lowest end of this dimension are Atheists and Agnostics as distinct from others. Dimension 2 is increased conscientiousness and neuroticism and decreased agreeableness, and Dimension 3 is increased openness and decreased neuroticism.

Table 3
Multiple Discriminant Function Coefficients ( $r_{1}$ ) and Structure Matrix Correlations ( $r_{2}$ ) of three significant dimensions characterizing religion self-reports

|  | Dimension 1 |  | Dimension 2 | Dimension 3 |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $r_{1}$ | $r_{2}$ | $r_{1}$ | $r_{2}$ | $r_{1}$ | $r_{2}$ |
| Conscientiousness | $\mathbf{. 4 0 3}$ | $\mathbf{. 4 2 6}$ | $\mathbf{- . 6 3 2}$ | $\mathbf{- . 6 0 9}$ | .262 | .415 |
| Agreeableness | $\mathbf{. 6 0 6}$ | $\mathbf{. 6 0 7}$ | $\mathbf{. 6 2 3}$ | $\mathbf{. 6 2 2}$ | .064 | .316 |
| Openness to | $\mathbf{- 7 0 3}$ | $\mathbf{- . 5 0 8}$ | .223 | .298 | $\mathbf{. 6 3 1}$ | $\mathbf{. 7 4 3}$ |
| Experience |  |  |  |  |  |  |
| Extraversion | .281 | .339 | .199 | .327 | .227 | .484 |
| Neuroticism | -.045 | -.199 | $\mathbf{. 3 1 4}$ | $\mathbf{. 3 0 6}$ | $\mathbf{- . 4 6 7}$ | $\mathbf{- . 6 2 5}$ |

Legend. The bold values indicate a significant association between a personality factor and self-reported religion dimension.

Figure 1
Group centroids of religion self-reports along three significant dimensions of the multiple discriminant analysis (i.e., DF1, DF2, \& DF3)


Legend. athe $=$ Atheist; agno $=$ Agnostic; mslm $=$ Muslim; jew $=$ Jewish; reloth $=$ Adherent of other religions; budd $=$ Buddhist; hind $=$ Hindu; christ $=$ Christian.

## Personality Correlates of Self-Reported Religion Growth Rates

As shown in Table 4, random intercept model analyses showed that self-reported religions' growth rates associated with openness to experience negatively and with agreeableness positively worldwide, $\omega^{2}=.004$ and $\omega^{2}=.01$, respectively. There were no significant associations with any other Big-Five trait factor in any other random intercept models. These results show that openness to experience and agreeableness could be critical predictors of religions' growth rates.

Self-reported religions' growth rates also associated positively with Discriminant Function 1 scores significantly while having a non-significant positive correlation with Discriminant Function 2 scores, $b=1.93, S E=.244$, $t(3577)=7.923, p<.001, \omega^{2}=.016, b=0.431, S E=.241, t(3577)=1.790, p$ $=.074, \omega^{2}<.001$, for Discriminant Function 1 and 2 scores, respectively. These results show that the personality profile associated with religious affiliation vs. non-affiliation could be a correlate of self-reported religion growth rates. The results also show that religious affiliations can also cluster together with nonaffiliations to predict self-reported religion growth rates.
Table 4
Random-intercept model analysis of the personality correlates of self-reported religion growth rates worldwide adjusted by demographics in each country sample and the country's population growth rate

|  | DV: Openness to Experience |  |  |  | DV: Agreeableness |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $b$ | $S E$ | $d f$ | $t$ | $p$ | $b$ | SE | $d f$ | $t$ | $p$ |
| (Intercept) | 3.491437 | .120508 | 3575 | 28.972756 | $<.001$ | 2.0637114 | .14058025 | 3575 | 14.679952 | $<.001$ |
| PopGrow | -.19544 | .225264 | 90 | -.867585 | .388 | -.1747456 | .20004426 | 90 | -.873535 | .3847 |
| RelPopGrow | -.58716 | .143721 | 3575 | -4.085435 | $<.001$ | .9726943 | .1583133 | 3575 | 6.14411 | $<.001$ |
| C | .02701 | .014158 | 3575 | 2.097869 | .036 | .0806959 | .01565478 | 3575 | 5.154713 | $<.001$ |
| E | .097319 | .011462 | 3575 | 8.490823 | $<.001$ | .192716 | .01243518 | 3575 | 15.497642 | $<.001$ |
| A or O | .097967 | .01482 | 3575 | 6.61028 | $<.001$ | .1192975 | .01816761 | 3575 | 6.566493 | $<.001$ |
| N | -.01542 | .012203 | 3575 | -1.263256 | .207 | -.0247364 | .01352859 | 3575 | -1.828453 | .0676 |
| Education | .152023 | .022986 | 3575 | 6.613844 | $<.001$ | .0696724 | .02559786 | 3575 | 2.721804 | .0065 |
| Urban | -.0637 | .020712 | 3575 | -3.076767 | .002 | -.0363419 | .02296539 | 3575 | -1.582464 | .1136 |
| Female | -.1886 | .021869 | 3575 | -8.623967 | $<.001$ | .3492638 | .02376555 | 3575 | 14.696221 | $<.001$ |
| Right-handed | -.11818 | .029568 | 3575 | -3.996891 | .0001 | .0191428 | .03287396 | 3575 | .58231 | .5604 |
| Heterosexual | -.1162 | .025468 | 3575 | -4.562378 | $<.001$ | .0076108 | .02829699 | 3575 | .268963 | .788 |
| White | .066896 | .024732 | 3575 | 2.704798 | .007 | .0186598 | .02700829 | 3575 | .690891 | .4897 |
| Never married | .062772 | .031455 | 3575 | 1.995608 | .046 | .0261105 | .03485357 | 3575 | .749148 | .4538 |
| English | .05075 | .029369 | 3575 | 1.708434 | .088 | .0196799 | .03175267 | 3575 | .619786 | .5354 |
| Voting | -.02904 | .023569 | 3575 | -1.232049 | .218 | -.0218911 | .02608381 | 3575 | -.83926 | .4012 |
| Family size | $<.001$ | $<.001$ | 3575 | -.548982 | .583 | $<0.001$ | $<0.001$ | 3575 | .099593 | .9207 |
| Age | .000083 | .001027 | 3575 | .080577 | .936 | .0044303 | .00113463 | 3575 | 3.904652 | .0001 |

Legend. PopGrow $=$ The country's average population growth from 2000 to 2010; RelPopGrow $=$ Religion's average population growth from 2000 to 2010; Education = having more than high school education; Urban = growing up in an urban (vs. other) area; English = English's being native language; voting: voting within the past year; Family size: the number of children participants' mother had.

## Discussion

The results showed that self-reported religion categories constitute three psychologically significant dimensions, two of which do not differentiate religious affiliations from non-affiliations. Agreeableness and conscientiousness, together with decreased openness, define the primary dimension correlating with the clustering of Atheists and Agnostics as distinct from the religionists. The secondary dimension is the increased conscientiousness and neuroticism and decreased agreeableness, while the third dimension is increased openness and decreased neuroticism. The growth rates of self-reported religions correlated positively with the dimension where the religious affiliations differ from the non-affiliations. However, religious affiliations also clustered together with nonaffiliations along the secondary dimension to predict a non-significant growth trend for self-reported religions alongside the two most popular religions today, Christianity and Islam. Overall, the results show that self-reported religious affiliations do not necessarily form a cluster separate from non-affiliations in a psychologically meaningful way, illustrating the different ways in which personality can correlate with religions' population growth rates.

There have been conflicting predictions about the changing growth trends in recent decades of religious affiliations vs. non-affiliations (see e.g., Abrams et al., 2011; Johnson \& Grim, 2013). Demographic data indicated a shift toward more significant growth of religions in recent decades (Johnson \& Grim, 2013). However, assuming people conform to trends for affiliating with the fastestgrowing religion category in society, Abrams et al. (2011) demonstrated in a mathematic model that once a population reaches a critical point between religious affiliation vs. non-affiliation, the balance can break either way. They concluded that religions might get extinct in countries with religious nonaffiliation getting relatively more prevalent.

The present study findings show that the personality correlates of religious affiliations might predict the recent growth trends of self-reported religion categories. However, it is also possible that religions' expansion exists side by side with the growth of no religion. No-religion categories can cluster near the most popular religions today, Christianity and Islam, in predicting religions' population growth trends. As a result, no religion, especially agnosticism, could compete with the most popular religions across societies and cultures. There could also be a potential difference among specific religions' growth rates. Eastern religions, Buddhism and Hinduism, rank among the highest on two classification dimensions associated with increased growth rates, indicating a relatively higher growth potential.

A future area of research might focus on religious pluralism. In more pluralistic societies, religious complexity might hide the salient difference between religious affiliations and non-affiliations. As a result, complex categories of religion and no religion might easily cluster together in a psychologically meaningful way to anticipate the population growth trends. Future studies might collect and analyze personality ratings across two different time points to more closely describe the co-variation between religion's population growth and changes in personality traits over time. Moreover, the cultural orientations
of societies might also play a significant role in determining religions' growth rates, given the link between individual differences and religious-cultural zones (Saroglou et al., 2020).

Another area of research concerns a recent trend among a significant minority of people ( $10 \%-22 \%$ ) who self-identify as spiritual but not religious (Corrigan et al., 2003; Shahabi et al., 2002). The number of non-religious but spiritual people closely corresponds to the number of religiously non-affiliated individuals reporting non-affiliation through non-stigmatizing techniques ( $26 \%$ ) (Gervais \& Najle, 2018). People who primarily identify as spiritual might generally hide their non-affiliation, fearing possible stigmatization. It remains to be seen whether, in more pluralistic societies, the religious non-affiliation might be less threatening to report, hence a less biased self-report in predicting the religions' growth trends.

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# Da li broj vernika raste ili opada? Samoprocenjena verska pripadnost $i$ ličnost 

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U današnje vreme, nejasno je da li broj vernika raste ili opada. U ovoj studiji je ispitivano da li se na osnovu faktora ličnosti može predvideti kombinovani rast ili opadanje broja vernika, odnosno ljudi koji se ne smatraju vernicima (tj. broja ljudi koji sebe smatraju pripadnikom određene religije, odnosno koji se ne smatraju pripadnikom religije) u različitim sociokulturnim kontekstima kroz analizu podataka iz onlajn anketa koje su prikupljene u 111 zemalja i uključivale ukupno 4270 osoba. Multiplom diskriminacionom analizom su dobijene tri nezavisne dimenzije samoprocene verske pripadnosti. Verska pripadnost i nepripadnost (ljudi koji se smatraju pripadnicima određene religije, naspram ljudi koji sebe vide kao agnostike ili ateiste, prim. prev.) su formirale posebne klastere na jednoj osi, što nije bio slučaj u odnosu na druge dve (ose, prim. prev.). U ukupnom uzorku studije nezavisno od zemlje, stope rasta broja ljudi koji se identifikuju kao pripadnici određene religije statistički značajno su predviđale konfiguraciju klastera crta na osnovu kojih je bilo moguće razlikovati to da li se osoba smatra pripadnikom neke od religija ili se ne smatra pripadnikom bilo koje religije (smatra se ateistom ili agnostikom, prim. prev.). Profil ličnosti na kom su pripadnost religiji i nepripadnost religiji spadali u istu kategoriju nije bio u statistički značajnoj vezi sa stopom rasta broja ljudi koji se identifikuju kao pripadnici određene religije. Sveukupno, iako izostanak samoidentifikacije sa religijom (npr. osoba sebe smatra za ateistu ili agnostika) možda ne može da zameni identifikaciju sa određenom religijom kraktorkočno, postoji statistički neznačajan trend ka tome da ovi načini samoidentifikovanja zamene pripadnost određenoj religiji. Ovi rezultati mogu doprineti razumevanju uticaja verskog pluralizma na stepen rasta broja ljudi koji se smatraju pripadnicima određene religije kao i različitih trendova rasta povezanih sa kompleksnošću verske pripadnosti.
Ključne reči: verska pripradnost, nepripadanje veri, stopa rasta broja vernika, ličnost the Creative Commons Attribution ShareAlike 4.0 International license


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[^1]:    Legend: Urban = growing up in an urban (vs. other) area; Education = having more than high school education; English = the native language's being English

