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Author(s): Leslie J. Francis

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Running head: personality and religious orientation

Personality and religious orientation:
shifting sands or firm foundations?

The Revd Canon Professor Leslie J Francis*

University of Warwick, UK

*author e-mail: l.j.francis@bangor.ac.uk

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Summary

Beit-Hallami and Argyle (1997) concluded that individual differences in religiosity are inversely related to psychoticism but independent of extraversion and neuroticism. The aim of the present study is to test the generalisability of that conclusion within the context of Eysenck's dimensional model of personality by distinguishing between different conceptualisations of religiosity and by distinguishing between different overall levels of religiosity in the sample. A total of 517 undergraduate students in Wales completed the short-form of the Revised Eysenck Personality Questionnaire together with the New Indices of Religious Orientation. The data demonstrated that in the sample as a whole intrinsic religious orientation was associated with low psychoticism scores, but independent of extraversion scores and neuroticism scores; that extrinsic religious orientation was associated with low psychoticism scores and high neuroticism scores, but independent of extraversion scores; and that quest religious orientation was associated with high neuroticism scores and low extraversion scores, but independent of psychoticism scores. The pattern of relationships changed, however, when separate analyses were conducted among weekly churchgoers and among individuals who never attended church. These data suggest that the pattern of relationship between personality and religion may vary both according to the form of religiosity assessed and according to the samples being studied. The conclusion is drawn that Beit-Hallami and Argyle's conclusion is misleading unless nuanced in terms of the aspects of religiosity and the populations to which it applies.

**Personality and religious orientation:
shifting sands or firm foundations?**

When Argyle and Beit-Hallahmi (1975) published their review of empirical findings in the psychology of religion, they concluded that at that time there was insufficient evidence to document a stable pattern of relationship between personality and religion. During the subsequent three decades a growing number of studies has begun to map correlations between a range of indicators of religiosity and a variety of models of personality, including the Freudian model as discussed by Lewis (1998, 2000a) three dimensional model proposed by Eysenck (Eysenck & Eysenck, 1991), the five factor model proposed by Costa and McCrae (Costa and McCrae, 1985), the sixteen factor model proposed by Cattell (Cattell, Eber, & Tatsuoka, 1970), and the model of psychological type proposed by Jung (1971) and operationalised by instruments like the Myers-Briggs Type Indicator (Myers & McCaulley, 1985) the Keirsey Temperament Sorter (Keirsey & Bates, 1978), and the Francis Psychological Type Scales (Francis, 2005).

Currently the largest number of studies concerned with the relationship between personality and religion has been conducted within Eysenck's framework of the three orthogonal dimensions of extraversion, neuroticism, and psychoticism. When Beit-Hallahmi and Argyle (1997) updated their earlier review of empirical findings in the psychology of religion, they revised their earlier conclusion. They maintained that at that time the empirical evidence supported the conclusion that scores recorded on indices of religiosity were inversely related to psychoticism scores, but independent of both extraversion scores and neuroticism scores.

Evidence for this conclusion can be drawn from two sets of studies. The first set of studies adopted church attendance as the indicator of religiosity. Included in this series were

studies conducted among 230 16- to 18-year-olds (Francis & Wilcox, 1994), 92 female university students (Maltby, 1995), 236 16- to 19-year-old females (Francis & Wilcox, 1996), 93 boys and 98 girls between the ages of 11 and 15 (Smith, 1996), 50 retired members of an ex-civil servants' association (Francis & Bolger, 1997), three samples of 378, 458 and 292 first year undergraduates (Francis, 1997), 133 female hockey players (Francis, Jones, & Kelly, 1999), 311 primary school teachers (Francis & Johnson, 1999), 157 adult artists (Fearn, Booker, & Francis, 2001), 1,033 adults in an Australian community survey (Kaldor, Francis, & Hughes, 2002), and 479 secondary school pupils between the ages of 11 and 18 in Norway (Lewis, Francis, & Enger, 2004).

The second set of studies adopted the Francis Scale of Attitude toward Christianity (Francis, Lewis, Philipchalk, Brown, & Lester, 1995) as the indicator of religiosity. Included in this series were studies among young people in the United Kingdom: 8- to 11-year-olds (Robbins, Francis, & Gibbs, 1995), 9- to 11-year-olds (Francis & Thomas, 2004), 11-year-olds (Francis, Lankshear, & Pearson, 1989), 12- to 16-year-olds (Francis & Montgomery, 1992), 15- to 16-year-olds (Francis & Pearson, 1988), and 16- to 18-year-olds (Francis & Fearn, 1999; Wilcox & Francis, 1997). Parallel studies have also been conducted among school pupils in Germany (Francis & Kwiran, 1999), South Africa (Francis & Kerr, 2003), Hong Kong (Francis, Lewis, & Ng, 2003), and Norway (Francis & Enger, 2005). Included in this series also were studies among students and adults in Australia and Canada (Francis, Lewis, Brown, Philipchalk, & Lester, 1995), France (Lewis & Francis, 2000), Germany (Francis, Ziebertz, & Lewis, 2003), Greece (Youtika, Joseph, & Diduca, 1999), Northern Ireland (Lewis, 1999, 2000b, 2001; Lewis & Joseph, 1994), Republic of Ireland (Maltby, 1997; Maltby & Lewis, 1997), United Kingdom (Bourke & Francis, 2000; Francis & Bennett, 1992; Shuter-Dyson, 2000; Bourke, Francis, & Robbins, 2005), and United States (Lewis & Maltby, 1995; Roman & Lester, 1999).

The consistent finding that religiosity is negatively related to Eysenck's personality dimension of psychoticism demands a theoretical explanation. One explanation is provided by Eysenck's own wider theory relating personality and social attitudes (Eysenck, 1961, 1975, 1976). According to this theory, religion belongs to the domain of tenderminded social attitudes. Tenderminded social attitudes are a function of conditioning. Individuals who score low on the psychoticism scale condition more readily (Francis, 1992). Moreover, it is the impulsivity component within psychoticism which is most clearly related to conditionability.

These two sets of studies based on church attendance and on attitude toward Christianity hold two criteria in common. Both sets have drawn mainly on samples which embrace widely different levels of religiosity. Both sets have focused on a tightly defined measure of religiosity. A wider review of the literature, however, produces a considerably less tidy and less coherent conclusion. Reviewing this wider literature Francis, Lewis, Philipchalk, Brown, and Lester (1995) suggested that the relationship between Eysenck's dimensional model of personality and religiosity may vary according to the measure of religiosity employed and according to the level of religious commitment in the sample studied. The aim of the present study is to test this theory by means of distinguishing between the three religious orientations characterised as intrinsic, extrinsic and quest, and by means of conducting separate analyses among churchgoers and among non-churchgoers.

The model of religious orientation employed has its origin in pioneering work conducted by Gordon Allport. According to Allport (1966, p. 454) the distinction between intrinsic and extrinsic religiosity separated "churchgoers whose communal type of membership supports and serves other, non religious ends, from those for whom religion is an end in itself - a final, not instrumental good." Allport (1966, p. 455) proceeded to argue as follows about the nature of extrinsic orientation.

While there are several varieties of extrinsic religious orientation, we may say they all point to a type of religion that is strictly utilitarian: useful for the self in granting safety, social standing, solace, and endorsement for one's chosen way of life.

Regarding the nature of intrinsic orientation, Allport (1966, p. 455) made the following case.

The intrinsic form of the religious sentiment regards faith as a supreme value in its own right A religious sentiment of this sort floods the whole life with motivations and meaning. Religion is no longer limited to single segments of self-interest.

Allport and Ross (1967) proposed two scales to measure their dimensions of intrinsic and extrinsic orientation. The intrinsic measure contained nine items, the first two of which were: "It is important for me to spend periods of time in private religious thought and meditation"; "If not prevented by unavoidable circumstances, I attend church". The extrinsic measure contained eleven items, the first two of which were: "Although I believe in my religion, I feel there are many more important things in my life"; "It doesn't matter so much what I believe so long as I lead a moral life".

Critiquing Allport's model of religious orientation, Batson (1976) and Batson and Ventis (1982) argued the case for a third dimension alongside the intrinsic and extrinsic orientations, which they styled the quest orientation. The quest orientation gave recognition to a form of religiosity which embraces characteristics of complexity, doubt, tentativeness, and honesty in facing existential questions. Batson and Ventis (1982, p. 150) provided the following description of the quest orientation.

An individual who approaches religion in this way recognizes that he or she does not know, and probably never will know, the final truth about such matters. But still the questions are deemed important, and however tentative and subject to change, answers are sought. There may not be a clear belief in a transcendent reality, but

there is a transcendent, religious dimension to the individual's life.

Batson and Ventis (1982, p. 145) also provided a six-item instrument to measure the quest orientation, which they originally identified by the name "interactional scale". Two items were: "It might be said that I value my religious doubts and uncertainties"; "Questions are far more central to my religious experience than are answers". Subsequently Batson and Schoenrade (1991a, 1991b) developed a longer twelve-item quest scale.

There is already in the literature a few studies which have administered the Eysenckian personality scales alongside the two measures of extrinsic and intrinsic religious orientations, including Johnson, Danko, Darvill, Bochner, Bowers, Huang, Park, Pecjak, Rahim, and Pennington (1989), Chau, Johnson, Bowers, Darvill, and Danko (1990), Robinson (1990), Maltby, Talley, Cooper, and Leslie (1995), Hutchinson, Patoch-Peckham, Cheong, and Nagoshi (1998), and Maltby and Day (2004). A smaller number of studies have administered the Eysenckian personality scales alongside the three measures of extrinsic, intrinsic and quest religious orientation, including Tjeltveit, Fiordalisi, and Smith (1996), and Hills, Francis, Argyle, and Jackson (2004).

One of the difficulties in interpreting the findings from those studies which have examined the relationship between Eysenck's dimensional model of personality and the three orientations of extrinsic, intrinsic and quest religiosity arises from recognised problems with the established indices designed to assess these orientations. These recognised problems have recently led to the development of the New Indices of Religious Orientation (NIRO) by Francis (in press). The NIRO clarifies the three constructs of extrinsic, intrinsic and quest religious orientation by giving equal weight to the three conceptual components identified within each construct by Batson and Schoenrade (1991b). The three components of quest orientation are: readiness to face existential questions without reducing their complexity; self-criticism and perception of religious doubt as positive; openness to change. The three

conceptual components of extrinsic orientation are: compartmentalisation, or the separation of religion from the rest of life; social support, or the use of religion to achieve social ends; personal support, or the use of religion to gain personal comfort. The three conceptual components of intrinsic orientation are: integration, or the close relationship between religion and the rest of life; public religion, or the importance given to church for religious ends; personal religion, or the importance given to personal prayer and reading for religious ends. Drawing on these definitions, the NIRO re-operationalised the three orientations in terms of nine-item scales, each of which gives equal balance to the three constituent component parts identified within that construct. Care was taken to formulate the items in clear, direct, and accessible language. In respect of each scale, the three components cohere to produce high alpha coefficients. The scales possess good internal consistency reliability. The present study is the first to employ the NIRO alongside the Eysenckian personality scales.

Method

Questionnaire

In addition to questions about age, sex, and religious affiliation, the questionnaire included the following measures employed in the present analyses.

Religious orientation The twenty-seven items of the New Indices of Religious Orientation (Francis, in press) were randomised and arranged for scoring on a five-point Likert scale: agree strongly, agree, not certain, disagree, and disagree strongly.

Church attendance was assessed on a five-point scale: never, once or twice a year, sometimes, at least once a month, and nearly every week.

Personality was assessed by the short-form Revised Eysenck Personality Questionnaire proposed by Eysenck, Eysenck, and Barrett (1985) which proposes three 12-item measures of extraversion, neuroticism, and psychoticism, and a 12-item lie scale. Each

item is assessed on a two-point scale: yes and no.

Sample

All first year students at a university-sector college in Wales, specialising in teacher education and liberal arts subjects, were invited to complete this questionnaire, alongside a battery of other tests as part of their induction programme during the first week. All the students who attended the session agreed to participate. Complete questionnaires were returned by 517 students, 134 males and 383 females. The majority (70%) were aged 18 or 19; 12% were aged 20 or 21 years; 12% were in their late twenties, 6% were in their thirties, and the remaining 4% were aged forty or over. Just over a quarter of the students (27%) claimed no religious affiliation; 27% self identified as Anglican, 14% as Roman Catholic, 11% as Baptist, and 7% as Methodists. The remaining students identified with a wide range of other Christian denominations. Only one student identified with another faith group (Jewish). A quarter of the students (27%) claimed to attend church at least once a month, and another quarter (24%) claimed never to attend church. The remaining 49% attended at least once a year.

Results

Table 1 presents descriptive statistics of the three indices of religious orientation and

- insert table 1 about here -

the four personality variables in terms of the alpha coefficients, means and standard deviations. The three scales of the New Indices of Religious Orientation (NIRO) all produced alpha coefficients well in excess of Kline's (1993) recommended minimum threshold of 0.70: extrinsic = 0.84; intrinsic = 0.91; quest = 0.85. The four scales of the short-form Revised Eysenck Personality Questionnaire (EPQR-S) produced the following

alpha coefficients: extraversion = 0.87; neuroticism = 0.79; psychoticism = 0.59; lie scale = 0.69. The lower reliability of the psychoticism scale is well in line with the performance of this index in other studies (Francis, Brown, & Philipchalk, 1992).

Table 2 presents the correlations between the three scales of the NIRO and the four

- insert table 2 about here -

scales of the EPQR-S, calculated on three different groups: the whole sample (N = 517); those who never attend church (N = 124); and those who attend church at least once a month (N = 138). The pattern of significant correlations varied between the three groups. When

- insert table 3 about here -

partial correlations were calculated to control for sex differences, the pattern of significant correlations remained unchanged.

Discussion

The whole sample embraced a wide-range of religiosity, including churchgoers and non-churchgoers. It is this sample which reflects the characteristics of the samples on which the conclusions had been drawn from earlier research discussed above employing as indices of religiosity church attendance and attitude toward Christianity. Based on the whole sample it is only the measure of intrinsic religiosity which generated the expected pattern of a negative relationship with psychoticism and independence from both extraversion and neuroticism. This finding is consistent with the view that the Francis Scale of Attitude toward Christianity accesses a form of intrinsic religiosity (Joseph & Lewis, 1997; Francis & Orchard, 1999; Hills & Francis, 2003) and that in the United Kingdom church attendance is more likely to be an expression of intrinsic religiosity rather than extrinsic religiosity on the grounds that few social benefits accrue from church attendance in such a secularised society (Brown, 2001).

Based on the whole sample, extrinsic religiosity is associated with both low psychoticism scores and high neuroticism scores. These findings indicate that extrinsic religiosity shares the same relationship with psychoticism as intrinsic religiosity, but that these two religious orientations are related in different ways to neuroticism. Extrinsic religiosity is seen, therefore, to be a response to emotional lability, to anxiety, and to instability. This kind of religion may be used to support personal inadequacy and as a means to another end rather than an end in itself, a finding totally consistent with Allport's (1966) original definition of extrinsic religiosity.

Based on the whole sample, quest religiosity is independent of psychoticism scores, but associated with low extraversion and high neuroticism. These findings indicate that quest religiosity shares no relationship with personality dimensions in common with intrinsic religiosity. Like extrinsic religiosity, the quest orientation may be a response to emotional lability, to anxiety and to irritability. Here are individuals who are seeking answers to life's questions but who remain discontent with the solutions which they have so far found. Moreover, while the neurotic extravert may be more successful in finding answers from association with church congregations, the neurotic introvert may prefer to go on puzzling in isolation and to live with the unanswered questions.

Once the range of religiosity within the sample is restricted, the pattern of significant relationship between personality and religious orientation is also restricted. Care in interpreting the different patterns between the three sets of correlations needs to be exercised in view of the different numbers of participants in the different samples. Two conclusions can, however, be safely drawn from the comparison between the three sets of correlations. First, it is clear that the relationships found between personality and religious orientation may shift according to the levels of religiosity within the sample. Second, it is clear that neuroticism plays a significant role in predicting levels of extrinsic religiosity among

churchgoers. Church congregations are likely to include individuals displaying high levels of extrinsic religiosity motivated by the need to compensate high levels of emotional lability, anxiety and feelings of personal inadequacy reflected in elevated neuroticism scores.

Conclusion

The present study has examined the relationship between the three personality dimensions of extraversion, neuroticism, and psychoticism (as operationalised by the short-form Revised Eysenck Personality Questionnaire) and the three religious orientations of extrinsic, intrinsic and quest religiosity (as operationalised by the New Indices of Religious Orientation). Three main conclusions emerge from the study.

First, the conclusion framed by Beit-Hallahmi and Argyle (1997) that religiosity is generally related to low psychoticism scores but independent of extraversion scores and neuroticism scores is nuanced to be the case when religiosity is operationalised as intrinsic religious orientation, and when the samples providing the data properly reflect a wide-range of churchgoers and non-churchgoers.

Second, extrinsic religious orientation has been shown to be related not only to low psychoticism scores, but also to high neuroticism scores. Extrinsic religious orientation, unlike intrinsic religious orientation, appears to function as a defence against neurotic tendencies, anxiety, emotional lability and feelings of personal inadequacy.

Third, the quest religious orientation has been shown to be independent of psychoticism scores, but related to high neuroticism scores and to low extraversion scores. Quest religious orientation, unlike intrinsic religious orientation, but like extrinsic religious orientation, appears to function as a defence mechanism against neurotic tendencies, and as a defence mechanism more accessible to introverts than to extraverts.

A major weakness of the present study is that it has been restricted to one sample of

undergraduate students in Wales. Further replication studies are now needed to test the stability of the findings across other populations.

References

- Allport, G. W. (1966). Religious context of prejudice. *Journal for the Scientific Study of Religion*, 5, 447-457.
- Allport, G. W., & Ross, J. M. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology*, 5, 432-443.
- Argyle, M., & Beit-Hallahmi, B. (1975). *The social psychology of religion*. London: Routledge and Kegan Paul.
- Batson, C. D. (1976). Religion as prosocial: Agent or double agent? *Journal for the Scientific Study of Religion*, 15, 29-45.
- Batson, C. D., & Schoenrade, P. A. (1991a). Measuring religion as quest: Reliability concerns. *Journal for the Scientific Study of Religion*, 30, 430-447.
- Batson, C. D., & Schoenrade, P. A. (1991b). Measuring religion as quest: Validity concerns. *Journal for the Scientific Study of Religion*, 30, 416-429.
- Batson, C. D., & Ventis, W. L. (1982). *The religious experience: A social psychological perspective*. New York: Oxford University Press.
- Beit-Hallahmi, B., & Argyle, M. (1997). *The psychology of religious belief and experience*. London: Routledge.
- Bourke, R., & Francis, L. J. (2000). Personality and religion among music students. *Pastoral Psychology*, 48, 437-444.
- Bourke, R., Francis, L. J., & Robbins, M. (2005). Personality and attitude toward Christianity among church musicians. *North American Journal of Psychology*, 7, 85-88.
- Brown, C. G. (2001). *The death of Christian Britain*. London: Routledge.
- Cattell, R. B., Eber, H. W., & Tatsuoka, M. M. (1970). *Handbook for the sixteen personality factor questionnaire (16PF)*. Champaign: Illinois, Institute for Personality and Ability Testing.

- Chau, L. L., Johnson, R. C., Bowers, J. K., Darvill, T. J., & Danko, G. P. (1990). Intrinsic and extrinsic religiosity as related to conscience, adjustment, and altruism. *Personality and Individual Differences, 11*, 397-400.
- Costa, P. T., & McCrae, R. R. (1985). *The NEO Personality Inventory*. Odessa, Florida: Psychological Assessment Resources.
- Eysenck, H. J. (1961). Personality and social attitudes. *Journal of Social Psychology, 53*, 243-248.
- Eysenck, H. J. (1975). The structure of social attitudes. *British Journal of Social and Clinical Psychology, 14*, 323-331.
- Eysenck, H. J. (1976). Structure of social attitudes. *Psychological Reports, 39*, 463-466.
- Eysenck, H. J., & Eysenck, S. B. G. (1991). *Manual of the Eysenck Personality Scales*. London: Hodder and Stoughton.
- Eysenck, S. B. G., Eysenck, H. J., & Barrett, P. (1985). A revised version of the psychoticism scale. *Personality and Individual Differences, 6*, 21-29.
- Fearn, M., Booker, B. B., & Francis, L. J. (2001). Personality and church attendance among artists. *Journal of Beliefs and Values, 22*, 225-228.
- Francis, L. J. (1992). Is psychoticism really a dimension of personality fundamental to religiosity? *Personality and Individual Differences, 13*, 645-652.
- Francis, L. J. (1997). Personality, prayer, and church attendance among undergraduate students. *International Journal for the Psychology of Religion, 7*, 127-132.
- Francis, L. J. (in press). Introducing the New Indices of Religious Orientation (NIRO): Conceptualisation and measurement. *Mental Health, Religion and Culture*.
- Francis, L. J., & Bennett, G. A. (1992). Personality and religion among female drug misusers. *Drug and Alcohol Dependence, 30*, 27-31.
- Francis, L. J., & Bolger, J. (1997). Personality, prayer and church attendance in later life.

Social Behaviour and Personality, 25, 335-338.

Francis, L. J., Brown, L. B., & Philipchalk, R. (1992). The development of an abbreviated form of the Revised Eysenck Personality Questionnaire (EPQR-A): Its use among students in England, Canada, the USA and Australia. *Personality and Individual Differences*, 13, 443-449.

Francis, L. J., & Enger, T. (2005). Psykisk helse og holdning til Kristendommen blant grunnskoleelever i Norge. *Tidsskrift for Norsk Psykologforening*, 42, 700-705.

Francis, L. J., & Fearn, M. (1999). Religion and personality: A study among A-level students. *Transpersonal Psychology Review*, 3(2) 26-30.

Francis, L. J., & Johnson, P. (1999). Mental Health, prayer and church attendance among primary school teachers. *Mental Health, Religion and Culture*, 2, 153-158.

Francis, L. J., Jones, S. H., & Kelly, P. (1999). Personality and church attendance among female hockey players. *Social Behavior and Personality*, 27, 519-522.

Francis, L. J., & Kerr, S. (2003). Personality and religion among secondary school pupils in South Africa in the early 1990s. *Religion and Theology: A journal of religious discourse*, 10, 224-236.

Francis, L. J., & Kwiran, M. (1999). Personality and religion among secondary pupils in Germany. *Panorama*, 11, 34-44.

Francis, L. J., Lankshear, D. W., & Pearson, P. R. (1989). The relationship between religiosity and the short form JEPQ (JEPQ-S) indices of E, N, L and P among eleven year olds. *Personality and Individual Differences*, 10, 763-769.

Francis, L. J., Lewis, J. M., Brown, L. B., Philipchalk, R., & Lester, D. (1995). Personality and religion among undergraduate students in the United Kingdom, United States, Australia and Canada. *Journal of Psychology and Christianity*, 14, 250-262.

Francis, L. J., Lewis, C. A., & Ng, P. (2003). Psychological health and attitude toward

- Christianity among secondary school pupils in Hong Kong. *Journal of Psychology in Chinese Societies*, 4, 231-245.
- Francis, L. J., Lewis, J. M., Philipchalk, R., Brown, L. B., & Lester, D. (1995). The internal consistency reliability and construct validity of the Francis Scale of Attitude toward Christianity (adult) among undergraduate students in the UK, USA, Australia and Canada. *Personality and Individual Differences*, 19, 949-953.
- Francis, L. J., & Montgomery, A. (1992). Personality and attitudes towards Christianity among eleven to sixteen year old girls in a single sex Catholic school. *British Journal of Religious Education*, 14, 114-119.
- Francis, L. J., & Orchard, A. (1999). The relationship between the Francis Scale of Attitude toward Christianity and measures of intrinsic, extrinsic and quest religiosity. *Pastoral Psychology*, 47, 365-371.
- Francis, L. J., & Pearson, P. R. (1988). Religiosity and the short-scale EPQ-R indices of E, N and L, compared with the JEPI, JEPQ and EPQ. *Personality and Individual Differences*, 9, 653-657.
- Francis, L. J., & Thomas, E. M. (2004). Personoliaeth a chrefydd ymysg siaradwyr Cymraeg 9-11 mlwydd oed. *Welsh Journal of Education*, 12(2), 99-110.
- Francis, L. J., & Wilcox, C. (1994). Personality, prayer and church attendance among 16- to 18-year-old girls in England. *Journal of Social Psychology*, 134, 243-246.
- Francis, L. J., & Wilcox, C. (1996). Prayer, church attendance and personality revisited: A study among 16- to 19-year old girls. *Psychological Reports*, 79, 1265-1266.
- Francis, L. J., Ziebertz, H. - G., & Lewis, C. A. (2003). The relationship between personality and religion among undergraduate students in Germany. *Archiv für Religionspsychologie*, 24, 121-127.
- Hills, P., & Francis, L. J. (2003). Discriminant validity of the Francis Scale of Attitude

toward Christianity with respect to religious orientation. *Mental Health, Religion and Culture*, 6, 277-282.

Hills, P., Francis, L. J., Argyle, M., & Jackson, C. J. (2004). Primary personality trait correlates of religious practice and orientation. *Personality and Individual Differences*, 36, 61-73.

Hutchinson, G. T., Patock-Peckham, J. A., Cheong, J. W., & Nagoshi, C.T. (1998). Personality predictors of religious orientation among Protestant, Catholic, and non-religious college students. *Personality and Individual Differences*, 24, 145-151.

Johnson, R. C., Danko, G. P. Darvill, T. J., Bochner, S., Bowers, J. K., Huang, Y. - H., Park, J. Y., Pecjak, V., Rahim, A. R. A., & Pennington, D. (1989). Cross cultural assessment of altruism and its correlates. *Personality and Individual Differences*, 10, 855-868.

Joseph, S., & Lewis, C. A. (1997). The Francis Scale of Attitude towards Christianity: Intrinsic or extrinsic religiosity? *Psychological Reports*, 80, 609-610.

Jung, C. G. (1971). *Psychological types: The collected works, volume 6*. London: Routledge and Kegan Paul.

Kaldor, P., Francis, L. J., & Hughes, P. (2002). Personality and community involvement: Is churchgoing different? *Journal of Beliefs and Values*, 23, 101-105.

Keirse, D., & Bates, M. (1978). *Please understand me*. Del Mar, California: Prometheus Nemesis.

Kline, P. (1993). *The handbook of psychological testing*. London: Routledge.

Lewis, C. A. (1998). Cleanliness is next to Godliness: Religiosity and obsessiveness. *Journal of Religion and Health*, 37, 49-61.

Lewis, C. A. (1999). Is the relationship between religiosity and personality 'contaminated' by social desirability as assessed by the lie scale? A methodological reply to Michael W.

- Eysenck (1998), *Mental Health, Religion and Culture*, 2, 105-114.
- Lewis, C. A. (2000a). The personality profile of the churchgoer: A study among female French undergraduates. In L. J. Francis & Y. C. Katz (Eds.) *Joining and leaving religion: Jewish and Christian perspectives* (pp. 309-318). Gracewing, Herefordshire.
- Lewis, C. A. (2000b), The religiosity-psychoticism relationship and the two factors of social desirability: A response to Michael W. Eysenck (1999). *Mental Health, Religion and Culture*, 3, 39-45.
- Lewis, C. A. (2001). Cultural stereotype of the effects of religion on mental health. *British Journal of Medical Psychology*, 74, 359-367.
- Lewis, C. A. (2003). Cleanliness is next to Godliness: A further look. *Journal of Beliefs and Values*, 24, 239-244.
- Lewis, C. A. and Francis, L. J. (2000). Personality and religion among female university students in France. *International Journal of Psychology*, 35, 229.
- Lewis, C. A., Francis, L. J., & Enger, T. (2004). Personality, prayer and church attendance among a sample of 11 to 18 year olds in Norway. *Mental Health, Religion and Culture*, 7, 269-274.
- Lewis, C. A., & Joseph, S. (1994). Religiosity: psychoticism and obsessionality in Northern Irish university students. *Personality and Individual Differences*, 17, 685-687.
- Lewis, C. A., & Maltby, J. (1995). Religiosity and personality among US adults. *Personality and Individual Differences*, 18, 293-295.
- Lewis, C. A., & Maltby, J. (1996). Personality, prayer and church attendance in a sample of male college students in the USA. *Psychological Reports*, 78, 976-978.
- Maltby, J. (1995). Personality, prayer and church attendance among US female adults. *Journal of Social Psychology*, 135, 529-531.
- Maltby, J. (1997). Personality correlates of religiosity among adults in the Republic of

- Ireland. *Psychological Reports*, 81, 827-831.
- Maltby, J., & Day, L. (2004). Should never the twain meet? Integrating models of religious personality and religious mental health. *Personality and Individual Differences*, 36, 1275-1290.
- Maltby, J., & Lewis, C. A. (1997). The reliability and validity of a short scale of attitude toward Christianity among USA, English, Republic of Ireland and Northern Ireland adults. *Personality and Individual Differences*, 22, 649-654.
- Maltby, J., Talley, M., Cooper, C., & Leslie, J. C. (1995). Personality effects in personal and public orientations toward religion. *Personality and Individual Differences*, 19, 157-163.
- Myers, I. B., & McCaulley, M. H. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Palo Alto, California: Consulting Psychologists Press.
- Robbins, M., Francis, L. J., & Gibbs, D. (1995). Personality and religion: A study among 8-11 year olds. *Journal of Beliefs and Values*, 16 (1), 1-6.
- Robinson, T. N. (1990). Eysenck personality measures and religious orientation. *Personality and Individual Differences*, 11, 915-921.
- Roman, R. E., & Lester, D. (1999). Religiosity and mental health. *Psychological Reports*, 85, 1088.
- Shuter-Dyson, R. (2000). Profiling music students: Personality and religiosity. *Psychology of Music*, 28, 190-196.
- Smith, D. L. (1996). Private prayer, public worship and personality among 11-15 year old adolescents. *Personality and Individual Differences*, 21, 1063-1065.
- Tjeltveit, A. C., Fiordalisi, A. M., & Smith, C. (1996). Relationships among mental health values and various dimensions of religiousness. *Journal of Social and Clinical Psychology*, 15, 364-377.

Wilcox, C., & Francis, L. J. (1997). Personality and religion among A level religious studies students. *International Journal of Children's Spirituality*, 1 (2), 48-56.

Youtika, A., Joseph, S., & Diduca, D. (1999). Personality and religiosity in a Greek Christian Orthodox sample. *Mental Health, Religion and Culture*, 2, 71-74.

Table 1 Scale properties

scale	alpha	mean	sd
<i>religious orientation</i>			
intrinsic religiosity	0.91	23.4	6.2
extrinsic religiosity	0.84	24.3	6.2
quest religiosity	0.85	24.7	6.1
<i>personality dimensions</i>			
extraversion	0.87	8.9	3.2
neuroticism	0.79	6.8	3.1
psychoticism	0.59	2.3	1.9
lie scale	0.69	4.1	2.5

Table 2 Correlations

	Ext	Neu	Psy	Lie
<i>Whole sample (N = 517)</i>				
Extrinsic	-0.0456	+0.1886***	-0.1569***	+0.0102
Intrinsic	-0.0691	+0.0494	-0.1343***	+0.0590
Quest	-0.0881*	+0.1148**	-0.0311	+0.0191
<i>Attend church never (N = 124)</i>				
Extrinsic	-0.1171	+0.1067	-0.0149	+0.0384
Intrinsic	-0.1301	+0.0591	-0.0043	+0.0497
Quest	-0.1375	+0.0809	-0.0784	+0.0297
<i>Attend church at least monthly (N = 138)</i>				
Extrinsic	-0.0058	+0.2737***	-0.0499	+0.0049
Intrinsic	+0.0243	-0.1444	-0.0882	+0.0364
Quest	+0.1271	+0.1205	+0.0298	+0.0269

Notes * = P<.05; ** = P<.01; *** = P<.001

Table 3 Partial correlations controlling for sex differences

	Ext	Neu	Psy	Lie
<i>Whole sample (N = 517)</i>				
Extrinsic	-0.0449	+0.1799***	-0.1428***	+0.0009
Intrinsic	-0.0688	+0.0437	-0.1284**	+0.0544
Quest	-0.0882*	+0.1177**	-0.0349	+0.0205
<i>Attend church never (N = 124)</i>				
Extrinsic	-0.1160	+0.1114	-0.0229	+0.0382
Intrinsic	-0.1290	+0.0640	-0.0131	+0.0494
Quest	-0.1355	+0.0891	+0.0665	+0.0292
<i>Attend church at least monthly (N = 138)</i>				
Extrinsic	+0.0079	+0.2652***	-0.0166	-0.0152
Intrinsic	+0.0344	-0.1540	-0.0668	+0.0226
Quest	+0.1347	+0.1121	+0.0605	+0.0109

Notes * = P<.05; ** = P<.01; *** = P<.001