



## Short Communication

## Associations between education, gender, social class personality traits, and religious faith and service attendance in a British cohort

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## ABSTRACT

This study explored the associations between social and psychological factors and religious background and service attendance in a large ( $N = 5955$ ), nationally representative sample followed over 50 years in the UK. Results from regression analysis showed that sex and the Big-Five personality traits were all significantly and independently associated with religious background in adulthood. Traits Agreeableness, Extraversion, and Conscientiousness were significantly and positively associated with religious background and service attendance, whereas education and occupation, and traits Emotional Stability and Openness were negatively associated with the outcome variables. Personality was a stronger predictor of background than event attendance. Limitations of the study are acknowledged.

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## 1. Introduction

This study looks at individual correlates of religious background and attendance at religious services. It examines gender, parental social class, educational, occupational level and personality correlates of background and behaviours. Various polls and the regular census suggests three things: religious beliefs and practices are in decline; whereas around half the population say they are not religious (but have a specific denominational background), only around a third of those that do, say they believe in an existent deity; and that a minority of people (around 10%) are regular attenders at religious services. Our question is: what are currently the major individual difference correlates of religious background and behaviour?

There is a vast psychological and sociological literature on individual differences and group correlates of religious beliefs and behaviour (Clarke, 2009; Saroglou, 2014). Early studies suggested that religious believers were pessimistic, rigid, suspicious and of low intelligence (Martin & Nichols, 1962). Many have suggested that women are more religious than men, though this may be culture specific (Lowenthal, MacLeod, & Cinnirella, 2002). Various studies examining the three Eysenckian factors have shown Psychoticism negatively correlated with various measures of beliefs and behaviours, but that the other two factors (Extraversion and Neuroticism) are related to very specific measures of religious belief, behaviour and orientation (Francis, 2010;

Hills, Francis, Argyle, & Jackson, 2004). More recent studies using the Five Factor Model (Taylor & MacDonald, 1999) and the six factor HEXACO model (Silvia, Nusbaum, & Beaty, 2014) appear to indicate that Agreeableness and Conscientiousness are consistently related to various measures of religious orientation. Others have been eager to relate personality traits and disorders to dimensions of religious and spiritual well-being (Unterrainer, Huber, Sorgo, Collicutt, & Fink, 2011; Unterrainer, Ladenhauf, Moazedi, Wallner-Liebmann, & Fink, 2010).

There have been so many studies on the relationship between personality traits (measured by many different instruments) and religious beliefs (measured by different questions and criteria) that various meta-analyses exist. Thus, Saroglou (2002) showed extrinsic religiosity was related to Neuroticism and religious fundamentalism to low Openness. Overall religiosity was related to being high on Extraversion, Agreeableness and Conscientiousness.

In another meta-analysis, Lodi-Smith and Roberts (2007) reviewed 38 studies on personality and various attitudes towards religion including prayer behaviour, church attendance and intrinsic and extrinsic religiousness. Nearly all the studies indicated that Agreeableness and Conscientiousness (low Psychoticism) were related to religious attitudes and behaviour but that Neuroticism was related to extrinsic religious practices. Again, while many correlations were significant they were low and effect sizes were small indicating the importance of other issues.

One task confronting the researcher is which particular type of measure to employ as a measure of religion adherence, background, orientation and practice. There are many distinctions that can be made including beliefs vs practices and intrinsic (belief itself) and

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extrinsic (attendance) beliefs. Nearly all the studies in this area show that individual correlates are very different depending on the religious beliefs and practices that are measured.

The current study uses a large longitudinal sample to examine religious background and behaviours at age 50 years. It focuses particularly on personality traits. However, it also considers sex, social class and educational factors. The current study allowed us to investigate our hypotheses with particular advantages. First, we had a large nationally representative sample of nearly 6000 people. Many previous studies are based on student populations which are recognised to be unrepresentative of the population with specific reference to religious beliefs and practices (Francis, 2010; Hills et al., 2004; Taylor & MacDonald, 1999). Further, it is important to note that in the Lodi-Smith and Roberts (2007) paper most of the 38 studies reviewed had N below 500 and the biggest 3228. Second because we have demographic (sex), sociological (social class and education) as well as psychological variables (personality traits) we were able to examine their relative power using ordinal and logistic regressions. However third, and more importantly we had two measures of religion: background and behaviour, as the two appear to have different correlates. Participants were asked “which religion do you belong to” and “how frequently do you attend religious services” Thus we could examine the individual difference correlates of two quite different religious variables in a large, representative, adult population.

## 2. Method

### 2.1. Participants

The National Child Development Study 1958 is a large-scale longitudinal study of the 17,415 individuals who were born in Great Britain in a week in March 1958 (Ferri, Bynner, & Wadsworth, 2003). At age 42 11,388 participants provided information on their religious faith (response = 74%). At age 50 years, 8532 participants completed a questionnaire on personality traits (response = 69%). The analytic sample comprises of 5955 cohort members (50% females) for whom complete data were collected at birth, at 33, 42, and 50 years. Bias due to attrition of the sample during childhood has been shown to be minimal (Davie, Butler, & Goldstein, 1972; Fogelman, 1976).

### 2.2. Measures

Parental social class at birth was measured by the Registrar General's measure of social class (RGSC). RGSC is defined according to occupational status (Marsh, 1986). Where the father was absent, the social class (RGSC) of the mother's father was used. RGSC was coded on a 6-point scale: I professional; II managerial/technical; III skilled non-manual; IV skilled manual; V semi-skilled; and VI unskilled occupations (Leete & Fox, 1977). At 33 years, participants were asked about their highest academic or vocational qualifications. Responses are coded to the 6-point scale of National Vocational Qualifications levels (NVQ) ranging from ‘none’ to ‘university degree or equivalent’. At 42 and 50 years participants provided information on their occupational levels which are coded according to the RGSC described above, using a 6-point classification. Information on religious service attendance were provided at age 42 and 50 years. The frequency of religious service attendance (0 = No attendance; 1 = Very rarely; 2 = Once a month or less; 3 = Two to three times a month or more; 4 = Once a week or more). At age 42, participant also provided information on whether they had religious faith by answering the question “What is your religion, if any?” with response of Yes (specified various religions such as Christian, Roman Catholic, Hindu, Muslim, Buddhist)/No religion. Personality traits were assessed by the 50 questions from the International Personality Item Pool (IPIP) (Goldberg, 1999). Responses (5-point, from “Strongly Agree” to “Strongly Disagree”) are summed to provide scores on the ‘Big-Five’ personality traits: Extraversion,

Emotionality/Neuroticism, Conscientiousness, Agreeableness, and Intellect/Openness.

### 2.3. Statistical analyses

To examine the associations between social and psychological factors in childhood and adulthood and adult religious activities we conducted correlational analysis on the measures used in the study. Following this we conducted ordinal and logistic regression analyses using IBM SPSS Statistics 22 and STATA version 13 with religious service attendance and religious background as dependent variables.

## 3. Results

### 3.1. Descriptive analysis

In all 17.1% said they came from a non-religious background, with around 50% saying they came from a Christian background (mainly Church of England or Roman Catholic) and the remainder from other faiths (Buddhist, Hindu, Jewish, Muslim, Sikh). At age 42 years of those who had a religious background 83% cohort members and at age 50 years 82.1% cohort members reported that they were religious services attendees, even if very rarely. Of those that had a faith background 65% said they attended never or very rarely, 18% sometimes but less than once a month and the remainder once a month or more.

There were sex differences on the percentage of religious service attendance and religious background. Women scored significantly higher on both religious service attendance and religious background. The means for religious service attendance at age 50 were .38 ( $SD = 1.05$ ) for men and .60 ( $SD = 1.27$ ) for women ( $t(df = 5953) = 7.26, p < .001$ ); and the means for religious service attendance at age 42 were 1.20 ( $SD = 1.02$ ) for men and 1.50 ( $SD = 1.14$ ) for women ( $t(df = 5953) = 10.55, p < .001$ ). This was a skewed distribution and not atypical according to current census figures of religious practice in the United Kingdom. The means for religious background at age 42 were .79 ( $SD = .41$ ) for men and .87 ( $SD = .34$ ) for women ( $t(df = 5953) = 7.57, p < .001$ ).

In terms of religious service attendance, among the cohort members there appeared to be a decrease over eight year from age 42 years to age 50 years (Mean = 1.35,  $SD = 1.10$  at age 42 and Mean = .49,  $SD = 1.17$  at age 50) ( $t(df = 5954) = 71.14, p < .001$ ). The correlation of religious service attendance over eight years from age 42 to age 50 was  $r = .67 (p < .001)$ . The correlation matrix of the variables used in the current study is shown in Table 1.

### 3.2. Regression analysis

Table 2 shows that using religious services attendance at age 50 years as the dependent variable, sex, parental social class, education and occupation, and personality traits were all significantly associated with the outcome variable. Women were more likely to attend religious service than men, and cohorts who had more education and in higher levels of occupation were more likely to participate in religious activities. More Agreeable individuals tended to attend religious services more frequently and individuals with higher scores on Openness were less likely to attend such services.

Table 3 shows that using religious background as dependent variable and after taking into account all of the variables in childhood and adulthood examined in the study, all five personality traits were significantly and independently associated with the outcome variable.

Religious background was significantly associated with sex and the Big-5 personality traits. Men with higher educational qualifications and occupational levels were *less likely* to have religious background. Cohort members who had higher scores on traits Agreeableness, Extraversion, and Conscientiousness were more likely to have a religious background whereas cohort members who had higher scores

**Table 1**  
Descriptive statistics.

Measures	Mean (SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. Religious service attendance at age 50	.49 (1.17)	–											
2. Religious service attendance at age 42	1.35 (1.10)	<b>.664</b>	–										
3. Religious faith at age 42	.83 (.38)	<b>.169</b>	<b>.557</b>	–									
4. Sex	.50 (.50)	<b>.088</b>	<b>.135</b>	<b>.098</b>	–								
5. Parental social class at birth	3.30 (1.22)	<b>.072</b>	<b>.061</b>	<b>–.033</b>	<b>–.008</b>	–							
6. Educational qualifications	2.70 (1.45)	<b>.158</b>	<b>.114</b>	<b>–.118</b>	<b>–.084</b>	.318	–						
7. Occupational levels	4.04 (1.21)	<b>.108</b>	<b>.070</b>	<b>–.066</b>	<b>–.047</b>	.229	.495	–					
8. Extraversion $\alpha = .73$	29.48 (6.60)	<b>.039</b>	<b>.049</b>	<b>.014</b>	.076	.027	.063	.108	–				
9. Emotional Stability $\alpha = .87$	28.85 (7.02)	<b>.018</b>	<b>.003</b>	<b>–.044</b>	<b>–.126</b>	.024	.087	.088	.209	–			
10. Agreeableness $\alpha = .81$	36.81 (5.28)	<b>.159</b>	<b>.161</b>	<b>.079</b>	.402	.048	.083	.093	.364	.062	–		
11. Conscientiousness $\alpha = .76$	33.93 (5.29)	<b>.027</b>	<b>.042</b>	<b>.029</b>	.103	.034	.062	.109	.144	.200	.276	–	
12. Openness $\alpha = .79$	32.57 (5.16)	<b>.045</b>	<b>–.021</b>	<b>–.147</b>	<b>–.020</b>	.139	.314	.258	.395	.092	.335	.221	–

Note: standard deviations (SD) are given in parentheses. Variables were scored such that a higher score indicated having religious faith, a higher frequency of attending religious service, being female, higher scores on educational qualifications, a more professional occupation for the parents and cohort members, higher scores on Extraversion, Emotional Stability, Agreeableness, Conscientiousness, and Openness. Numbers in Bold indicate all correlations with the two dependent, religious variables.

on Emotional Stability and Openness were less likely have religious background.

For religious background at age 42 R squared value = 0.063; for religious service attendance at age 50 R squared value = 0.042. Therefore the effect size was relatively small for both religious faith and religious service attendance.

**4. Discussion**

This study is among the first that examined social and personality factors associated with adult religious activities in a large, nationally representative sample. The regression analysis showed believers tended to be less Open, educated, Agreeable, females. The highest two correlations were for Openness and education indicating, as has been found in many other studies, that closed-minded and less educated people tended to be from a religious background. Effect sizes were however rather small.

**Table 2**  
Ordinal regression: odds ratios (95% CI) for the frequency of religious service attendance at age 50, according to parental social class, sex, educational qualifications, occupational levels, and personality traits.

	Estimate	Std. Err.	Wald	p-Value
Sex	.34	.09	13.52***	0.000
Parental social class at birth ( <i>unskilled as reference group</i> )				
Partly skilled	.16	.20	.70	0.404
Skilled manual	–.06	.17	.13	0.719
Skilled non-manual	–.39	.21	3.60	0.058
Managerial/tech	.23	.19	1.60	0.206
Professional	.25	.22	1.25	0.263
Educational qualifications ( <i>no qualification as reference group</i> )				
CSE 2–5/equivalent NVQ1	.12	.26	.22	0.642
O level/equivalent NVQ2	.50	.23	4.82*	0.028
A level/equivalent NVQ 3	.71	.24	8.58**	0.003
Higher qualification/equivalent NVQ 4	.84	.24	12.33***	0.000
University degree/equivalent NVQ 5, 6	1.29	.25	27.69***	0.000
Own social class ( <i>unskilled as reference group</i> )				
Partly skilled	.34	.40	.70	0.405
Skilled manual	.04	.40	.01	0.925
Skilled non-manual	.28	.39	.53	0.468
Managerial/tech	.50	.39	1.67	0.197
Professional	.31	.42	.54	0.464
Extraversion	.01	.01	.14	0.708
Emotional Stability/Neuroticism	.01	.01	.37	0.544
Agreeableness	.08	.01	61.90***	0.000
Conscientiousness	–.01	.01	.59	0.443
Intellect/Openness	–.03	.01	7.57***	0.006

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

There is however an interesting issue shown in Tables 2 and 3. The size and direction of the associations between having a religious background and attending a religious service tended to be similar (i.e., Extraversion) though there were some notable exceptions. Thus education was negatively related to background but positively related to attendance. The same pattern was manifested for occupational status. Thus we have the pattern of a particular group of typical extrinsically religious people. People with an Extrinsic Religious Orientation use religion to achieve non-religious goals, viewing religion as one way to achieve certain social goals. People may go to religious gatherings and even profess particular ideologies to establish or maintain social networks while remaining non-believers. Allport stated that people high in external religious orientation use religion, “to provide security and solace, sociability and distraction, status and self-justification” (Allport & Ross, 1967, p. 434). Thus an enthusiastic atheistic musician may attend a place of worship several times a week to rehearse with a choir or orchestra, while having few religious beliefs or practices.

The data suggest that educated and high social class people at religious services are most likely to be there for extrinsic reasons.

**Table 3**  
Logistic regression: odds ratios (95% CI) for religious background at age 42, according to parental social class, sex, educational qualifications, occupational levels, and personality traits.

	Odds ratio (95% CI)	p-Value
Sex	1.12 (0.92, 1.36)	0.252
Parental social class at birth ( <i>unskilled as reference group</i> )		
Partly skilled	1.45 (0.99, 2.12)	0.056
Skilled manual	1.43 (1.10, 2.07)	0.082
Skilled non-manual	1.45 (1.00, 2.11)	0.050
Managerial/tech	1.42 (0.99, 2.03)	0.055
Professional	1.35 (0.87, 2.10)	0.187
Educational qualifications ( <i>no qualification as reference group</i> )		
CSE 2–5/equivalent NVQ1	1.10 (0.70, 1.71)	0.696
O level/equivalent NVQ2	1.22 (0.82, 1.80)	0.326
A level/equivalent NVQ 3	0.90 (0.60, 1.36)	0.628
Higher qualification/equivalent NVQ 4	1.07 (0.70, 1.63)	0.766
University degree/equivalent NVQ 5, 6	0.65 (0.42, 1.01)	0.054
Own social class ( <i>unskilled as reference group</i> )		
Partly skilled	1.22 (0.62, 2.42)	0.565
Skilled manual	1.00 (0.52, 1.93)	0.999
Skilled non-manual	1.12 (0.58, 2.16)	0.743
Managerial/tech	0.91 (0.48, 1.75)	0.786
Professional	1.14 (0.56, 2.35)	0.715
Extraversion	1.02 (1.01, 1.04)**	0.005
Emotional Stability/Neuroticism	0.98 (0.97, 0.99)***	0.001
Agreeableness	1.06 (1.04, 1.08)***	0.000
Conscientiousness	1.02 (1.01, 1.04)**	0.005
Intellect/Openness	0.91 (0.57, 0.69)**	0.003

Note:  
\*\*  $p < .01$ .  
\*\*\*  $p < .001$ .

Further this result might explain why different individual factors correlate with different measures of religion depending on whether they are primarily tapping into intrinsic or extrinsic religious factors.

In the logistic regressions (see Table 2) which used religious background as the dichotomous variable, interestingly all five personality traits were significantly related to background: it indicated that those who acknowledged a background, tended to be Agreeable, Conscientious, Neurotic, Extraverts who were low on Openness. This partly confirmed previous studies but differed from many in that Openness tended to be the strongest personality predictor of (dis)belief.

Open individuals are described as having a preference for variety, having intellectual curiosity and independence of judgement. They are willing to entertain novel ideas and unconventional values. Most studies, as this, show a modest but significant positive correlation with intelligence. It is probable that Open people tend more likely to be agnostic (and atheist) as a function of their questioning of tenets of a religion.

Like all cohort data, variables examined were restricted by the availability rather than by the study's design. For example, personality traits were measured only once in the 50 years follow up which made the explanation of the findings tentative rather than conclusive which needs to be confirmed in future studies. It would have been desirable to have more data on both intrinsic and extrinsic religious belief and behaviours. It would also have been desirable to have greater details on the precise nature of their religious background which probably meant instruction by the family and at school as well a service attendance. It seems the case that agnostic/atheistic parents beget doubting children, and that believers encourage those (very specific) religious beliefs in their children.

Based on theories in the area, that personality predicts religious activity, not the other way round, we used religious faith as the dependent variable and personality traits as the independent variable in a regression model even though personality was measured after religious faith (Bell, 2002). There is considerable evidence of the stability of personality over time (Costa & McCrae, 1994), though changes were found in older ages especially over 60 years (Helson, Jones, & Kwan, 2002). Nevertheless it would always be advisable to measure both religious beliefs and behaviours as well as personality over time.

## References

- Allport, G. W., & Ross, J. M. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology*, 5, 432–443.
- Bell, P. (2002). Would you believe it? *Mensa*, 2, 12–13.
- Clarke, P. (Ed.). (2009). *The Oxford Handbook of the Sociology of Religion*. Oxford/New York: Oxford University Press.
- Costa, P. T., Jr., & McCrae, R. R. (1994). The stability of personality: Observations and evaluations. *Current Directions in Psychological Science*, 3, 173–175.
- Davie, R., Butler, N., & Goldstein, H. (1972). *From Birth to Seven*. London: Longman.
- Ferri, E., Bynner, J., & Wadsworth, M. (2003). *Changing Britain, Changing Lives: Three Generations at the Turn of the Century*. London: Institute of Education.
- Fogelman, K. (1976). *Britain's 16-Year-Olds*. London: National Children's Bureau.
- Francis, L. (2010). Personality and religious orientation. *Mental Health, Religion and Culture*, 13, 793–803.
- Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe*, Vol. 7. (pp. 7–28). Tilburg, The Netherlands: Tilburg University Press.
- Helson, R., Jones, & Kwan, V. (2002). Personality change over 40 years of adulthood. *Journal of Personality and Social Psychology*, 83, 752–766.
- Hills, P., Francis, L., Argyle, M., & Jackson, C. (2004). Primary personality trait correlates of religious practice and orientation. *Personality and Individual Differences*, 36, 61–73.
- Leete, R., & Fox, J. (1977). 'Registrar General's social classes: Origins and users. *Population Trends*, 8, 1–7.
- Lodi-Smith, J., & Roberts, B. (2007). Social investment and personality. *Personality and Social Psychology Bulletin*, 11, 68–86.
- Lowenthal, K., MacLeod, A., & Cinnirella, M. (2002). Are women more religious than men? *Personality and Individual Differences*, 32, 133–139.
- Marsh, C. (1986). Social class and occupation. In R. Burgess (Ed.), *Key Variables in Social Investigation*. London: Routledge.
- Martin, C., & Nichols, R. (1962). Personality and religious belief. *Journal of Social Psychology*, 56, 3–8.
- Saroglou, V. (2002). Religion and the five factors of personality. *Personality and Individual Differences*, 32, 15–25.
- Saroglou, V. (2014). *Religion, Personality, and Social Behavior*. New York: Psychology Press.
- Silvia, P., Nusbaum, E., & Beaty, R. (2014). Blessed are the meek? *Personality and Individual Differences*, 68, 19–23.
- Taylor, A., & MacDonald, D. (1999). Religion and the five factor model of personality. *Personality and Individual Differences*, 27, 1243–1259.
- Unterrainer, H., Huber, H., Sorgo, I., Collicutt, J., & Fink, A. (2011). Dimensions of religious/spiritual well-being and schizotypal personality. *Personality and Individual Differences*, 51, 360–364.
- Unterrainer, H., Ladenhauf, H., Moazed, M., Wallner-Liebmann, S., & Fink, A. (2010). Dimensions of religious/spiritual well-being and their relation to personality and psychological well-being. *Personality and Individual Differences*, 49, 192–197.