



Personality and change in the frequency of religious observance

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Summary—EPQ Psychoticism (P) is thought to be fundamental to religiosity (Francis, 1992a), while Neuroticism (N), Extraversion (E) and Lie dimensions (L) are not consistently found to be associated with religious beliefs and behaviours. Among 6463 Anglican, Other Protestant and Catholic Australian twins (aged 17–88 yr), we found that men and women who attended church regularly had low P and low N scores. Eight-year follow-up of 4993 people revealed that those who attended church frequently at time 1, but who had stopped going to church regularly by time 2, had higher N scores than people who maintained a stable pattern of frequent attendance. N may be more important than P for the long-term stability of frequent religious practice. © 1997 Elsevier Science Ltd

INTRODUCTION

Positive attitudes to religion are often found to be associated with low scores on the P scale of the Eysenck Personality Questionnaire (Francis, 1992a, 1993; Lewis & Maltby, 1995), while associations between religiosity and other EPQ dimensions are observed less consistently (Francis, 1992a, 1992b; Heaven, 1990; Robinson, 1990). This pattern has been used by Francis (1992a) to support a claim that 'tender-mindedness' (i.e. a low P score) is 'fundamental' to religiosity.

One test of the predictive validity of Francis's assertion would be to examine whether personality predicts the temporal stability of religious observance. If P is fundamental to religiosity, then it should be found that people who maintain a stable pattern of frequent church attendance throughout adulthood differ in tender-mindedness from those who do not. Although church attendance is only an indirect measure of religiosity, there is a significant positive association between frequency of attendance and religious attitudes, especially among adults (Francis *et al.*, 1995). Using data from a large, 8-year longitudinal mail survey of adult twins, we were able to assess change in the frequency of church attendance in relation to EPQ personality dimensions.

METHOD

Sample

During 1980–1981, 7616 twins aged between 17–88 yr completed a postal Health and Lifestyle Questionnaire (HLQ). All Ss were volunteers in the Australian Twin Registry. In 1988–1989, people in this twin cohort were asked to complete a further HLQ survey and 5854 (76.9%) returned a questionnaire and provided details of their religious affiliation and observance on both occasions.

Questionnaires

In the first phase, Ss completed the full Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975) and nominated their religious affiliation (options included 'No religion', 'Church of England', 'Other Protestant', 'Catholic', 'Jewish', 'Greek or Russian Orthodox' and 'Other'). Although the term 'Church of England' was in common use in the early 1980s in Australia, this group is now more usually known as 'Anglican'. Respondents also answered a single question about frequency of attendance at church or other observances. Response options were on an ordinal scale and included 'more than once a week', 'once a week', 'every month or so', 'once or twice a year' and 'rarely'. As part of a follow-up survey 8 years later, twins answered the same questions about religiosity. The HLQ surveys collected a wide range of information on social background, health problems, health-related behaviours, personality and social attitudes (Martin & Jardine, 1986). Earlier papers have reported biometrical genetic analyses of these data in relation to religious observance (Eaves, Martin & Heath, 1990) and personality (Heath *et al.*, 1989).

Statistical analyses

Data analyses were conducted in SAS v6.09. Analysis of variance models included EPQ personality measures as dependent variables and frequency of church attendance as the primary independent variable. Twins were treated as individuals and therefore the data were non-independent. Although this should not influence means, variance estimates would be artificially

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Table 1. Frequency of church attendance in relation to sex, age, and type of religion (Anglican/Other Protestant/Catholic)

	N	Frequency of church attendance				χ^2	d.f.	P
		Daily to weekly	Once a month or so	Once or twice a year	Rarely			
N		1772	696	1191	2804			
Sex								
Males	2205	24.4	10.3	18.3	47.0	21.6	3	0.000
Females	4258	29.0	11.0	18.5	41.5			
Age (yr)								
Less than 30	2912	23.0	9.9	21.0	46.2	26.5	9	0.002
30-39	1525	27.3	11.0	18.8	42.9			
40-49	814	32.1	13.0	14.7	40.2			
50 or more	1212	35.0	11.2	14.4	39.4			
Religion								
Anglican ^a	2413	10.8	10.7	22.2	56.3	737.6	6	0.000
Other Protestant	2419	30.2	11.2	16.1	42.5			
Catholic	1631	47.8	10.2	16.4	25.6			

Note: ^aAnglican participants were originally classified as 'Church of England' in 1980-1981.

Table 2. EPQ Personality dimensions and frequency of church attendance

		Frequency of church attendance				F ^a	P
		Daily to weekly	Once a month or so	Once or twice a year	Rarely		
Females							
P ^b	M	1.82	1.86	1.86	1.90	5.13	0.0015
	SE	0.01	0.02	0.02	0.01		
N	M	10.46	11.52	11.25	12.21	25.26	0.0001
	SE	0.15	0.24	0.18	0.13		
E	M	12.37	12.74	12.99	12.12	6.15	0.0004
	SE	0.14	0.23	0.18	0.13		
L	M	10.15	10.29	10.14	10.36	0.82	0.4818
	SE	0.12	0.19	0.15	0.11		
Males							
P ^b	M	2.08	2.17	2.16	2.21	5.50	0.0014
	SE	0.03	0.04	0.03	0.02		
N	M	8.51	9.14	9.28	9.73	6.31	0.0003
	SE	0.22	0.33	0.25	0.16		
E	M	12.75	12.79	13.29	13.02	1.02	0.3828
	SE	0.21	0.32	0.24	0.16		
L	M	8.98	8.88	8.80	8.95	0.18	0.9077
	SE	0.18	0.27	0.20	0.13		

Notes: ^aStatistical tests included adjustment for non-independence of twin data (i.e. adjusted SE = $\sqrt{1.5}$ SE).

^bPsychoticism data were square-root transformed to reduce skew.

low. One way to minimise this problem is to apply a statistical adjustment to variance estimates (Slutske *et al.*, 1995). All statistics were recalculated with the number of independent observations being set as the original sample size divided by 1.5.

RESULTS

Of the 7616 respondents who were surveyed in 1980-1981 (Time 1), 6463 (female=4258; male=2205) stated that they were affiliated to mainstream Christian religions, including Church of England (i.e. Anglican, $N=2413$), other Protestant religions ($N=2419$) or the Catholic church ($N=1631$), while smaller numbers indicated that they had no religion ($N=814$), were Jewish ($N=65$), Greek or Russian Orthodox ($N=45$) or another religion ($N=148$), and 77 gave no answer. Analyses of religious observance excluded people who had no religion, those who were not in the three mainstream Christian groups and four people who did not answer the question about church attendance.

It is clear from data in Table 1 that frequent church attendance was least common among Anglicans and most common among Catholics. It was also strongly associated with age and sex, with older females being most likely to attend church regularly. The statistical analyses that follow include age, sex and type of religion (Anglican, Other Protestant, Catholic) as covariates.

Personality and frequency of religious observance

Relationships between EPQ personality factors and church attendance are shown in Table 2, separately for males and females. Of the four EPQ dimensions, only the P data were significantly skewed, and this was subsequently minimised by using square-root transformations. Analysis of covariance revealed that both P and N scores were significantly lower among people who attended church frequently. These effect sizes were modest, especially for P scores. Two other findings were notable. First, women who attended church occasionally were more extraverted than other women, while those who rarely or never attended church were most introverted. Second, there were no significant interactions between age and church

Table 3. Eight-year consistency of church attendance in relation to personality

3a: Frequent (at least monthly) attenders in 1980-1981						
	Maintained frequent (at least monthly) church attendance in 1988-1989 (<i>N</i> = 1536)		Decreased attendance to once or twice a year or less often in 1988-1989 (<i>N</i> = 449)		<i>F</i> ^a	<i>P</i>
P ^b	1.94	(0.02)	1.99	(0.03)	1.98	0.1592
N	9.16	(0.18)	10.64	(0.30)	16.47	0.0004
E	12.34	(0.17)	12.54	(0.29)	0.32	0.5705
L	9.79	(0.15)	9.64	(0.25)	0.25	0.6180
3b: Attended church only yearly or less often in 1980-1981						
	Maintained yearly or less often attendance in 1988-1989 (<i>N</i> = 2688)		Increased to at least monthly in 1988-1989 (<i>N</i> = 320)		<i>F</i> ^a	<i>P</i>
P ^b	2.04	(0.01)	2.00	(0.04)	0.86	0.3533
N	10.66	(0.14)	10.16	(0.35)	1.46	0.2267
E	12.77	(0.13)	12.89	(0.34)	0.09	0.7602
L	9.34	(0.11)	9.68	(0.28)	1.05	0.3051

Notes: ^aStatistical tests included adjustment for non-independence of twin data (i.e. adjusted SE = $\sqrt{1.5}$ SE). All EPQ personality data were derived from the 1980-1981 survey.

^bPsychoticism data were square root transformed to reduce skew. The group differences for *P* were also non-significant before data transformation.

attendance for either P or N, which suggests that the strength of association between personality and religious practice is equivalent across difference phases of the adult life span. Social conformity (i.e. Lie scale) was not significantly associated with church attendance.

Personality and change in church attendance 8 years later

A large number of participants in the three mainstream Christian faiths (*N* = 4993) had completed the religiosity questions in the HLQ on both survey occasions. We first looked at 1985 people who were regular (at least weekly or monthly) church attenders in 1980-1981. By the follow-up survey in 1988-1989 (Time 2), a minority (*N* = 449, 22.6%) indicated that they attended church only rarely (i.e. once or twice a year or less often), while the remainder (*N* = 1536, 77.4%) had continued to attend church at least monthly. The 'lapse' rate was equivalent for males (22.9%) and females (22.5%). Anglicans (31.6%) were more likely to decrease church attendance than were Catholics (22.8%) or Other Protestants (18.0%). Further, there was a very strong negative association with age ($\chi^2 = 100.0$; d.f. = 3; $P < 0.0001$), which is illustrated by a 'lapse' rate of 33.1% (257/776) of those aged less than 30 between 1980-1981, while only 8.6% (35/406) of those aged over 50 years between 1980-1981 had ceased to go to church regularly.

Results of analyses of covariance in personality and change in church attendance are shown in Table 3. These included type of religion, age and sex as covariates. People who had initially attended church at least monthly, but who decreased the frequency of attendance at follow-up, had significantly higher N scores at time 1 than those who maintained frequent church attendance. There was no evidence that P, E and L dimensions are related to decrease in church attendance.

Finally, increase in church attendance was examined. Of 3008 people who attended church services only once or twice a year or less often between 1980-1981, 320 (10.6%) increased attendance to once a month or more by 1989. Females (11.4%) were slightly more likely than males (9.1%) to increase church attendance ($\chi^2 = 3.82$; $P = 0.05$) and Catholics (15.7%) appeared to be more likely than Other Protestants (10.9%) and Anglicans (8.7%) to increase church attendance. Age was not significantly associated with an increase in church attendance over the 8-year period ($P = 0.09$); for example, 10.5% of people under the age of 30 (157/1500) and 11.9% of those aged 50 or over (47/396) increased their church attendance. None of the personality scales were significantly associated with an increase over time in the frequency of church attendance (see Table 3).

DISCUSSION

In the cross-sectional analysis of Time 1 data, EPQ measures of P and N were associated with frequency of church attendance for both men and women. In addition, women who rarely or never attended church were more introverted than those who did so at least occasionally, although it is interesting that women who attended church very frequently also scored relatively low on the E scale. With this large and diverse adult sample, we were able to examine whether associations between personality and religious practice are equivalent across a wide age span. Given that there were no statistically significant interactions with age, we can conclude that the associations between personality and frequency of church attendance are similar in young and older adults.

The idea that tender-mindedness is fundamental to religiosity (Francis, 1992a) might not have predictive validity, at least as far as change in church attendance is concerned. The longitudinal analysis showed that church-goers who maintained a stable pattern of frequent attendance over an 8-year period had lower N, and not lower P, scores at baseline in comparison with frequent attenders who subsequently decreased their religious observance. These data are consistent with the view that high N people are more unstable emotionally and socially than low N individuals (Wilson, 1981), and hence are less likely to maintain stable long-term patterns in many behaviours, including frequent religious practice.

This study is limited because we did not have a quantitative measure of religious attitudes or values, such as the Francis scale (Francis *et al.*, 1995). Further research with longitudinal designs is necessary to establish the extent to which personality predicts long-term change in religiosity.

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