

Causal relationship between religiosity and value priorities:

Cross-sectional and longitudinal investigations

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Abstract

Religiosity and values are correlated. However, it is unclear whether it is because certain values predispose one to becoming and staying religious or whether religious persons are more likely to adopt those values. To clarify this ambiguity in directionality, we collected cross-sectional and longitudinal data from a Chinese sample ($N = 3,248$). We replicated previous findings that Christians and nonbelievers differ on all 10 values in Schwartz's model. Longitudinal analyses further showed that religious affiliation predicted increase in tradition and decline in self-direction, hedonism, and security about three years later. Making finer distinction within the Christian subsample, we showed that vertical faith maturity (relationship with the transcendence) was associated with all values except security, whereas horizontal faith maturity (charity toward fellow human beings) was associated with 7 values. Furthermore, longitudinal analyses revealed that vertical and horizontal faith maturity predicted 2-year changes in some values and in different directions: Vertical faith maturity predicted higher security and lower self-direction around two years later; horizontal faith maturity predicted higher self-direction and lower security around two years later. Evidence of relationship also goes in the opposite direction: Benevolence predicted positive changes in both vertical and horizontal faith maturity. Future assertions on the predictions of directional relationships between religiosity and values should specify the particular value and religiosity dimension.

Keywords: value; religion/religiosity; value change; religiosity change

Causal Relationship between Religiosity and Value Priorities:
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Values are desirable trans-situational goals that serve as guiding principles in the life of a person or social entity. According to Schwartz (1992), values include: power (attainment of social status and prestige, and control over people and resources), achievement (personal success through the demonstration of competence according to social standards), hedonism (pleasure and sensuous gratification for oneself), stimulation (excitement, novelty, and challenge in life), self-direction (independent thought and action), universalism (understanding, appreciation, tolerance, and protection for the welfare of all people and for nature), benevolence (concern for the welfare of close others), tradition (respect, commitment and acceptance of customs and ideas that one's culture or religion impose on the individual), conformity (restraint of actions, inclinations, and impulses likely to upset or harm others and violate social norms), and security (safety, harmony, and stability of society, of relationships, and of the self). These 10 values can be ordered in a circumplex (Figure 1), where similar values are relatively close to each other, and the most dissimilar value-pairs are oppositely situated. Defining this circumplex are the self-transcendence vs. self-enhancement dimension and the openness-to-change vs. conservation dimension.

Insert Figure 1.

Do values change?

Although the assumption that values are largely stable has discouraged research on value change, such changes were detected in various age groups, in adolescents, college students and adults who experienced important life events (Bardi, Lee, Hofmann-Towfigh, & Soutar, 2009). Adults who experienced impactful life-changing events reported greater value changes during the following two years, with the degree of impact on one's life predicting the strengthening of

tradition values. Value-changing life events may be self-chosen or imposed without one's conscious choice. The former includes migration (Bardi, Buchanan, Goodwin, Slabu, & Robinson, 2014; Lönnqvist, Jasinskaja-Lahti, & Verkasalo, 2011) and embarking on a new education path and career (Bardi et al., 2014). An example of the latter is terrorist attacks (Murphy, Gordon, & Mullen, 2004; Verkasalo, Goodwin, & Bezmenova, 2006). Value change may be associated with one's response to these events (Bardi et al., 2009). In life transitions involving fewer changes, such as embarking on a new career, individuals tended to prioritize values by means of self-selection, with individuals opting for the particular life event based on their values, rather than socialization, where certain values evolve within the new life settings; while evidence of value change due to socialization was found in migrants who experienced greater life changes (Bardi et al., 2014). Value changes may be temporary in some cases, a rebound effect was observed where the elevated security values detected in individuals immediately after terrorist attacks disappeared five months after the incident (Bardi et al., 2014).

The direction of change can be crudely predicted based on Schwartz's circumplex model (Bardi et al., 2009). That is, conflicting values tend to change in opposite directions while compatible values change in the same direction. Hence, when priority in benevolence (a self-transcendence value) increases, universalism (a value compatible with benevolence) also tends to increase. This would be accompanied by a simultaneous lowering of importance placed on achievement, which is a self-enhancement value situated opposite to benevolence on Schwartz's circumplex.

Values and religion

Values are associated with religion, which can be understood as both a categorical and continuous variable. As an individual-level categorical variable, it is whether one has a religion, or which religion one is affiliated with. However, defining *religion* can be difficult (Geertz,

1999). For instance, do one count some extremist political group as a religion? Furthermore, a religion in its “pure” form is hard to find (Gumucio, 2008). Indeed, there is the limitation of merely distinguishing different religious affiliations, or determining whether one has religion or not.

For this reason, another approach is to differentiate people on some continua of religiosity, such as devoutness, involvement, and commitment. Using this approach, researchers found more religious people to be different from less religious on a number of outcome variables such as prejudice (Gorsuch, 1993) and quality of life (Lau et al., 2015). The next few paragraphs briefly review what we currently know of how values are linked to religious affiliation (a categorical variable) and religiosity (a continuous variable).

First, studies have shown that people who belong to a religion are different on values from people who do not. For instance, the former are often more conservative in their political attitudes (Devos, Spini, & Schwartz, 2002). They engage in fewer risky behaviors (Mattila, Apostolopoulos, Sonmez, Yu, & Sasidharan, 2001), which means that they tend to be security-oriented.

Second, there is also a relationship between values and how religious one is. For instance, the religiosity-prosociality hypothesis (Myers, 2012) has generally been supported, particularly in countries where religion is not socially enforced (Stavrova & Siegers, 2014). More devout believers are more generous and cooperative in experimental game situations in India (Ahmed, 2009). They engage in fewer risky behaviors (McNamara, Burns, Johnson, & McCorkle, 2010) and are less thrill-seeking (Ellis & Thompson, 1989). A meta-analysis on studies conducted in 15 countries showed that religiosity is positively correlated with tradition, conformity, and benevolence, and negatively with hedonism, stimulation, and self-direction (Saroglou, Delpierre, & Dernelle, 2004). Furthermore, in more developed societies, relationships between religiosity

and conservation values are not as strong. Relationships with self-direction and achievement are also weak. In those societies, there is a somewhat stronger relationship between religion and self-transcendence values such as benevolence, universalism, and de-emphasis of power.

Although studies have found that values and religiosity are related (e.g., Devos et al., 2002), empirical evidence on the causal direction is scanty (Saroglou et al., 2004; Schwartz & Huisman, 1995). On one hand, more religiously committed individuals may attend more religious meetings, and be exposed to more religious socialization, the content of which is often heavy in certain values. They may read more religious literature and have more friends who share the faith, and thus adopt values consistent with the faith (Schwartz & Huisman, 1995). In line with this speculation, Hui et al. (2017) found that as they become converted into a religion, non-believers had changes in values such as conformity, tradition, benevolence, achievement, and power. On the other hand, people's value priorities may draw them towards or push them away from religious teaching, thus affecting their commitment to a religion. As Roccas (2005) observed in her literature review on the association between religiosity and values across different religious groups, both directions of causality are possible.

Sibley and Bulbulia (2014) explored the issue of causality between religious identification and values among New Zealand Christians. They found religious identification, measured with a single-item "How important is your religion to how you see yourself?" on a 7-point scale, predicted positive changes in conservation values. They also found people low in openness-to-change values became stronger in religious identification a year later. The study suggests that some values predict religiosity, while some others are changed by one's religiosity. Given that value priority might take a long time to undergo change, a conceptual replication of Sibley and Bulbulia's (2014) study with a time frame longer than one year may be worthwhile.

The present study would be one of the few longitudinal studies to further explore such causal direction.

In the existing literature exploring the relationship between values and religiosity, religiosity was often operationalized in ways such as church attendance frequency (Schwartz & Huismans, 1995), single-item perceived religiosity (Schwartz & Huismans, 1995), and religiosity dimensions (e.g., Fontaine, Duriez, Luyten, Corveleyn, & Hutsebaut, 2005; Wulff, 1997). However, the dynamic nature of religion may be better captured when religiosity is conceptualized in terms of the vertical and horizontal dimensions of faith maturity. Faith maturity is the “degree to which a person embodies the priorities, commitments, and perspectives characteristic of vibrant and life-transforming faith, as these have been understood in ‘mainline’ Protestant traditions. This definition placed the focus on indicators of faith rather than on faith itself” (Benson, Donahue, & Erickson, 1993, p. 3). According to Benson et al. (1993), vertical faith maturity emphasizes the loving relationship with the transcendence. It involves the sometimes mystical “efforts to seek God, and the personal transformation one experiences in this divine encounter” (p.4). The development of inward piety is manifested in prayer, worship, and talking to others about faith. Horizontal faith maturity is “heeding the call to social service and social justice” (p.4). It is more about charity towards fellow human beings. In short, faith maturity is “a balanced integration of these two themes” (p.4), with the vertical dimension about love and devotion towards God, and the horizontal dimension about love towards humanity. Previous explorations without distinguishing these two religiosity dimensions may have overlooked some nuanced relationships with values.

Research gaps

In sum, although we know from previous research that values are related to religion, a few questions deserve further exploration. First, do people’s values change *as a result of*

religious affiliation and religiosity? Second, how might conceptualizing religiosity in terms of the horizontal and vertical dimensions of faith maturity within religious individuals expand our understanding of the relationship between religion and values? Very few empirical studies have explored the causality between individual characteristics and values. Where most studies have measured religiosity as a one-dimensional construct (Saraglou et al., 2004), the two faith maturity dimensions may further elucidate the relationship. Furthermore, do the relationships between values and religion reported in the West generalize to the Chinese? Cross-cultural studies suggested that Chinese people might have values different from those in the West (e.g., Ralston, Cunniff, & Gustafson, 1995). Value change has not been studied among the Chinese, at least not with a large sample.

To fill these gaps, we first explored how values and their changes are associated with religious affiliation in a Chinese sample. We further unpacked the bidirectional relationship between values and religiosity among those who self-identified as Christian believers.

The present study

Religion is not a monolithic concept. There are religions that condone violence while there are also those that decry any form of violence. Some are politically active, while others are monastic. It would therefore be very difficult to speak of “religion” as if all who claim to have a religion are identical in certain key aspects. Owing to this, it would be impossible to find an instrument to measure religiosity that can be applied across religions.

We therefore in this study restricted ourselves to the Christian religion. Admittedly, there are different denominations within the Christian religion; but the diversity is sufficiently small to allow measurement of religiosity on a religion-specific scale. Furthermore, the line between a Christian and a non-Christian can be easily drawn, such that there would not be ambiguity in

measurement of religious affiliation as a categorical variable. We hope that the present study on one religion will stimulate more studies in settings of other religions.

In the first part of the study we aimed to understand the relationship of values with religious affiliation in a sample of Chinese Christians and non-believers, using both a cross-sectional and a longitudinal design. Using a cross-sectional data set collected from Chinese adults in September to December, 2009, we attempted to replicate previous findings on the relationship between values and religious affiliation.

Hypothesis 1 (H1): Compared to the non-believers, Christians would be higher on conformity, tradition, and benevolence, and lower on self-direction, stimulation, and hedonism.

The research participants were surveyed again about three years later, from June to December, 2012. On the assumption that the preceding H1 is supported and that religion provides a powerful context to change the people in it, we tested whether:

Hypothesis 2 (H2): Religious affiliation would predict positive change in certain values (conformity, tradition, and benevolence in particular), and negative change in others (self-direction, stimulation, and hedonism in particular) over three years.

The next part of the study sought to extend the first part and previous research in two ways. First, we attempted to replicate the religion effect by examining the association between religiosity as a continuous variable and the ten values. Given that Christians differ among themselves in terms of religiosity (a continuous variable), do the believers' values change because of their religiosity, or do believers change in their religiosity because of the values they hold? Furthermore, given that religiosity can be conceptualized in terms of the vertical and horizontal dimensions of faith maturity, we investigated if the religiosity-value causal link is restricted to a particular dimension, or is robust for both.

We expected the two faith maturity dimensions to be associated with some values in similar ways but with others in different ways. In the Christian religion, a close relationship with the transcendence often implies developing self-control and distancing one from self-indulgence. It would mean exercising discipline on oneself so that one's desires for pleasure will give way to virtues cherished in the faith. Hence, we hypothesized that:

Hypothesis 3 (H3): Vertical faith maturity would be associated negatively with self-direction, stimulation, and hedonism, but positively with conformity and tradition.

On the contrary, the horizontal dimension has a strong emphasis on upholding justice and loving humanity. This dimension has much conceptual overlap with the self-transcendent values of benevolence and universalism, although such an overlap does not preclude a relationship with tradition and low hedonism. Hence,

Hypothesis 4 (H4): Horizontal faith maturity would be associated positively with benevolence and universalism.

One's own accomplishment and success is not of top priority to most people high on vertical or horizontal faith maturity. As Christians have been found to be lower than non-believers on power and achievement in previous research, we also expected that:

Hypothesis 5 (H5): Vertical and horizontal faith maturity would be negatively correlated with power and achievement.

We used cross-sectional data to evaluate H3 to H5 on how the vertical and horizontal faith maturity in Chinese Christians might be related to values. We then included the follow-up data set collected two years later to explore whether religiosity influences values, or whether values influence religiosity. There are three competing hypotheses:

Hypothesis 6A (H6A): Scores on one or both faith maturity dimensions will significantly predict changes in values around two years later.

Hypothesis 6B (H6B): Personal values will significantly predict changes in one or both faith maturity dimensions around two years later.

Hypothesis 6C (H6C): Some religious scores will predict changes in values two year later and some values scores will predict changes in religious scores two years later.

We did not have specific hypotheses regarding which values would influence or would be influenced by which dimension(s) of faith maturity. However, on the basis of Schwartz's circumplex model, we expect that the relationships would not be the same for all values.

Method

Participants

This study was part of a larger longitudinal project on the Formation and Transformation of Beliefs in Chinese (Hui, Lau, Lam, Cheung, & Lau, 2015; Lau, Hui, Cheung, & Lam, 2015), in which participants were surveyed about annually on the Internet, beginning in 2009. The initial sample of individuals who completed at least some survey items comprised of 2,196 Protestant Christians, 3,368 non-believers of any religion, and 531 others (for more information about the project and the online data collection procedure, please see Hui, Ng, Mok, Lau, & Cheung, 2011). We extracted from this large data set participants who completed items on all relevant measures in 2009, and self-identified on a demographic item as either Protestant Christians ($n = 1,242$) or non-believers of any organized religion ($n = 2,006$). We did not make any further denominational distinction among the Christians as Sibley and Bulbulia (2014) found no difference among denominations in the religiosity-value relationships. We did not include those who reported believing in other religions, due to the relatively small number of such

individuals in the data set. As values might be unstable and still developing during adolescence, for a clearer picture we included only participants who were at least 18 years old. The oldest participant was aged 63 ($M = 25.04$, $SD = 7.75$). This sample overlaps partially with a sample of 455 non-Christians and 92 Christians drawn from the same original data set, for the investigation of religious conversion (Hui et al., 2017).

The majority of participants resided in Hong Kong (87.0%), and some in other Chinese societies including Macau (5.0%), Mainland China (4.3%), Taiwan (.5%), and the remaining resided in non-Chinese societies (3.2%). Among the participants, more than half were full time students (61.4%), females (62.8%), and single (88.3%). The participants were diverse in socio-economic status based on monthly household income (19.0% < HK\$10,000, 29.9% HK\$10,001-19,999, 17.0% HK\$20,001-29,999, 9.9% HK\$30,001-39,999, 5.6% HK\$40,001-49,999; 9.9% > HK\$50,000; 8.7% did not report their income; USD1 = HK\$7.80). The study's longitudinal portion involved 695 participants from the initial sample in 2009 who remained in the project and completed the key variables at the 2012 follow-up survey. An attrition analysis confirmed that this sub-sample did not differ from those who dropped out on most demographic characteristics. However, they tended to have higher monthly family income. They were higher on tradition, benevolence, and universalism, and lower on power. We need to bear this difference in mind when interpreting the findings.

To explore the link between values and faith maturity we selected a subset of individuals who indicated that their religious affiliation was Christianity, and who completed the key measures in 2009. The participants reported that they had been converted to Christianity for an average of 117.95 months ($SD = 96.85$ months). For the longitudinal analyses, we included only Christian participants who had also completed the values measures in the 2012 survey ($n = 288$). Of them, 241 also completed the faith maturity measure (see below) in 2011. These 288

participants were similar to those who did not complete the value measures in 2012 on most demographic variables, and on all values and faith maturity measures, except that the former held higher tradition than the latter.

Measures

Besides demographics, the 57-item Schwartz Value Survey (SVS; Schwartz, 1996), the most widely used measure of human values to date, was administered at both waves, in 2009 and 2012. Respondents rated each value item on its importance as a guiding life principle (-1 = *opposed to my principles*, 0 = *not important*, and 7 = *of supreme importance*). Cronbach's alphas shown in Table 1 are comparable to that reported by Schwartz and Rubel (2005). We followed Schwartz's (1992) advice to use the centered value scores for all analyses reported below.

The short form of the Faith Maturity Scale (FMS) was administered in 2009 and 2011 to only the Christian sub-sample. The Chinese version (Chou & Chen, 2005) possesses sound psychometric properties (Benson et al., 1993; Hui et al., 2011; Ji, 2004). Two items were dropped because of ambiguity of relationship to the subscales (Hui et al., 2011). Participants rated the ten statements on a 7-point scale (1 = *never*, 4 = *occasionally*, and 7 = *always*), with a higher score indicating higher faith maturity. The vertical subscale (FMS-v) comprises of six items that tap experiences with the transcendent in social relationships, experiencing transcendental guidance, knowing the meaning and purpose of life, the degree of life commitment to the transcendent, sharing of the belief with others, and embracing the creation of the transcendent. The horizontal subscale (FMS-h) consists of four items, on one's commitment towards helping others, alleviating regional and global poverty, application of one's faith in social and political problems, and felt responsibility for reducing human pain. The Cronbach's alphas of the FMS-v and FMS-h were .88 and .76 respectively for the 2009 sample.

Results and Discussion

Values and religious affiliation

Cross-sectional analyses of values in Christians and non-believers. Ten linear regression analyses were conducted to examine the main and interaction effects of religion on the ten values reported at 2009 (See Table 2.). Age and gender were included in the regression models for control.

Age was associated with higher security ($b = .014$, $SE = .002$, $b^* = .166$, $p < .001$, 95% CI [.010, .018]), universalism ($b = .009$, $SE = .002$, $b^* = .122$, $p < .001$, 95% CI [.006, .013]), benevolence ($b = .006$, $SE = .002$, $b^* = .064$, $p = .005$, 95% CI [.002, .009]), conformity ($b = .007$, $SE = .002$, $b^* = .075$, $p < .001$, 95% CI [.003, .012]), and tradition ($b = .009$, $SE = .004$, $b^* = .051$, $p = .018$, 95% CI [.001, .016]). It was associated with lower stimulation ($b = -.029$, $SE = .003$, $b^* = -.203$, $p < .001$, 95% CI [-.036, -.023]), hedonism ($b = -.014$, $SE = .003$, $b^* = -.090$, $p < .001$, 95% CI [-.021, -.007]), power ($b = -.013$, $SE = .004$, $b^* = -.081$, $p < .001$, 95% CI [-.020, -.006]), and achievement ($b = -.012$, $SE = .002$, $b^* = -.157$, $p < .001$, 95% CI [-.016, -.009]). Consistent with previous findings, young adults prioritize more on self-enhancement and openness-to-change values, while older adults put more priority on conservation and self-transcendence values.

Females put more emphasis on hedonism ($b = .204$, $SE = .046$, $b^* = .083$, $p < .001$, 95% CI [.114, .294]) and security ($b = .144$, $SE = .026$, $b^* = .106$, $p < .001$, 95% CI [.092, .196]) values, while males held higher power ($b = -.262$, $SE = .049$, $b^* = -.102$, $p < .001$, 95% CI [-.358, -.165]), self-direction ($b = -.123$, $SE = .028$, $b^* = -.084$, $p < .001$, 95% CI [-.179, .068]), and achievement ($b = -.054$, $SE = .025$, $b^* = -.043$, $p = .027$, 95% CI [-.102, -.006]). The two genders did not differ in the other five values. In general, the gender differences agreed with most studies in the past, although hedonism was unexpectedly higher in women than men in our sample.

Statistically significant main effects of religion were detected on all ten values. This is consistent with previous research on the relationship between values and religion/religiosity. Compared to non-believers, Christians were more likely to have higher tradition ($b = 1.137$, $SE = .047$, $b^* = .426$, $p < .001$, 95% CI [1.044, 1.230]), benevolence ($b = .326$, $SE = .026$, $b^* = .236$, $p < .001$, 95% CI [.275, .378]), conformity ($b = .304$, $SE = .030$, $b^* = .193$, $p < .001$, 95% CI [.245, .363]), universalism ($b = .097$, $SE = .023$, $b^* = .081$, $p < .001$, 95% CI [.051, .143]) and lower hedonism ($b = -.665$, $SE = .045$, $b^* = -.272$, $p < .001$, 95% CI [-.754, -.576]), power ($b = -.508$, $SE = .049$, $b^* = -.198$, $p < .001$, 95% CI [-.603, -.412]), self-direction ($b = -.226$, $SE = .028$, $b^* = -.155$, $p < .001$, 95% CI [-.281, -.171]), stimulation ($b = -.159$, $SE = .044$, $b^* = -.070$, $p < .001$, 95% CI [-.244, -.073]), and achievement ($b = -.149$, $SE = .024$, $b^* = -.118$, $p < .001$, 95% CI [-.196, -.101]). Interestingly, Christians held weaker security values than did non-believers ($b = -.201$, $SE = .026$, $b^* = -.149$, $p < .001$, 95% CI [-.252, -.149]). This strongly supported H1.

There were dynamic interaction effects among the three demographic variables on some values, but their effects were small. Specifically, a gender×religion effect was present for universalism ($b = -.099$, $SE = .049$, $b^* = -.039$, $p = .041$, 95% CI [-.195, -.004]). Interaction effect between age and gender was present for benevolence ($b = .009$, $SE = .004$, $b^* = .049$, $p = .027$, 95% CI [.001, .017]) and self-direction values ($b = -.009$, $SE = .004$, $b^* = -.044$, $p = .048$, 95% CI [-.017, .000]). An age×religion effect was significant for conformity ($b = .009$, $SE = .004$, $b^* = .046$, $p = .029$, 95% CI [.001, .017]), self-direction ($b = -.015$, $SE = .004$, $b^* = -.081$, $p < .001$, 95% CI [-.022, -.007]), and achievement ($b = .009$, $SE = .003$, $b^* = .060$, $p = .005$, 95% CI [.003, .016]) values. An age×religion×gender effect was also detected for hedonism ($b = -.030$, $SE = .013$, $b^* = -.050$, $p = .019$, 95% CI [-.054, -.005]).

Longitudinal analyses of value change in Christians and non-believers over time.

The analyses reported previously showed clear differences in values across age, gender, and

religious groups. The cross-sectional design, however, precluded a confident inference of causality that values change as a result of the above demographics. To investigate how values may change, we first compared the values individuals reported in 2009 and three years later. Our paired-samples *t* test analyses showed that from 2009 to 2012 security ($p < .001$) and power ($p < .001$) values increased, while benevolence ($p < .001$) and achievement ($p < .001$) values decreased.

We then performed a series of ten hierarchical multiple regression analyses in which each of the ten values measured in 2012 were treated as the dependent measure, and the corresponding value measured in 2009 as control (See Table 3). We then entered as predictor age, gender, religion, and the centered interaction terms. Results showed no main effect of gender on the change in any values, although we had earlier reported gender differences. However, age effects were observed for hedonism ($b = -.018$, $SE = .006$, $b^* = -.139$, $p = .002$, 95% CI [-.030, -.007]), security ($b = .010$, $SE = .003$, $b^* = .129$, $p = .005$, 95% CI [.003, .016]) and stimulation ($b = -.014$, $SE = .006$, $b^* = -.116$, $p = .014$, 95% CI [-.025, -.003]), suggesting that young people were more likely than the more matured adults to acquire values of hedonism and stimulation, while the reverse is true for the increase in security. These three values had been found to relate to age in the cross-sectional analyses. The finding that age predicted not only the three values but also the *changes* in them strengthens the notion that the originally observed age differences may be indeed a result of becoming more advanced in age. Furthermore, age is an agent of change in stimulation, hedonism, and security. The more advanced is one's age, the more likely is one becoming lower in stimulation and hedonism, and higher in security over the several years of our study. That is, the change in these values is not just a result of aging, but also a result of being of a certain age (cohort).

In the previous cross-sectional analyses we had observed differences in values between Christians and non-believers. However, the analyses did not allow us to conclude whether individuals who hold certain values are more likely to become Christians (selection effect), if individuals who have become Christians undergo value changes with time (socialization effect), or that both religious affiliation and values are under the effect of some external factors. This limitation could now be partially overcome with the present longitudinal analyses. The results showed that Christians and non-believers experienced value changes at different rates within the three years. Patterns of change in some values, such as security and self-direction, were consistent with the patterns of value differences between Christians and non-believers observed at 2009. That is, Christians reported a stronger relative diminishment of security values than non-believers ($b = -.104$, $SE = .046$, $b^* = -.085$, $p = .025$, 95% CI [-.195, -.013]). Religion also significantly predicted changes in self-direction from 2009 to 2012. Christians showed a larger decline in self-direction than non-believers ($b = -.107$, $SE = .052$, $b^* = -.076$, $p = .041$, 95% CI [-.210, -.004]). Along the same line, being a Christian positively predicted tradition ($b = .337$, $SE = .102$, $b^* = .131$, $p = .001$, 95% CI [.135, .538]) and negatively predicted hedonism ($b = -.174$, $SE = .081$, $b^* = -.081$, $p = .033$, 95% CI [-.333, -.015]), after the baseline measures of these two values had been taken into account.

The findings above offered partial support to H2. Religious affiliation can positively predict tradition, even after a baseline measure three years earlier has been controlled for. Furthermore, as stated in H2, religious affiliation can predict the decline in self-direction and hedonism.

These hypothesized findings help us interpret some of the differences between Christians and non-believers observed in our cross-sectional analyses and in past studies. The main effect of religion on the changes in four values (tradition, hedonism, security and self-direction) suggests

that these values may actually be *altered* by religion. That is, these values change as a result of the individuals being Christian believers vis-a-vis non-believers. The underlying processes could include exposure to the religious community and personal religious behaviors such as meditation and prayer. For the other six values, one possible explanation¹ of the observed differences across religious affiliation reported earlier and in other studies is that there are common external factors that strengthen those values as well as maintain the religious affiliation. These could be religious friendship and parental socialization.

Values and religiosity

Cross-Sectional Analyses – Christians’ Values and Religiosity. Correlations between the two faith maturity subscales and the ten values in 2009 are presented in Table 4. Christians high on FMS-v were more likely than those low on FMS-v to put more emphasis on benevolence ($r = .28, p < .001$), conformity ($r = .27, p < .001$), tradition ($r = .24, p < .001$), and universalism ($r = .10, p < .001$), and less emphasis in power ($r = -.28, p < .001$), hedonism ($r = -.26, p < .001$), achievement ($r = -.14, p < .001$), self-direction ($r = -.12, p < .001$), and stimulation ($r = -.07, p = .020$). This correlation pattern between FMS-v and values resembled that between religious affiliation and values in the previous analysis, and were also consistent with our theoretical predictions (H3 and H5). Vertical faith maturity, in terms of one’s relationship with the divine, was associated positively with two conservation and two self-transcendence values, and negatively with openness-to-change and self-enhancement values.

¹ Another explanation could be selection effect. Being relatively high on conformity, benevolence, and universalism values and relatively low on stimulation, achievement, and power values might have predisposed some people to find teachings in the Christian church acceptable, and might even have predisposed some people to become Christians in the first place. Conversely, people who value low on conformity, benevolence, and universalism, but value high on stimulation, achievement, and power may be more reluctant to believe in a religion, or may not engage themselves in environments that could potentially make them religious. However, in a separate study prior value orientations did not predict religious conversion, although religious conversion predicted subsequent changes in some values (Hui et al., 2017).

Likewise, FMS-h correlated differentially with the ten values (See Table 4). Like FMS-v, FMS-h was positively associated with benevolence ($r = .10, p < .001$) and universalism ($r = .27, p < .001$); and negatively associated with hedonism ($r = -.19, p < .001$), achievement ($r = -.12, p < .001$), and power ($r = -.15, p < .001$). While FMS-v showed correlations with conformity, tradition and stimulation, FMS-h was not correlated with these values but instead was negatively associated with security ($r = -.14, p < .001$). Furthermore, self-direction that correlated negatively with FMS-v correlated positively with FMS-h ($r = .05, p < .05$). To summarize, as predicted from the general value-religion patterns, the self-transcendence values (universalism and benevolence) continued to relate positively with FMS-h while hedonism and the self-enhancement values (power and achievement) related negatively with FMS-h just as they did with FMS-v. H4 and H5 received strong support.

Some previous studies (e.g., Schwartz & Huismans, 1995) reported a negative correlation between religiosity and universalism. However, the negative correlation may not be robust. The present analysis showed faith maturity correlated positively with universalism. This is rather understandable given the similar concerns of Christian teaching and universalist principles.

There were also patterns of correlation not predicted in our hypotheses. For example, unlike people at high FMS-v, who tend to place less value on self-direction, those at high FMS-h were more positive about this value. While conservation values (tradition and conformity) had often been positively related to religiosity (Saroglou et al., 2004) and also with religious affiliation in the previous analysis, this relationship was not observed for FMS-h. In fact, another conservation value, security, was negatively related to FMS-h. Although this observation was in line with the difference between Christians and non-believers reported previously, this value-religiosity relation has not been consistently observed in other studies (e.g., Saroglou et al., 2004). As FMS-h represents one's sense of responsibility and care towards humankind, and

putting effort into relieving existing poverty and other societal/political problems, it may not be fully compatible with tradition and conformity which are upholding social and group norms and expectations. Being high on horizontal faith maturity may even move the person to give up security and the preservation of social stability that may stand in the way of equality and humanitarianism. Whether faith maturity predicts changes in values in similar directions would have to be ascertained with the following longitudinal analyses.

Longitudinal Analyses - Changes in Christians' Values and Religiosity over Time.

Two sets of analyses were conducted. First, we examined if religiosity measured at an earlier time could predict value change (H6A). Second, we examined if values measured earlier could predict religiosity change (H6B).

In the first set of analyses, we regressed the ten values measured in 2012 on FMS-v and FMS-h, while controlling for the corresponding values in 2009. Providing some support to H6A, the ten hierarchical linear regression analyses revealed that both FMS-v and FMS-h predicted changes in self-direction and security values, in opposite directions (See Table 5). Increase in self-direction was negatively predicted by FMS-v ($b = -.081$, $SE = .038$, $b^* = -.124$, $p = .034$, 95% CI [-.155, -.006]) and positively by FMS-h ($b = .074$, $SE = .035$, $b^* = .120$, $p = .037$, 95% CI [.004, .143]). Meanwhile, increase in security was positively predicted by FMS-v ($b = .071$, $SE = .035$, $b^* = .119$, $p = .044$, 95% CI [.002, .140]) and negatively by FMS-h ($b = -.08$, $SE = .034$, $b^* = -.141$, $p = .018$, 95% CI [-.146, -.014]). The two dimensions caused changes in opposite directions in these two values situated oppositely on Schwartz's circumplex model.

Although the two faith maturity dimensions are merely complementary and seemingly non-contradictory (Benson et al., 1993), we were surprised to find that they predicted change in security in opposite directions. This echoes inconsistencies in past studies, with the relationship between security and religiosity being positive in some studies but negative in others (Saroglou

et al., 2004). We can now attempt to explain the mixed findings by arguing that there are some fundamental differences between the two aspects of religiosity. As a believer becomes more committed and involved in the vertical relation to the transcendence, the emphasis on security, calmness, and stability waxes. On the other hand, as a believer becomes more caring towards their neighbors and dedicated to social justice for all humankind (the horizontal dimension), there would be increasing dissatisfaction with the status quo that has brought about suffering and injustice. The desire for stability would consequently be much weaker. If a believer grows in both vertical and horizontal dimensions, the opposite effects on security can cancel out each other.

Over time, Christian believers of higher FMS-v emphasized self-direction less than those of lower FMS-v. Self-direction for Christians with FMS-v being one *SD* lower than the mean in 2009 declined slightly from .41 (*SD* = .81) in 2009 to .39 (*SD* = .84) in 2012. This contrasted with believers with FMS-v one *SD* above the mean, whose self-direction value score decreased to a further extent from .14 (*SD* = .73) in 2009 to .06 (*SD* = .63) in 2012. On the other hand, the pattern observed was different for FMS-h. Those with FMS-h higher by one *SD* increased in self-direction, from .26 (*SD* = .70) in 2009 to .29 (*SD* = .66) in 2012, while those who are lower on FMS-h by one *SD* experienced a lowering of self-direction from .20 (*SD* = .79) in 2009 to .08 (*SD* = .90) in 2012. This showed that over time, while individuals at different levels of FMS-v and FMS-h changed differently in their self-direction, the patterns of change were consistent with the observed association of FMS-v and FMS-h with self-direction in our cross-sectional data.

The second set of longitudinal analyses explored how well the values measured in 2009 predicted changes in FMS-v and FMS-h during the next two years. This was done by conducting ten separate regression analyses, with each regressing FMS measured in 2011 on one value, after

controlling FMS measured in 2009. Benevolence (95% CI [.027, .335]) was the only significant predictor of changes in FMS-v ($b = .186$, $SE = .081$, $b^* = .107$, $p = .023$) and FMS-h ($b = .181$, $SE = .078$, $b^* = .110$, $p = .022$). This suggested that the benevolence value within a believer nurtures faith in both vertical and horizontal aspects within the two-year period. Individuals with high benevolence value may be more amenable to religious teaching on loving God (vertical) and loving humanity (horizontal). This partially supported H6B.

To summarize, the vertical and horizontal faith maturity correlated similarly with some values, but also differently with some others. Longitudinal analyses elucidated the causality underlying such observed correlation between values and religiosity. The value changes of security and self-direction over three years were predicted by believers' prior level of vertical and horizontal faith maturity. This is consistent with the hypothesis of religiosity socialization, that believer's religiosity predicted value change (H6A). The levels of vertical and horizontal faith maturity predispose believers to different types and intensity of religious activities, and thus exposing them to certain agents of value change. We also found that conversely benevolence predicted both vertical and horizontal dimensions of religiosity over two years. This supported the selection effect (H6B), where believers who were initially higher on benevolence become more attracted and open to religious teaching, and consequently having higher FMS-v and FMS-h. Over time, certain religiosity may change some values, and may also be changed by some others (H6C). There are also certain values that are neither cause nor effects of religiosity. Thus, it cannot be ruled out that personal values and faith maturity are under the influence of some other extraneous factors.

General Discussion

The objective of the present investigation was to expand our knowledge about the relationship between religion and values in a non-Western population. Most relationships of

religion/religiosity with values in our present Chinese sample replicated what have been found in Western samples. Meanwhile, we also uncovered relationships that are novel. For example, security is higher among Christians than among non-believers, and that it is differentially related to different aspects of religiosity. More importantly, the present investigation sheds important light on the issue of causality.

Implications for causality. The present investigation is one of the very few which examined the religion-values link with a longitudinal design. We considered three possibilities of causation: First, religion could be a strong agent that is associated with changes in values. Second, people could be attracted to religious environments that are similar to their values, and subsequently become converted to or more committed to the religion. Third, the factors that facilitate formation of certain values could be similar to the factors behind a person's becoming religious. Given that there are diverse religions, many kinds of religiosity and spirituality, and ten or more value types, the above three explanations may all be valid under some situations and not under another. Therefore, the answer to the causality question can be more nuanced than one might have initially imagined. In this spirit of exploration of value change and religiosity change, the vertical and horizontal dimensions of faith maturity were distinguished for the investigation of the value-religiosity relationship. This approach is different from past studies that often examined values and religiosity with the latter being measured by a single item or as a unidimensional construct.

Despite that the study adopted a longitudinal design that greatly improved our understanding towards the temporal relationship between values and religiosity over previous cross-sectional studies, we acknowledge that we are unable to claim causality with the same level of confidence that an experimental design can bestow. In our present case, it was not

possible to manipulate one's changes in religion or values. This must be borne in mind when making interpretations on the causal relationship between values and religiosity.

Nonetheless, based on our study several important points can be made regarding causality: First, although religion was not associated with changes in all values priorities, being a Christian predicted increment in tradition, and decline in self-direction, hedonism, and security, which is consistent with the idea that religion causes changes in values. Second, religiosity as a continuous variable influences only two value priorities, namely self-direction and security. The influences of the two dimensions of religiosity are opposite on the two values. Vertical faith maturity predicted higher security but lower self-direction, while horizontal faith maturity does just the opposite, i.e., predicted lower security but higher self-direction. Third, values do not influence religiosity, with one exception, that benevolence predicted higher vertical and horizontal faith maturity. Fourth, for other value priorities, it would be safe to assume that they and religiosity are to a certain extent under influence by a similar set of other factors, which account for the value-religiosity intercorrelations, or that the causation (if exists at all) could only be detected in a timeframe which is either much shorter or longer than two to three years.

A recent study (Hui et al., 2015) on values and faith steadfastness should be mentioned here. It found that hedonism and power values were predictive of unstable church attendance a year later, and that power, self-direction, and stimulation values were predictive of Christians exiting their faith a year later. That study, however, did not rule out the possibility that the values as well as the exit from church and faith could be under the influence of some other unobserved variables. Our present findings provide stronger evidence that there may be some other variables simultaneously influencing both values and faith, and that benevolence is the only value orientation that would influence faith maturity.

Limitations. The above findings were derived from a sample of Christians and non-religious believers. Future studies should extend the findings to believers of other religions. Another limitation is that while the values measures were collected in 2009 and 2012, faith maturity measures were collected in 2009 and 2011. Although a full cross-lagged analysis could not be performed, we still included this exploration as it would inform us on the possible effects of values on religiosity change over a two-year period.

Conclusion

The present investigation makes several unique contributions to the literature. First, it expands understanding of the causal relationship between one's personal values and religious faith. Second, it is one of the first studies to distinguish among several facets of religious faith (i.e., self-reported religious affiliation, vertical faith maturity, and horizontal faith maturity) and explore prospectively their impact on and the impact from values. Third, the conceptual grounding in Schwartz's model of personal values implies that sweeping statements such as "values predetermine religiosity" or "religion changes one's values" should not be made. That the above statements may be true for certain values and a particular dimension of religiosity, but not for other values and dimensions of religiosity is an impetus for further theoretical development.

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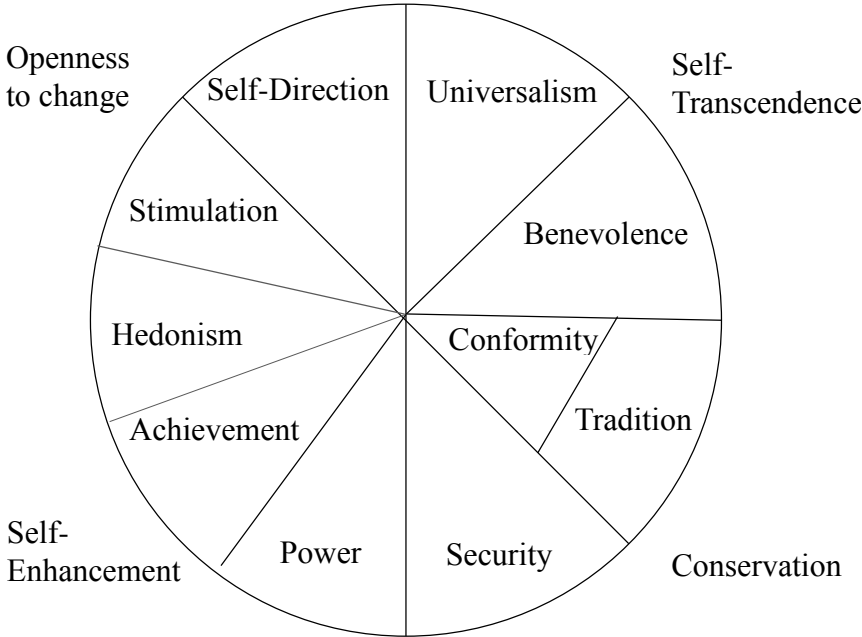


Figure 1. Schwartz's circumplex model of values (1992)

Table 1.

A Summary of the Internal Consistency Reliabilities for the Schwartz's Value Scale in the 2009 sample (N=3,248)

	CONF	TRAD	BENE	UNIV	SDIR	STIM	HEDO	ACHI	POWE	SECU
Cronbach's alpha	.68	.37	.82	.80	.68	.66	.52	.79	.77	.72

Note. CONF = conformity; TRAD = tradition; BENE = benevolence; UNIV = universalism; SDIR = self-direction; STIM = stimulation; HEDO = hedonism; ACHI = achievement; POWE = power; SECU = security.

Table 2.

Main and Interaction Effects of Age, Gender and Religion in Christians and Nonbelievers' Values in 2009 (N = 3,248)

Variable	CONF	TRAD	BENE	UNIV	SDIR	STIM	HEDO	ACHI	POWE	SECU
Age	.007**	.009*	.006**	.009***	.000	-.029***	-.014***	-.012***	-.013***	.014***
	(.002)	(.004)	(.002)	(.002)	(.002)	(.003)	(.003)	(.002)	(.004)	(.002)
Gender ^a	.052	.029	.023	.016	-.123***	-.017	.204***	-.054*	-.262***	.144***
	(.030)	(.048)	(.026)	(.024)	(.028)	(.044)	(.046)	(.025)	(.049)	(.026)
Religion ^b	.304***	1.137***	.326***	.097***	-.226***	-.159***	-.665***	-.149***	-.508***	-.201***
	(.030)	(.047)	(.026)	(.023)	(.028)	(.044)	(.045)	(.024)	(.049)	(.026)
Age×Gender	-.003	.013	.009*	.007	-.009*	-.012	-.002	-.005	-.006	-.003
	(.005)	(.007)	(.004)	(.004)	(.004)	(.007)	(.007)	(.004)	(.007)	(.004)
Age×Religio n	.009*	.005	.000	-.002	-.015***	.002	-.010**	.009**	.001	.000
	(.004)	(.006)	(.004)	(.003)	(.004)	(.006)	(.006)	(.003)	(.007)	(.004)
Gender×Reli gion	-.022	-.074	.032	-.099*	.091	-.028	.131	.089	-.015	-.040
	(.062)	(.098)	(.054)	(.049)	(.059)	(.091)	(.094)	(.051)	(.101)	(.054)

Age×Gender	.008	-.011	.004	-.001	.001	-.007	-.030*	.004	.017	-.003
× Religion	(.008)	(.013)	(.007)	(.006)	(.008)	(.012)	(.013)	(.007)	(.014)	(.007)

Note. Dependent variable: Values in 2009. Data are unstandardized betas with standard errors are in parentheses. CONF = conformity; TRAD = tradition; BENE = benevolence; UNIV = universalism; SDIR = self-direction; STIM = stimulation; HEDO = hedonism; ACHI = achievement; POWE = power; SECU = security.

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

Table 3.

Main and Interaction Effects of Age, Gender and Religion in Christians' and Nonbelievers' Values From 2009 to 2012 (n = 695)

Model and variable	CONF	TRAD	BENE	UNIV	SDIR	STIM	HEDO	ACHI	POWE	SECU
Model 1										
Constant	.056*	-.636	.186	.208	.164***	-.494***	-.128***	.023	-.565***	.217***
	(.025)	(.053)***	(.029)***	(.021)***	(.026)	(.044)	(.036)	(.020)	(.057)	(.021)
Corresponding 2009 value	.487***	.476***	.500***	.440***	.430***	.359***	.388***	.422***	.464***	.377***
	(.032)	(.032)	(.030)	(.030)	(.033)	(.031)	(.029)	(.031)	(.027)	(.030)
ΔR^2	.247***	.245***	.280***	.239***	.201***	.163***	.200***	.210***	.293***	.185***
Model 2										
Constant	.053	-.732 ***	.195***	.208***	.176***	-.508***	-.126***	.027	-.585***	.222***
	(.025)*	(.057)	(.029)	(.021)	(.026)	(.044)	(.035)	(.021)	(.057)	(.021)
Corresponding 2009 value	.459***	.397***	.482***	.438***	.409***	.341***	.333***	.413***	.449***	.354***
	(.033)	(.036)	(.032)	(.030)	(.033)	(.032)	(.030)	(.032)	(.028)	(.031)
Age	.008*	.013*	.001	.001	-.008*	-.013**	-.020***	.000	-.004	.010***
	(.003)	(.006)	(.003)	(.002)	(.003)	(.005)	(.005)	(.003)	(.005)	(.003)
Gender ^a	.004	.054	-.022	-.033	-.088	-.034	.151*	.059	-.062	.059
	(.052)	(.086)	(.044)	(.038)	(.048)	(.071)	(.074)	(.040)	(.073)	(.043)
Religion ^b	.095	.332**	.079	.021	-.097	.026	-.176*	-.075	-.128	-.098*
	(.055)	(.101)	(.048)	(.040)	(.052)	(.075)	(.080)	(.043)	(.078)	(.046)
ΔR^2	.014**	.025***	.004	.001	.022***	.010*	.041***	.006	.006	.017**

Model 3

Constant	.038 (.028)	-.753*** (.060)	.191*** (.031)	.220*** (.023)	.199*** (.029)	-.515*** (.047)	-.116** (.039)	.036 (.022)	-.617*** (.060)	.221*** (.023)
Corresponding 2009 value	.457*** (.033)	.397*** (.036)	.482*** (.032)	.437*** (.030)	.402*** (.033)	.342*** (.032)	.333*** (.031)	.416*** (.032)	.448*** (.028)	.354*** (.030)
Age	.005 (.004)	.009 (.007)	.000 (.003)	.003 (.003)	-.004 (.004)	-.014** (.006)	-.018** (.006)	.002 (.003)	-.009 (.006)	.010** (.003)
Gender ^a	-.007 (.056)	.052 (.094)	-.016 (.047)	-.028 (.042)	-.076 (.052)	-.049 (.077)	.153 (.080)	.058 (.044)	-.079 (.080)	.066 (.047)
Religion ^b	.103 (.056)	.337** (.102)	.077 (.048)	.017 (.041)	-.107* (.052)	.032 (.076)	-.174* (.081)	-.077 (.044)	-.114 (.079)	-.104* (.046)
Age× Gender	.000 (.008)	.000 (.014)	-.006 (.007)	-.002 (.006)	.004 (.008)	-.004 (.011)	-.004 (.012)	.000 (.006)	-.012 (.012)	.018** (.007)
Age× Religion	.010 (.007)	.013 (.012)	.000 (.006)	-.007 (.005)	-.012 (.007)	.004 (.010)	-.006 (.011)	-.006 (.006)	.017 (.010)	.004 (.006)
Gender× Religion	-.056 (.115)	.194 (.191)	.207* (.096)	.001 (.085)	-.187 (.107)	.032 (.157)	-.306 (.162)	-.056 (.089)	.083 (.161)	-.023 (.095)
Age× Gender× Religion	.005 (.015)	-.005 (.025)	-.005 (.012)	.000 (.011)	-.003 (.014)	.009 (.020)	.005 (.021)	.003 (.012)	.008 (.021)	-.010 (.012)
ΔR^2	.016*	.028**	.009	.004	.028**	.010	.046***	.008	.009	.028**

Note. Dependent variable: Values in 2012. Data are unstandardized betas, with standard errors are in parentheses. CONF = conformity; TRAD = tradition; BENE = benevolence; UNIV = universalism; SDIR = self-direction; STIM = stimulation; HEDO = hedonism; ACHI = achievement; POWE = power; SECU = security.

^a1 = male, 2 = female. ^b0 = Nonbeliever, 1 = Christian.

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

Table 4.

Correlation Between FMS-v or FMS-h and the 10 Values in 2009 (n = 1,213)

Measure	CONF	TRAD	BENE	UNIV	SDIR	STIM	HEDO	ACHI	POWE	SECU
FMS-v	.27***	.25***	.28***	.10***	-.12***	-.07**	-.26***	-.14***	-.28***	-.01
FMS-h	.03	-.01	.10***	.27***	.05*	.03	-.19***	-.12***	-.15***	-.14***

Note. Data are Pearson product-moment correlation coefficients. FMS-v = Faith Maturity Scale (vertical subscale); FMS-h = Faith Maturity Scale (horizontal subscale); CONF = conformity; TRAD = tradition; BENE = benevolence; UNIV = universalism; SDIR = self-direction; STIM = stimulation; HEDO = hedonism; ACHI = achievement; POWE = power; SECU = security.

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

Table 5.

Predictive Effects of FMS-v and FMS-h on Value Change From 2009 to 2012 in Christians (n=288)

	CONF	TRAD	BENE	UNIV	SDIR	STIM	HEDO	ACHI	POWE	SECU
Model 1										
Constant	.133*** (.040)	-.466*** (.065)	.263*** (.056)	.207*** (.034)	.081*** (.037)	-.466*** (.074)	-.309*** (.066)	-.013 (.031)	-.630*** (.106)	.197*** (.034)
Corresponding 2009 value	.487*** (.048)	.425*** (.059)	.463*** (.051)	.473*** (.046)	.420*** (.049)	.411*** (.049)	.341*** (.047)	.438*** (.054)	.474*** (.048)	.384*** (.051)
ΔR^2	.265***	.154***	.227***	.272***	.205***	.195***	.155***	.190***	.258***	.163***
Model 2										
Constant	.097 (.197)	-.524 (.333)	.277 (.163)	.277 (.143)	.209 (.185)	-.679*** (.268)	-.484 (.314)	.103 (.158)	-.504 (.277)	.145 (.175)
Corresponding 2009 value	.467*** (.051)	.412*** (.062)	.459*** (.053)	.441*** (.050)	.398*** (.050)	.407*** (.049)	.351*** (.050)	.436*** (.054)	.467*** (.049)	.365*** (.052)
FMS-v	.054	.040	.025	-.046	-.081*	-.016	.007	-.029	-.012	.071*

	(.041)	(.069)	(.034)	(.030)	(.038)	(.053)	(.063)	(.032)	(.056)	(.035)
FMS-h	-.060	-.039	-.036	.046	.074*	.076	.039	.007	-.053	-.080*
	(.037)	(.063)	(.031)	(.030)	(.035)	(.050)	(.059)	(.030)	(.053)	(.034)
ΔR^2	.008	.002	.004	.008	.017*	.007	.002	.002	.003	.020*

Note. Dependent variable: Values in 2012. Data are unstandardized betas, with standard errors in parentheses. FMS-v = Faith Maturity Scale (vertical subscale); FMS-h = Faith Maturity Scale (horizontal subscale); CONF = conformity; TRAD = tradition; BENE = benevolence; UNIV = universalism; SDIR = self-direction; STIM = stimulation; HEDO = hedonism; ACHI = achievement; POWE = power; SECU = security.

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