

Running head: RELIGIOUS CHANGE AND PERSONALITY

Religion and the Development of Character: Personality Changes Before and After Religious
Conversion and Deconversion

23 June 2020

Samantha Stronge¹, Joseph Bulbulia¹, Don E. Davis², Chris G. Sibley¹

University of Auckland¹

Georgia State University²

Corresponding author:

Samantha Stronge
School of Psychology
University of Auckland
Private Bag 92019,
Auckland,
New Zealand.

Email: s.stronge@auckland.ac.nz

This is an accepted manuscript. The final publication is available at:
<https://doi.org/10.1177/1948550620942381>

Abstract

Previous longitudinal research indicates that while religion may affect how personality traits are expressed, religion does not affect underlying personality traits themselves. However, such research has drawn from small North American samples and relatively short time intervals that do not include data from individuals prior to conversion. Here, we use a representative national sample of New Zealand adults over nine years (2009-2017, $N = 31,604$) and piecewise latent growth models to assess longitudinal change in Big Five personality and Honesty-Humility before and after conversion to/deconversion from Christianity ($N = 540$ converts, $N = 886$ deconverts). We observed no personality changes before conversion or after deconversion. However, we observed increases in Honesty-Humility, Conscientiousness and Neuroticism following conversion. We also observed higher Honesty-Humility and lower Agreeableness prior to deconversion. These indicate that religious conversion initiates changes in character, the most pronounced of which relate to increases in modesty and greed-avoidance.

Keywords: conversion, deconversion, personality, personality development, religious change

Religion and the Development of Character: Personality Changes Before and After Religious Conversion and Deconversion using National Longitudinal Data

The bandwidth of human religious diversity is impressive. However, from Aztec human sacrifice to Tantric fertility rituals, a clear human universal abides: all religions seek to cultivate changes in a person's fundamental character. As Paloutzian, Richardson, and Rambo (1999) put it, "religious changes are intended to be foundational" (p. 1048). Intuitively, it would seem that a change in one's beliefs about meaning and morality should also impact on a person's basic character. By contrast, a review by Paloutzian and colleagues (1999) found little evidence that religious change impacts on personality (see also Paloutzian, Murken, Streib, & Rößler-Namini, 2013). Recent longitudinal research agrees with this conclusion; religious affiliation, in general, appears to have little impact on personality traits (see Saroglou, 2010, for a review).

However, previous studies have been methodologically challenged in two ways. First, personality traits tend to change very slowly (Roberts & Wood, 2006). To infer the impact of religious change on personality requires large longitudinal samples assessed over long periods of time. Secondly, to assess the impact of religious change, measures of personality both before and after conversion and deconversion are needed. Here, we aim to replicate previous research but extend upon it methodologically by leveraging nine waves of national-scale longitudinal panel data to identify whether conversion to and deconversion from Christianity impacts upon personality. What kind of person does religion make us? This important and age-old question deserves a strong test before final conclusions are drawn.

Background to the Present Study

Personality describes ways of thinking, feeling, and acting that, while differing between individuals, remain stable within individuals as they age (McCrae & Costa, 1997).

Most trait models of personality organise this diversity of human behaviour into five or six broad clusters. The current research uses the Big Five model, which organises personality into the traits of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to experience (see Table 1 for a summary; Goldberg, 1990; McCrae & Costa, 1997). We also measure facets of Honesty-Humility, a trait from the Big Six model of personality (Ashton & Lee, 2007). Different levels of personality traits predict real differences in behaviour, goals, values, and resilience (Ashton & Lee, 2007; Ejova, Milojev, Worthington Jr., Bulbulia, & Sibley, in press; Roberts & Robins, 2000; Sibley et al., 2011). As such, measuring change in these traits is an ideal way to assess whether religion contributes to foundational changes in a person's character.

Previous correlational research has identified associations between Big Five personality traits and religiosity (typically measured as the importance of religion to one's life). In a large cross-sectional meta-analysis, religiosity was found to be most consistently associated with higher Agreeableness and Conscientiousness (Saroglou, 2010). Associations between Extraversion, Neuroticism, and Openness were weaker and less consistent, and depended more upon the cultural context (Saroglou, 2010). Large-scale research examining the Big Six model has also identified a consistent positive association with Honesty-Humility across cultures (Aghababaei et al., 2016; Ashton & Lee, 2019; Lee et al., 2005). However, correlational studies cannot tell us which personality traits motivate people to convert to religion in adulthood, and which are a *result* of being religious. Retrospective self-reports of Big Five personality among people who have converted to Christianity somewhat support the correlational findings, with converts viewing themselves as higher in Extraversion, Agreeableness, and Conscientiousness, and lower in Neuroticism following their conversion (Halama & Lačná, 2011). However, converts' recollections may be influenced by the need to view their new life as a positive one (Halama & Lačná, 2011; Paloutzian et al., 1999).

Where longitudinal research has been conducted, the results largely suggest that religion does not impact upon personality. An early review of the longitudinal literature concluded that while religious change may bring about new goals and a different lifestyle, it does not produce a change in a person's more fundamental personality traits (McAdams, 1994; Paloutzian et al., 1999). Indeed, Paloutzian and colleagues theorise that abrupt and profound changes following conversion are a stereotype; one that does not reflect most conversion experiences. More recently, longitudinal studies have found that higher intrinsic religiosity and higher religious centrality predicted increases in Agreeableness over time among both North American and Australian adolescents (Huuskes, Ciarrochi, & Heaven, 2013; Wink, Ciciolla, Dillon, & Tracy, 2007). Yet in contrast to correlational findings, religiosity was not associated with any other Big Five personality changes over time (Huuskes et al., 2013; Wink et al., 2007). Studies that tracked conversion and deconversion similarly observed no change in any of the Big Five personality traits following religious change among Chinese Christians (Hui et al., 2018, 2017).

Table 1

Interpretation of each Mini-IPIP6 factor, including example traits, and likely adaptive benefits and costs resulting from high levels of each personality dimension. This table is taken from Table 1 of Sibley et al., (2011, p. 144) who adapted Table 3 of Ashton and Lee (2007, p. 156) with minor adaptations based on their interpretation of Neuroticism and Agreeableness within a Big Five framework (Ashton and Lee (2007) originally developed this framework for describing their HEXACO model of personality structure).

<i>Factor</i>	<i>Interpretation</i>	<i>Example Traits</i>	<i>Benefits of High Levels?</i>	<i>Costs of High Levels?</i>
Honesty-Humility	Reciprocal altruism (fairness)	Fairness, sincerity, (low) entitlement and (low) narcissism	Gains from co-operation, (mutual help and non-aggression)	Loss of potential gains that would result from the exploitation of others (and in particular outgroup members)
Extraversion	Engagement in social endeavours	Sociability, leadership, exhibition	Social gains (friends, mates, allies)	Energy and time; risks from social environment
Agreeableness	Ingroup co-operation and tolerance; reciprocal altruism in HEXACO model	Tolerance, forgiveness, (low) quarrelsomeness	Gains from cooperation, primarily with ingroup (mutual help and nonaggression)	Losses due to increased risk of exploitation in short-term exchanges
Conscientiousness	Engagement in task-related endeavours	Diligence, organization, attention to detail	Material gains (improved use of resources), reduced risk	Energy and time; risks from social environment
Neuroticism (low Emotional Stability)	Monitoring of inclusionary status and attachment relations; kin altruism in HEXACO model	Anxiety, insecurity, (low) calmness	Maintenance of attachment relations; survival of kin in HEXACO model	Loss of potential gains associated with risks to attachment relations.
Openness to Experience	Engagement in ideas-related endeavours	Curiosity, imaginativeness, (low) need for cognitive closure and (low) need for certainty	Material and social gains (resulting from discovery)	Energy and time; risks from social

However, personality change at the trait level is subtle and slow. Detecting personality changes brought about by religion would likely require larger samples assessed over long time-frames (Roberts & Wood, 2006), with Hui and colleagues (2018) noting that personality change is unlikely to be detected in their three year time-span following conversion and deconversion. While some research has used longer time-frames, they examined degree of religiosity rather than religious change (Huuskes et al., 2013; Wink et al., 2007). No longitudinal studies have assessed the association between religiosity and Honesty-Humility. Some longitudinal research tests whether personality predicts religiosity, but not vice versa (Heaven & Ciarrochi, 2007; McCullough, Enders, Brion, & Jain, 2005; McCullough, Tsang, & Brion, 2003). All previous longitudinal research has used samples (~200-600 participants) that may not be large enough to detect subtle personality change. The current research aims to address these issues by investigating longitudinal personality change preceding and following conversion and deconversion in a large sample of adults over nine waves of data.

How should religious change impact upon a person? Personality theories suggest personality change is the slow result of day-to-day behaviours, experiences, and social expectations of others (Roberts & Wood, 2006). For example, people tend to become more conscientious after they begin their first job, and less conscientious when they retire (Specht, Egloff, & Schmukle, 2011). Religious theories similarly suggest religiosity is created and maintained through socialisation; ongoing conversations with family, partners, friends, and community that influence religious beliefs and behaviours (Sherkat, 2003; Spilka, Hood, Hunsberger, & Gorsuch, 2003). Someone who is religious is thus typically regularly encouraged to think and behave in line with its tenets. A central tenet of most major religions, Christianity included, is to cultivate a virtue of humility. Namely, people learn to put the good of others, the collective, and the Sacred (God, nature, humanity, or whatever is

considered at the heart of spirituality) above their own interests (see Baumeister, Bauer, & Lloyd, 2010). Thus, religious instruction and socialisation should encourage the development of ‘religious habits’ such as humility, kindness, and putting others before yourself.

These values largely describe the trait of high Honesty-Humility, which in the current study, encompasses humility, modesty, and greed-avoidance. Agreeableness describes similar facets such as tolerance and sympathy that should likewise be encouraged by Christianity. Conscientiousness could also be increased by Christianity as people search for order, are encouraged to practice self-control, and follow rituals such as prayer and regular church attendance (McCullough & Willoughby, 2009; Saroglou, 2017)¹. Neuroticism, as an indicator of sensitivity to the needs of others and concern about whether one belongs within a group (Denissen & Penke, 2008; Sibley et al., 2011), may also be relevant to religious change. In short, as religious socialisation creates and maintains religious belief, it should similarly impact upon personality. We expect to see increases over time in Honesty-Humility, Agreeableness, Conscientiousness, and Neuroticism amongst people who have converted to Christianity. Correspondingly, we expect to see decreases in those traits among those who have deconverted from Christianity. The loss of religious socialisation (or sometimes, actively irreligious socialisation; Dahl et al., 2019; Thiessen & Wilkins-Laflamme, 2017) should result in the loss of ‘religious habits’.

Personality changes pre- and post-conversion and deconversion should be localised—we would expect there to be change in relevant personality traits, and no change in irrelevant personality traits. Openness tends to be related to specific types of religious belief (i.e., fundamentalism or spirituality), but is not typically associated with religiosity as a whole

¹ We initially hypothesised that Conscientiousness would not change post-conversion because of a lack of theory about such a change in the literature. However, during the revision process Vassilis Saroglou alerted us to theoretical background that we missed, and we thought it best to change the hypothesis so as to not misrepresent that work. We thank the reviewer for their helpful comments.

(Saroglou, 2010), while Extraversion is typically unrelated to religiosity in Western contexts (Ashton & Lee, 2019; Saroglou, 2010). Thus, no changes in these traits are expected following religious change. In addition to changes after conversion and deconversion, we will also assess changes prior to conversion and deconversion. However, both personality theory and theories of religious socialisation suggest that personality changes come about after life changes, as a result of new habitual behaviours, social roles, and the expectations of others (Roberts & Wood, 2006; Sherkat, 2003). Thus, while goals and values may shift in the lead-up to religious change, we do not expect to see changes in fundamental personality traits.

To summarise, research has yet to demonstrate much evidence that religious change can cause lasting changes in personality (Ashton & Lee, 2014; Paloutzian et al., 1999; Saroglou, 2010). However, prior tests of the idea have been weak. A stronger test would require larger samples tracked over longer periods of time. In the present study, we replicate and extend upon previous research using piecewise growth models and a large national panel study of New Zealand adults ($N = 31,604$) to assess changes in Big Five personality and facets of Honesty-Humility as people convert to or deconvert from Christianity. In a basic growth curve model, the model estimates the rate of change over time for each participant – how much does someone’s personality change as they age. In piecewise growth models, a separate growth curve is modelled before and after an event – in this case, for personality change leading up to conversion, and for personality change following conversion (and likewise for deconversion). These models are often used where change is predicated on some event occurring (e.g., changes in life satisfaction after divorce or becoming a parent (Agache, Leyendecker, Schäfermeier, & Schölmerich, 2014; van Scheppingen & Leopold, 2019). We hypothesise Honesty-Humility, Agreeableness, Conscientiousness, and Neuroticism will increase following conversion, and likewise decrease following deconversion. Furthermore,

we investigate changes in personality prior to conversion and prior to deconversion, however, no changes are expected.

Method

Sampling and Procedure

The New Zealand Attitudes and Values Study (NZAVS) is a longitudinal panel study of New Zealand adults that began in 2009. Online and postal questionnaires are sent to all active participants annually. Participants are sampled from the New Zealand electoral roll, which is publicly available for scientific research and represents all citizens over 18 years of age who were eligible to vote regardless of whether they chose to vote. Various booster samples have been collected in the following waves of the study to increase sample size and diversity. As of the latest wave of data collected in 2017, 31,604 unique participants have taken part in the study. Informed consent was obtained from all participants for each wave of the study. Ethics approval for the NZAVS was attained from the University of Auckland Human Participants Ethics Committee (014889) and all relevant ethical regulations were complied with. See Sibley (2019) for full details regarding sampling and procedure.

Table 2

Demographic information using data from the wave immediately following conversion or deconversion. Convert and deconvert samples are completely independent.

	Converts (<i>N</i> = 540)				Deconverts (<i>N</i> = 886)			
	<i>N</i>	%	<i>M</i>	<i>SD</i>	<i>N</i>	%	<i>M</i>	<i>SD</i>
Demographics								
Gender: Women	361	67.1	-	-	553	62.6	-	-
Gender: Men	177	32.9	-	-	331	37.4	-	-
Age	-	-	52.31	12.63	-	-	50.59	14.22
Ethnicity: European	490	90.6	-	-	810	91.3	-	-
Ethnicity: Ethnic Minorities	51	9.4	-	-	77	8.7	-	-
Relationship Status: Partnered	405	75.1	-	-	651	73.6	-	-
Education	-	-	4.73	2.73	-	-	4.89	2.80
Employed	396	73.6	-	-	701	79.3	-	-
Household Income (in NZD1000's)	-	-	110.59	95.50	-	-	108.88	76.23
Deprivation	-	-	4.82	2.87	-	-	4.71	2.72
Time Event Occurred								
2010	58	10.7	-	-	86	9.7	-	-
2011	9	1.7	-	-	30	3.4	-	-
2012	33	6.1	-	-	52	5.9	-	-
2013	63	11.6	-	-	93	10.5	-	-
2014	116	21.4	-	-	165	18.6	-	-
2015	41	7.6	-	-	60	6.8	-	-
2016	47	8.7	-	-	74	8.3	-	-
2017	174	32.2	-	-	327	36.9	-	-
Average number of waves responded to	4.31	2.09	-	-	4.36	2.26	-	-

Participants

We identified participants who changed from being non-religious to affiliating with a Christian denomination, or vice-versa (from Christian to non-religious) during the first nine years of the annual longitudinal NZAVS spanning 2009-2017. We allowed for missing waves of data (not all participants completed all waves, due to some participants joining the study through booster sampling at latter waves, or intermittent responding over the years). However, to be included in the analysis, a participant must have completed two consecutive years of the study and change must have been observed between those two waves. This was necessary so that we always observed the wave immediately preceding conversion/deconversion, and the wave immediately following it. We only included participants that were observed to convert only once or those observed to deconvert only once, as our modelling approach was not appropriate for repeated dynamic (on/off/on/off) types of change. Thus, our analysis focused solely on people who converted (or deconverted) and then stayed consistently in that new state for the remainder of the study waves in which they participated.

Demographic information for participants is presented in Table 2. The demographic data is taken from the wave immediately following conversion or deconversion for each participant (see Supplementary Table 1 for information on the age participants were when they converted or deconverted). Participants took part in approximately 4 waves of the NZAVS on average. Deprivation was measured using the New Zealand Deprivation Index (Salmond et al., 2007), which uses census information to assign a decile-rank index from 1 (least deprived) to 10 (most deprived) to each meshblock unit. Education was coded into an ordinal variable (0 = no qualification to 10 = doctorate).

Model Estimation

We constructed a series of event-aligned piecewise growth models. We used Bayesian estimation with a non-informative prior distribution, using *Mplus 8.3* defaults (Asparouhov & Muthén, 2010; Muthén & Muthén, 1998). Each model assessed the growth function for a given personality trait in the years leading up to the point of conversion or deconversion, and the growth function for that same personality trait in the years following the point of conversion or deconversion. Our piecewise models were event-aligned because the point in time during which the event of interest occurred (i.e., conversion or deconversion) was modelled as the break point between the two slopes in the piecewise model for each individual, regardless of the chronological point in time at which it occurred. For example, the break point for a participant who converted from non-religious to Christianity in 2012 would be between the 2011/2012 waves, with one slope representing the growth function for a given personality trait leading up to 2011 (before they converted) and the second slope representing the growth function for that same personality trait in the years following conversion (see Supplementary Figure 1 for missing data rates across the six years pre-event and five years post-event). We controlled for the year in which religious change occurred and the age of the participant at the time of religious change in all models.

Questionnaire Measures

All measures were included within the larger NZAVS questionnaire. See Sibley (2018) for a full list of measures.

Religion. Religiosity was measured by a single item (yes/no), “Do you identify with a religion and/or spiritual group?”. If participants indicated they were religious, they were asked an open-ended question: “If so, what religion or spiritual group?”. We restricted our analyses to those participants who stated that they were Christian, as samples sizes in other religious groups were small.

Personality. Big Five personality was assessed using the Mini-IPIP6 (International Personality Item Pool; Sibley et al., 2011), a short-form adaptation of the Mini-IPIP (Donnellan et al., 2006). Extraversion was assessed by four items: “[I] am the life of the party”, “[I] don’t talk a lot” (reverse-scored), “[I] keep in the background” (reverse-scored), and “[I] talk to a lot of different people at parties” ($\alpha_{\text{converts}} = .72$, $\alpha_{\text{deconverts}} = .73$). Agreeableness was assessed by four items: “[I] sympathise with others’ feelings”, “[I] am not interested in other people’s problems” (reverse-scored), “[I] feel other’s emotions”, and “[I] am not really interested in others” (reverse-scored; $\alpha_{\text{converts}} = .66$, $\alpha_{\text{deconverts}} = .66$). Conscientiousness was assessed by four items: “[I] get chores done right away”, “[I] like order”, “[I] make a mess of things” (reverse-scored), and “[I] often forget to put things back in their proper place” (reverse-scored; $\alpha_{\text{converts}} = .62$, $\alpha_{\text{deconverts}} = .66$). Neuroticism was assessed by four items: “[I] have frequent mood swings”, “[I] am relaxed most of the time” (reverse-scored), “[I] get upset easily”, and “[I] seldom feel blue” (reverse-scored) ($\alpha_{\text{converts}} = .66$, $\alpha_{\text{deconverts}} = .67$). Openness to experience was assessed by four items: “[I] have a vivid imagination”, “[I] have difficulty understanding abstract ideas” (reverse-scored), “[I] do not have a good imagination” (reverse-scored), and “[I] am not interested in abstract ideas” (reverse-scored; $\alpha_{\text{converts}} = .68$, $\alpha_{\text{deconverts}} = .67$). All traits were measured using the mean of four items rated on a scale from 1 (very inaccurate) to 7 (very accurate).

Honesty-Humility was also measured using four items; two items adapted from the HEXACO Honesty-Humility scale (Ashton & Lee, 2009): “[I] would like to be seen driving around in a very expensive car”, and “[I] would get a lot of pleasure from owning expensive luxury goods”, and two items adapted from the Psychological Entitlement Scale (Campbell et al., 2004): “[I] feel entitled to more of everything”, “[I] deserve more things in life” (all items reverse-coded; $\alpha_{\text{converts}} = .78$, $\alpha_{\text{deconverts}} = .78$). These four items have been shown to have high reliability and construct validity in the New Zealand context; they are markers for a distinct

‘sixth’ factor in models including the Big Five (Sibley et al., 2011), have excellent test re-test stability (Milojev et al., 2013), and have good test information function in analyses using Item Response Theory (Sibley, 2012).

Results

Results for the event-aligned piecewise growth models are presented in Table 3 for participants who converted to Christianity, and in Table 4 for participants who deconverted from Christianity. Slopes are also presented in Figure 1. Results showed no significant changes to personality prior to conversion, however, there were significant increases over time in Honesty-Humility ($b = .078$), Conscientiousness ($b = .031$), and Neuroticism ($b = .035$) following conversion. For participants who deconverted, Honesty-Humility increased ($b = .039$) over time prior to deconversion, and Agreeableness decreased ($b = -.034$) over time prior to deconversion. There were no significant changes in personality following deconversion.

Table 3

Piece-wise latent growth models for participants who converted to Christianity

	Pre-Conversion					Post-Conversion					Model Fit	
	<i>b</i>	<i>95% CI</i>	<i>Post. SD</i>	<i>p</i>		<i>b</i>	<i>95% CI</i>	<i>Post. SD</i>	<i>p</i>	<i>PPP</i>	<i>95% CI</i>	
Honesty-Humility	.003	-.056 .061	.030	.461		.078	.043 .115	.018	.000**	.350	-34.24 51.59	
Extraversion	.013	-.035 .059	.024	.290		-.019	-.050 .013	.016	.117	.482	-41.45 42.71	
Agreeableness	.030	-.019 .077	.024	.113		.010	-.021 .044	.017	.264	.469	-39.76 43.47	
Conscientiousness	-.009	-.057 .038	.024	.368		.031	.000 .063	.016	.026*	.467	-39.75 43.89	
Neuroticism	.022	-.032 .075	.027	.209		.035	.004 .069	.017	.014*	.391	-36.48 48.06	
Openness	-.044	-.098 .009	.027	.052		.000	-.030 .031	.016	.500	.457	-39.20 44.65	

Note. * $p < .05$, ** $p < .001$. PPP = Posterior Predictive p-value, which is ideally close to .5, and the 95% Credible Interval should cross 0 for good model fit (Muthén & Asparouhov, 2012).

Table 4

Piece-wise latent growth models for participants who deconverted from Christianity

	Pre-Deconversion				Post-Deconversion				Model Fit	
	<i>b</i>	<i>95% CI</i>	<i>Post. SD</i>	<i>p</i>	<i>b</i>	<i>95% CI</i>	<i>Post. SD</i>	<i>p</i>	<i>PPP</i>	<i>95% CI</i>
Honesty-Humility	.039	-.004 .082	.022	.036*	.019	-.011 .048	.015	.110	.498	-42.08 41.61
Extraversion	-.009	-.045 .027	.018	.309	-.001	-.026 .024	.013	.467	.315	-33.12 52.17
Agreeableness	-.034	-.070 .001	.018	.028*	-.018	-.043 .007	.013	.077	.506	-41.91 41.53
Conscientiousness	.012	-.023 .045	.017	.250	-.007	-.030 .017	.012	.283	.522	-42.96 39.62
Neuroticism	-.010	-.051 .030	.020	.316	.015	-.013 .042	.014	.142	.354	-33.82 49.89
Openness	.002	-.040 .041	.021	.455	-.013	-.039 .013	.013	.165	.466	-40.34 44.70

Note. * $p < .05$, ** $p < .001$. PPP = Posterior Predictive p-value, which is ideally close to .5, and the 95% Credible Interval should cross 0 for good model fit (Muthén & Asparouhov, 2012).

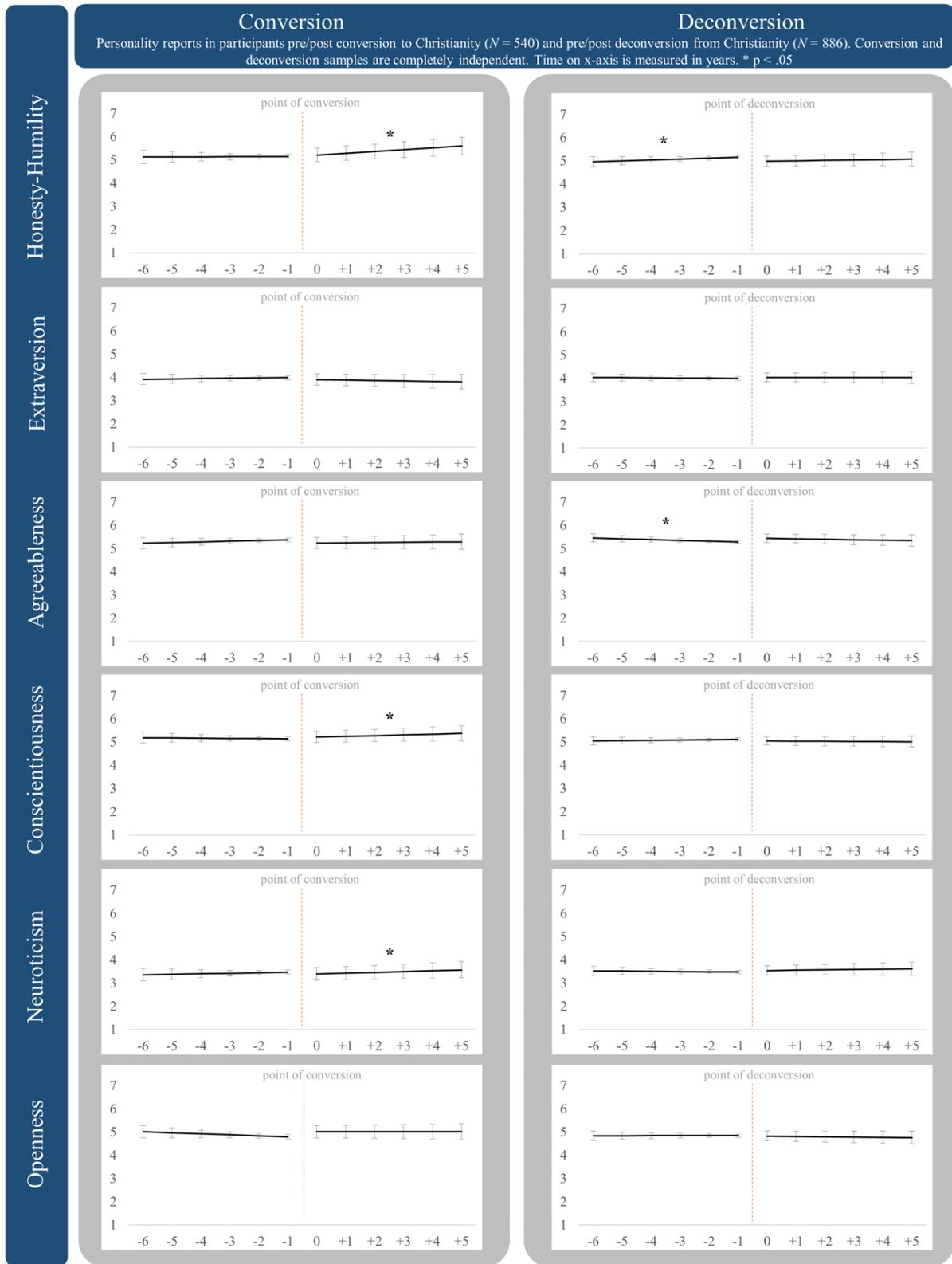


Figure 1. Piecewise latent growth models estimating change in personality traits pre- and post-conversion and deconversion. Error bars represent 95% credible intervals.

Discussion

Religious institutions and their followers are invested in the idea that religion changes a person's character, typically for the better. Drawing on nine years of data from a large and diverse national panel sample of New Zealand adults, we investigated longitudinal change in personality traits preceding and following conversion to and deconversion from Christianity. In contrast to previous small-scale research (see Paloutzian et al., 1999), we observed personality changes both before and after change in religious affiliation. The greatest observed personality change occurred in Honesty-Humility, with increases observed following conversion and preceding deconversion. Increases in Conscientiousness and Neuroticism were also observed following conversion. Finally, Agreeableness was observed to decrease prior to deconversion. These findings add fresh data to a body of research that has long searched for the impact that religiosity has on character (Hui et al., 2017, 2018; Huuskes et al., 2013; Paloutzian et al., 1999; Wink et al., 2007). Overall, personality changes were only observed after conversion, or prior to deconversion. That is, personality only changed while people identified as Christian, suggesting that religious socialisation plays a role. However, this contradicts our hypothesis that the loss of religious socialisation would mean corresponding decreases in personality traits. Personality changes associated with conversion were not 'undone' by deconversion, supporting the idea that religion contributes to enduring and foundational changes in personality.

Increases in Honesty-Humility following conversion were the largest observed change in personality overall. This finding suggests that Christianity is indeed effective at promoting traits relevant to its central tenets among recent converts, such as humility, modesty, and greed-avoidance. Different levels of personality traits can translate to behavioural differences, with this measure of Honesty-Humility associated with greater rates of charitable giving

(Sibley et al., 2011). No decreases in Honesty-Humility were observed following deconversion, suggesting that religious experiences created a lasting change in personality.

Honesty-Humility was also observed to increase prior to deconversion. This was an unexpected finding; we predicted that personality changes would follow life changes, not precede them. This finding has several potential explanations. Deconverts may be gathering their moral strength around them and increasing their commitment to their principles in order to better navigate the moral and social implications of leaving their religion. Deconverts may also come to view participation in an organised hierarchical religion such as Christianity as inconsistent with their principles of humility and modesty. Altemeyer and Hunsberger's (1997) interviews with deconverts indicated that they were often concerned with moral hypocrisy and dishonesty within their religion (see also Wright et al., 2011). These results suggest that while Christianity may effectively cultivate humility for some (and more specifically, as we measure here, greed-avoidance), exiting Christianity appears to be similarly effective in cultivating humility for others. However, this finding is exploratory and should be taken tentatively until investigated further.

We found that conversion preceded increases in Conscientiousness, suggesting Christians developed greater diligence. Prior research and theory have discussed how Conscientiousness maintains religiosity, in that people with high Conscientiousness choose to be religious and remain committed over time (Heaven & Ciarrochi, 2007; Saroglou, 2010; Wink et al., 2007). Here, we demonstrate that religiosity may also impact upon Conscientiousness. This fits with theory suggesting that religion aids in setting and achieving goals, provides more structure to one's life through regular rituals such as prayer, and encourages greater self-control and better health behaviours such as limiting substance use (McCullough & Willoughby, 2009; Saroglou, 2017). Our results provide strong support to

the idea that religious habits like these may reflect change in more fundamental personality traits.

We also found that conversion preceded increases in Neuroticism, as hypothesised. Neuroticism may reflect greater anxiety and monitoring of group status—a logical development after joining a new and important social group (Sibley et al., 2011). In contrast to the other personality trait changes we observed following conversion, Neuroticism is not typically viewed as a positive or pro-social trait, and is linked longitudinally to poorer mental health (Ejova et al., in press). Interestingly, retrospective self-reports indicated that people believed they were *lower* in Neuroticism following conversion (Halama & Lačná, 2011), suggesting that converts are biased towards perceiving their religious change in a positive light.

Finally, contrary to our hypothesis, we observed no increases in Agreeableness following conversion. This finding conflicts with previous research, where Agreeableness is one of the traits most strongly associated with religiosity cross-sectionally (Saroglou, 2010) and longitudinally (Huuskes et al., 2013; Wink et al., 2007). Furthermore, we found that Agreeableness decreased prior to deconversion. Both of these findings are at odds with the simultaneous increases in Honesty-Humility post-conversion and pre-deconversion. One interpretation of these findings is that while Christian converts can strive to be modest and humble (as indexed by our narrow-bandwidth measure of Honesty-Humility), that does not necessarily translate into being more empathetic on an interpersonal level (Agreeableness). Similarly, decreasing Agreeableness prior to deconversion suggests that one can endorse the tenets of a religion (Honesty-Humility) while not cooperating with the religious organisation (Agreeableness) as we describe above. The inconsistencies between the current research and previous research could also indicate that strength of religious belief (Huuskes et al., 2013; Wink et al., 2007) and simply identifying as religious may produce quite different impacts on

personality; perhaps only those who are strongly identified as Christian would see increases in their Agreeableness. However, as an unexpected finding that contradicts previous research, these findings should be interpreted cautiously.

Overall, the changes in personality we observed were small, slow, and steady and occurred over several years. Given the nature of the model, all rates of change are best interpreted in absolute terms (i.e. on a scale of 1 to 7). The largest observed change was in Honesty-Humility post-conversion, which showed an increase of approximately 0.4 units, or 6.6% of the total scale, across five years. Change in the other personality traits clustered around ~3% of the total scale. These findings fit with personality theory, which theorises that personality is stable and does not change quickly (Roberts & Wood, 2006). Put simply, we would doubt our results if we observed substantial and rapid change among those who convert and deconvert. Instead, our results are consistent with the expected sorts of adjustments that might arise from embracing belief systems that emphasise humility, order, and social inclusion. Our findings fit with both Paloutzian et al.'s (1999) claim that sudden, profound changes associated with religious change are a stereotype, and with classical religious doctrines that emphasise the role of sustained religious practice in the cultivation of character.

Limitations

It is important to note that personality changes in consistent ways as people age (known as normative change), with Honesty-Humility and Conscientiousness increasing over time for the average person regardless of religious change (Milojev & Sibley, 2017; Roberts et al., 2006). As the growth curves for converts and deconverts are aligned to a specific event, they cannot be meaningfully compared to growth curves for those who remained religious or non-religious. However, the fact that religious converts and deconverts change in clearly predictable ways (increasing in Honesty-Humility *after* but not *before* conversion), with some

changes in the *opposite* direction of normative change (Neuroticism typically decreases as people age; Milojev & Sibley, 2017), indicates that these changes are not normative but may reflect the effect of conversion itself.

We also caution that there may be limitations to self-report measures of personality. Longitudinal research helps to reduce recall bias by providing an assessment of personality before religious change occurs, however, participants could still fill out a measure of personality following religious change in a biased way. For example, change in personality could reflect changes in values—a convert wants to be someone who does not value wealth—but not necessarily behaviour. While the mini-IPIP6 has been validated using behavioural measures (Sibley et al., 2011), post religious change is a context where self-serving bias could be particularly strong. The next step would be to explicitly link change in personality traits following religious change with shifts in behavioural measures (e.g. charitable giving).

Although we measure conversion and deconversion as a binary change in this research, we note that it is typically not an abrupt process. Changes in religious belief and practice can occur for long periods before and after a change in religious identity (Streib et al., 2009; Paloutzian et al., 2013). Indeed, in the current study, personality changed for years before deconversion was reported and for years after conversion was reported. Future longitudinal research using more fine-grained religious measures may untangle the specific religious behaviours and social interactions that lead to personality change. Future research may also identify different pathways of personality change for different kinds of conversion and deconversion. For example, some deconverts report continuing religious or spiritual beliefs following exit from an organised religion, while others do not (Paloutzian et al., 2013). Similarly, different kinds of religious socialisation may predict different changes in personality traits; some deconverts could simply return to baseline personality levels through

lack of religious socialisation while others could develop higher Openness (for example) through irreligious socialisation.

Whether these effects are limited to New Zealand, or to Christianity, remains unclear. Indeed, many of our findings contradict previous research, both longitudinal findings (Hui et al., 2017, 2018; Huuskes et al., 2013; Wink et al., 2007) and cross-sectional findings using large samples across multiple countries (Ashton & Lee, 2019; Saroglou, 2010). For example, the particular facets of Honesty-Humility (greed-avoidance and modesty) measured here had the weakest associations with religiosity in previous cross-cultural research (Ashton & Lee, 2019). This suggests that contextual factors may be particularly important, whether the cultural context or the type of religiosity measured. We hope our findings here keep the debate about whether religion impacts on fundamental personality traits open, and that longitudinal research (using diverse samples and more in-depth personality measures than the short-form scales used here) continues to be conducted on this issue.

Conclusion

The impact religion has on one's character is a given among those who convert but has mixed support in the scientific literature. The conclusion drawn from previous small-scale longitudinal research is that fundamental personality traits are not impacted by religious change (e.g., Paloutzian et al., 1999). Our study leveraged national scale longitudinal data to evaluate personality before and after religious conversion to and deconversion from Christianity over periods of up to nine years, in order to detect small and subtle personality changes. Results indicated that religious change appears to change a person's character; specifically, religious conversion predicts increases in aspects of Honesty-Humility primarily related to modesty and greed-avoidance, Conscientiousness, and Neuroticism. Prior to deconversion, Honesty-Humility increases and Agreeableness decreases. These results suggest that Christian religious conversion appears to evoke a subtle but lasting change in

these fundamental qualities of human character, and we hope that more longitudinal research will investigate this important question in the future.

Declaration of Conflicting Interests. The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

Funding: This research was supported by a grant from the Templeton Religion Trust (TRT0196). The funders had no role in design of this research project, data collection and study design, formulation of hypotheses, data analysis, or decision to publish.

Authors' Note. Mplus syntax for the models reported here are posted publicly on the NZAVS website. Participants have consented to share their deidentified data with competent professionals on a case-by-case basis, so data are available upon reasonable request from any member of the NZAVS research group www.psych.auckland.ac.nz/uo/NZAVS

References

- Agache, A., Leyendecker, B., Schäfermeier, E., & Schölmerich, A. (2014). Paternal involvement elevates trajectories of life satisfaction during transition to parenthood. *European Journal of Developmental Psychology, 11*(2), 259–277.
<https://doi.org/10.1080/17405629.2013.851025>
- Aghababaei, N., Błachnio, A., Arji, A., Chiniforoushan, M., Tekke, M., & Fazeli Mehrabadi, A. (2016). Honesty–Humility and the HEXACO Structure of Religiosity and Well-Being. *Current Psychology, 35*(3), 421–426. <https://doi.org/10.1007/s12144-015-9310-5>
- Ashton, M. C., & Lee, K. (2007). Empirical, Theoretical, and Practical Advantages of the HEXACO Model of Personality Structure. *Personality and Social Psychology Review, 11*(2), 150–166. <https://doi.org/10.1177/1088868306294907>
- Ashton, M. C., & Lee, K. (2014). Personality and Religiousness. In *Religion, Personality, and Social Behavior* (p. 15). Psychology Press.
- Ashton, M. C., & Lee, K. (2019). Religiousness and the HEXACO personality factors and facets in a large online sample. *Journal of Personality*.
<https://doi.org/10.1111/jopy.12459>
- Ashton, M., & Lee, K. (2009). The HEXACO-60: A Short Measure of the Major Dimensions of Personality. *Journal of Personality Assessment, 91*(4), 340–345.
<https://doi.org/10.1080/00223890902935878>
- Asparouhov, T., & Muthén, B. O. (2010). *Bayesian Analysis Using Mplus: Technical Implementation. Technical appendix*. Muthén & Muthén.
- Baumeister, R. F., Bauer, I. M., & Lloyd, S. A. (2010). Choice, free will, and religion. *Psychology of Religion and Spirituality, 2*(2), 67–82.
<https://doi.org/10.1037/a0018455>

- Campbell, W. K., Bonacci, A. M., Shelton, J., Exline, J. J., & Bushman, B. J. (2004). Psychological Entitlement: Interpersonal Consequences and Validation of a Self-Report Measure. *Journal of Personality Assessment*, 83(1), 29–45.
https://doi.org/10.1207/s15327752jpa8301_04
- Dahl, K., Novis-Deutsch, N., Klingenberg, M., Kontala, J., Sztajer, S., & Mussel, A. (2019). Religious socialization of non-religious university students. *Religion*, 49(2), 262–283.
<https://doi.org/10.1080/0048721X.2019.1584355>
- Denissen, J. J. A., & Penke, L. (2008). Motivational individual reaction norms underlying the Five-Factor model of personality: First steps towards a theory-based conceptual framework. *Journal of Research in Personality*, 42(5), 1285–1302.
<https://doi.org/10.1016/j.jrp.2008.04.002>
- Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The Mini-IPIP Scales: Tiny-yet-effective measures of the Big Five Factors of Personality. *Psychological Assessment*, 18(2), 192–203. <https://doi.org/10.1037/1040-3590.18.2.192>
- Ejova, A., Milojev, P., Worthington, Jr., E. L., Bulbulia, J., & Sibley, C. G. (in press). The Big Six personality traits and mental distress: Dynamic modelling in a population panel study reveals bi-directional relationships involving Neuroticism, Extraversion and Conscientiousness. *Personality and Social Psychology Bulletin*.
- Goldberg, L. R. (1990). An Alternative “Description of Personality”: The Big-Five Factor Structure. *Journal of Personality and Social Psychology*, 59(6), 1216–1229.
- Halama, P., & Lačná, M. (2011). Personality change following religious conversion: Perceptions of converts and their close acquaintances. *Mental Health, Religion & Culture*, 14(8), 757–768. <https://doi.org/10.1080/13674676.2010.522564>

- Heaven, P. C. L., & Ciarrochi, J. (2007). Personality and religious values among adolescents: A three-wave longitudinal analysis. *British Journal of Psychology*, *98*(4), 681–694.
<https://doi.org/10.1348/000712607X187777>
- Hui, C. H., Cheung, S.-H., Lam, J., Lau, E. Y. Y., Cheung, S.-F., & Yuliawati, L. (2018). Psychological changes during faith exit: A three-year prospective study. *Psychology of Religion and Spirituality*, *10*(2), 103–118. <https://doi.org/10.1037/rel0000157>
- Hui, C. H., Cheung, S.-H., Lam, J., Lau, E. Y. Y., Yuliawati, L., & Cheung, S. F. (2017). In search of the psychological antecedents and consequences of Christian conversion: A three-year prospective study. *Psychology of Religion and Spirituality*, *9*(2), 220–230.
<https://doi.org/10.1037/rel0000082>
- Huuskes, L., Ciarrochi, J., & Heaven, P. C. L. (2013). The longitudinal relationships between adolescent religious values and personality. *Journal of Research in Personality*, *47*(5), 483–487. <https://doi.org/10.1016/j.jrp.2013.04.010>
- Lee, K., Ogunfowora, B., & Ashton, M. C. (2005). Personality Traits Beyond the Big Five: Are They Within the HEXACO Space? *Journal of Personality*, *73*(5), 1437–1463.
<https://doi.org/10.1111/j.1467-6494.2005.00354.x>
- McCrae, R. R., & Costa, P. T. (1997). Personality Trait Structure as a Human Universal. *American Psychologist*, *52*(5), 509–516. <https://doi.org/10.1037/0003-066X.52.5.509>
- McCullough, M. E., Enders, C. K., Brion, S. L., & Jain, A. R. (2005). The Varieties of Religious Development in Adulthood: A Longitudinal Investigation of Religion and Rational Choice. *Journal of Personality and Social Psychology*, *89*(1), 78–89.
<https://doi.org/10.1037/0022-3514.89.1.78>
- McCullough, M. E., Tsang, J.-A., & Brion, S. (2003). Personality Traits in Adolescence as Predictors of Religiousness in Early Adulthood: Findings from the Terman

- Longitudinal Study. *Personality and Social Psychology Bulletin*, 29(8), 980–991.
<https://doi.org/10.1177/0146167203253210>
- McCullough, M. E., & Willoughby, B. L. B. (2009). Religion, self-regulation, and self-control: Associations, explanations, and implications. *Psychological Bulletin*, 135(1), 69–93. <https://doi.org/10.1037/a0014213>
- Milojev, P., Osborne, D., Greaves, L. M., Barlow, F. K., & Sibley, C. G. (2013). The Mini-IPIP6: Tiny yet highly stable markers of Big Six personality. *Journal of Research in Personality*, 47(6), 936–944. <https://doi.org/10.1016/j.jrp.2013.09.004>
- Milojev, P., & Sibley, C. G. (2017). Normative personality trait development in adulthood: A 6-year cohort-sequential growth model. *Journal of Personality and Social Psychology*, 112(3), 510–526. <https://doi.org/10.1037/pspp0000121>
- Muthén, B., & Asparouhov, T. (2012). Bayesian SEM: A more flexible representation of substantive theory. *Psychological Methods*, 17(3), 313.
- Muthén, L. K., & Muthén, B. O. (1998). *Mplus User's Guide* (Eighth Edition). Muthén & Muthén.
- Paloutzian, R. F., Murken, S., Streib, H., & Rößler-Namini, S. (2013). Conversion, Deconversion, and Spiritual Transformation: A Multi-level Interdisciplinary View. In R. F. Paloutzian & C. L. Park (Hrsg.), *Handbook of the psychology of religion and spirituality* (pp. 399–421). The Guilford Press.
- Paloutzian, R. F., Richardson, J. T., & Rambo, L. R. (1999). Religious Conversion and Personality Change. *Journal of Personality*, 67(6), 1047–1079.
<https://doi.org/10.1111/1467-6494.00082>
- Roberts, B. W., & Robins, R. W. (2000). Broad Dispositions, Broad Aspirations: The Intersection of Personality Traits and Major Life Goals. *Personality and Social Psychology Bulletin*, 26(10), 1284–1296. <https://doi.org/10.1177/0146167200262009>

- Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, *132*(1), 1–25. <https://doi.org/10.1037/0033-2909.132.1.1>
- Roberts, B. W., & Wood, D. (2006). Personality Development in the Context of the Neo-Socioanalytic Model of Personality. In *Handbook of Personality Development*. Routledge. <https://doi.org/10.4324/9781315805610.ch2>
- Saroglou, V. (2010). Religiousness as a Cultural Adaptation of Basic Traits: A Five-Factor Model Perspective. *Personality and Social Psychology Review*, *14*(1), 108–125. <https://doi.org/10.1177/1088868309352322>
- Saroglou, V. (2017). Culture, Personality, and Religiosity. In n A. T. Church (Ed.), *The Praeger handbook of personality across cultures: Culture and characteristic adaptations* (pp. 153–184). Praeger/ABC-CLIO.
- Sherkat, D. (2003). Religious Socialization: Sources of Influence and Influences of Agency. In M. Dillon (Ed.) *Handbook of the Sociology of Religion* (pp. 151–163). Cambridge University Press.
- Sibley, C. G. (2012). The Mini-IPIP6: Item Response Theory analysis of short measure of the big-six factors of personality in New Zealand. *New Zealand Journal of Psychology*, *41*(3), 35.
- Sibley, C. G. (2019). Sampling procedure and sample details for the New Zealand Attitudes and Values Study. *NZAVS Technical Documents*, e01. <http://www.psych.auckland.ac.nz/uoa/NZAVS>
- Sibley, C. G., Luyten, N., Purnomo, M., Mobberley, A., Wootton, L. W., Hammond, M. D., Sengupta, N., Perry, R., & West-Newman, T. (2011). *The Mini-IPIP6: Validation and extension of a short measure of the Big-Six factors of personality in New Zealand*. *40*(3), 142–159.

- Specht, J., Egloff, B., & Schmukle, S. C. (2011). Stability and change of personality across the life course: The impact of age and major life events on mean-level and rank-order stability of the Big Five. *Journal of Personality and Social Psychology, 101*(4), 862–882.
- Spilka, B., Hood, R. W., Hunsberger, B., & Gorsuch, R. (2003). *The psychology of religion: An empirical approach (3rd ed.)*. Guilford Press.
- Thiessen, J., & Wilkins-Laflamme, S. (2017). Becoming a Religious None: Irreligious Socialization and Disaffiliation: BECOMING A RELIGIOUS NONE. *Journal for the Scientific Study of Religion, 56*(1), 64–82. <https://doi.org/10.1111/jssr.12319>
- van Scheppingen, M. A., & Leopold, T. (2019). Trajectories of life satisfaction before, upon, and after divorce: Evidence from a new matching approach. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/pspp0000270>
- Wink, P., Ciciolla, L., Dillon, M., & Tracy, A. (2007). Religiousness, Spiritual Seeking, and Personality: Findings from a Longitudinal Study. *Journal of Personality, 75*(5), 1051–1070. <https://doi.org/10.1111/j.1467-6494.2007.00466.x>