

THE PSYCHOMETRIC PROPERTIES OF THE SAHIN-FRANCIS SCALE OF ATTITUDE TOWARD ISLAM AMONG YOUNG ADULTS IN KUWAIT

Leslie J Francis
Abdullah Sahin &
Eissa Al-Ansari

Introduction

Quantitative empirical studies have generated in recent decades considerable growth in scientific knowledge about the psychological correlates, antecedents, and consequences of religiosity (Spilka, Hood, Hunsberger and Gorsuch, 2003). The best of this research had drawn on a number of well-constructed and well-tested psychometric measures of various aspects of religion (Hill and Hood, 1999). A major limitation with this research is that it has been grounded largely within Christian or post-Christian cultures and has drawn on Christian definitions of religiosity. This situation is now slowly beginning to change as a small number of scholars working within the empirical psychology of religion have begun to structure their enquiries within an Islamic context, including Wilde and Joseph (1997), Thorson, Powell, Abdel-Khalek and Beshai (1997), Ghorbani, Watson, Ghramaleki, Morris and Hood (2000, 2002), Leach, Piedmont and Monteiro (2001), Hood, Ghorbani, Watson, Ghramaleki, Bing, Davidson, Morris and Williamson (2001), Watson, Ghorbani, Davison, Bing, Hood and Ghramaleki (2002), Abdel-Khalek (2002, 2006), Khan and Watson (2004, 2006), Ghorbani, Watson, Krauss, Bing and Davison (2004), Khan, Watson and Habib (2005), Ghorbani and Watson (2006), Krauss, Hamzah, Suandi, Noah, Juhar, Manap, Mastor, Kassan and Mahmood (2006).

The perennial problem in the psychology of religion concerns the integration of findings from studies which have operationalised different understandings of religiosity, or even used different instruments which purport to operationalise similar understandings of religion. Working in the 1970s, Francis argued that real advance could be made in integrating studies in the psychology of religion if researchers could agree on organising series of interrelated studies employing the same well-tested instrument. Working with a multi-dimensional model of religion, Francis proposed the attitudinal dimension of religion as providing the most secure meeting-ground for a widely diverse group of studies, and developed the Francis Scale of Attitude

toward Christianity as an instrument capable of realising this aim. The attitudinal dimension appears particularly attractive for four reasons.

First, at a conceptual level, social psychologists have developed a sophisticated and well-established understanding of attitude as a deep-seated and relatively stable and enduring covert predisposition, in contrast with more volatile surface behaviours and opinions. To access attitude toward religion is to get close to the heart of religion in an individual's life.

Second, following the pioneering analysis of Fishbein and Ajzen (1975), Francis (1978a, 1978b) argued that attitudes are concerned primarily with accessing the affective dimension of religiosity. The affective dimension is distinguished from the cognitive dimension (concerned with beliefs) and from the behavioural dimension (concerned with practice). The affective dimension is able to transcend the divisions between denominational perspectives, while beliefs tend to polarise such divisions. In a Christian context, for example, Catholics may believe one thing about the nature of God and Protestants may believe another, but both Catholics and Protestants may agree on the assessment of the extent to which their faith exercises a positive or negative influence on their lives. The affective dimension is less likely to be distorted by personal and contextual factors, while practice tends to be subject to all kinds of personal or social constraints. Whether an individual attends a place of worship may be influenced by personal factors (like state of health) or social factors (like pressure from parents), but negative and positive feelings about faith are much less likely to be contaminated by such factors.

Third, the affective dimension of religiosity can be accessed by instruments which can function in a comparatively stable manner over a wide age range. While the sophistication with which beliefs are formulated and tested clearly develops over the life span (see, for example, Fowler, 1981), attitudinal statements concerned with positive and negative affect can be formulated in ways which are equally acceptable during childhood, adolescence and adulthood (Francis, 1989; Francis and Stubbs, 1987).

Fourth, at an operational level, social psychologists have developed a range of sophisticated and well-established techniques for assessing and scaling attitudes, including the pioneering work of Thurstone (1928), Likert (1932), Guttman (1944), Edwards (1957) and Osgood, Suci and Tannenbaum (1957). By testing the performance of these various methods among different age groups, Francis (1978a, 1978b) identified the Likert technique as providing the most reliable and consistent scaling properties from the age of eight upwards through childhood and adolescence into adulthood.

The 24-item Likert scale, originally published by Francis (1978a), contains both negative and positive items concerned with an affective response to five components of the Christian faith accessible to and recognised by both children and adults, namely God, Jesus, bible, prayer and church. Each item is assessed on a five-point scale (agree strongly, agree, not certain, disagree, disagree strongly), producing a range of scores from 24 to 120. The reliability and validity of the scale have been supported by studies among school pupils in England (Francis, 1987, 1989), Kenya (Fulljames and Francis, 1987), Nigeria (Francis and McCarron, 1989), Northern Ireland (Francis and Greer, 1990; Greer and Francis, 1991), Scotland (Gibson, 1989; Gibson and Francis, 1989) and South Africa (Francis, Kerr and Lewis, 2005). Another series of studies have supported the reliability and validity of the scale

among adults in Australia and Canada (Francis, Lewis, Philipchalk, Brown and Lester, 1995), England (Francis and Stubbs, 1987; Francis, 1992a), the Republic of Ireland (Malbty, 1994), Northern Ireland (Lewis and Malbty, 1997) and the USA (Lewis and Maltby, 1995a).

The Francis scale of Attitude toward Christianity has also been translated into other languages, recognising that integration of cross-cultural quantitative studies in the psychology of religion has been hampered by the lack of common instrumentation. Examples are provided by editions in Arabic (Munayer, 2000), Chinese (Francis, Lewis and Ng, 2002, 2003), Czech (Francis, Quesnell and Lewis, 2003), Dutch (Francis and Hermans, 2000; Lewis and Hermans, 2003), French (Lewis and Francis, 2003, 2004), German (Francis and Kwiran, 1999a; Francis, Ziebertz and Lewis, 2002), Greek (Youtika, Joseph and Diduca, 1999), Norwegian (Francis and Enger, 2002; Lewis, Francis and Enger, 2003), Portugese (Ferreira and Neto, 2002), Swedish (Eek, 2001), and Welsh (Evans and Francis, 1996; Lewis and Francis, 2002; Francis and Thomas, 2003).

By the mid-1990s over one hundred independent studies had employed the Francis Scale of Attitude toward Christianity to examine a wide range of correlates of attitude toward Christianity during childhood, adolescence and adulthood. These studies were summarised and synthesised by Kay and Francis (1996). The field has grown considerably since that review undertaken in the mid-1990s.

In order to build on this secure research tradition within an Islamic context, Sahin and Francis (2002) proposed a thorough translation of the concepts of the Francis Scale of Attitude toward Christianity to produce a parallel instrument concerned with measuring attitude toward Islam. The items of the Francis Scale of Attitude toward Christianity were carefully scrutinised and debated by several Muslim scholars of Islam until agreement was reached on 23 items which mapped closely onto the area assessed by the parent instrument. These items were arranged for response on a five-point Likert-type scale: agree strongly, agree, not certain, disagree, and disagree strongly. The questionnaire was completed by 381 Muslim adolescents attending three sixth-form colleges in Birmingham. The sample comprised 164 females and 217 males; 50 16 year olds, 90 17 year olds, 123 18 year olds, 98 19 year olds, and 20 20 year olds. Of the total sample, 24% prayed five times daily, 18% prayed several times a week, 11% prayer every Friday, 41% prayed sometimes and 7% never prayed. The respondents were mainly from Pakistani and Bangladeshi family backgrounds. According to these data, the 23 items comprised a scale characterised by homogeneity, unidimensionality and internal consistency reliability. The alpha coefficient was established as 0.90, while the proportion of variance accounted for by the first factor proposed by the unrotated solution generated by principal component analysis was 36%. Attitude scores correlated +0.24 ($p < .001$) with personal prayer/ṣalāt. This statistic supports the construct validity of the attitude scale in the light of the theory that attitudes should predict behaviour but in a complex and subtle manner. The correlation of this magnitude indicated that, although significantly correlated, attitude toward Islam and the practice of personal prayer accessed different aspects of religiosity.

Against this background the aim of the present study is to examine the psychometric properties of the Sahin-Francis Scale of Attitude toward Islam among young adults living in Kuwait, as a preparatory step toward establishing a coherent

research programme exploring the correlates of individual differences in religiosity within an Islamic cultural setting.

Method

Instrument

The 23 items of the Sahin-Francis Scale of Attitude toward Islam, developed originally for English-speaking Muslim adolescents in England, was translated into Arabic and back-translated in order to ensure accuracy. Initial pilot tests indicated that some of the negatively phrased items acceptable in England were less acceptable in a predominantly Islamic culture. For this reason the original item 'Allah/God doesn't mean anything to me' was replaced by the positively phrased item 'Allah/God means everything to me'. The original item 'I find it hard to believe in Allah/God' was replaced by the positively phrased item 'I do not find it hard to believe in Allah/God'. The 23 items were arranged for response on a five-point Likert-type scale: agree strongly, agree, not certain, disagree and disagree strongly.

Frequency of prayer was assessed on a five-point scale: obligatory and additional prayers, obligatory prayers only, sometimes, Fridays, and never.

Sample

Thoroughly completed questionnaires were returned by 1,199 students, selected from secondary schools in six educational districts in Kuwait. The sample comprised 603 males and 596 females; 812 were 17 years of age and 387 were 18 years of age. The majority of the respondents were highly religious in terms of their commitment to prayer: 20% practised the obligatory prayers and additional prayers; 60% practised the obligatory prayers; 17% prayed sometimes; 1% prayed on Fridays only; and 2% never prayed.

Results

Table 1 presents the item rest of test correlations and the factor loadings on the unrotated solution proposed by principal component analysis for the 23 items of the Sahin-Francis Scale of Attitude toward Islam, together with the alpha coefficient and the percentage of variance explained by the factor. Both sets of statistics support the conclusion that the scale is characterised by homogeneity, unidimensionality and internal consistency reliability within the sample. The alpha coefficient is established as 0.85, while the proportion of variance accounted for by the first factor is established as 29%.

While the formal statistics of reliability are relatively easy to calculate for an attitude scale (Livingston, 1988), the question of assessing validity is more problematic (Ebel, 1961; Zeller, 1988). Steps towards assessing the construct validity of this scale can be made by assessing the extent to which certain predictions about the theoretical variations in attitude scores are reflected empirically (Cronbach and Meehl, 1955; Orton, 1987). While attitudes alone may not be simple or direct predictors of behaviour (Ajzen, 1988; Eiser and van der Pligt, 1988), substantial evidence suggests a relationship between attitude towards religion and religious

Table 1: Item rest of test correlations and factor loadings

scale item	r	factor loading
I find it inspiring to listen to the Qur'ān	0.5187	0.6010
I know that Allah/God helps me	0.3823	0.4743
Saying my prayers/ <i>du'ā'</i> helps me a lot	0.5564	0.6365
Attending the Mosque is very important to me	0.5124	0.5828
I think going to the Mosque is a waste of my time*	0.1790	0.1649
I want to obey Allah/God's law/ <i>sharī'ah</i> in my life	0.4755	0.5442
I think Mosque sermons/ <i>khuṭbah</i> are boring*	0.4062	0.4339
Allah/God helps me to lead a better life	0.3992	0.4820
I like to learn about Allah/God very much	0.4763	0.5709
Islam means a lot to me	0.4485	0.5235
I believe that Allah/God helps people	0.4167	0.5107
Prayer/ <i>ṣalāt</i> helps me a lot	0.5794	0.6883
I feel that I am very close to Allah/God	0.5272	0.6154
I think praying/ <i>ṣalāt</i> is a good thing	0.4753	0.5758
I think the Qur'ān is out of date*	0.2955	0.2851
I believe that Allah/God listens to prayers/ <i>du'ā'</i>	0.4696	0.5415
Allah/God means everything to me	0.2860	0.3685
Allah/God is very real to me	0.5471	0.6283
I think praying/ <i>du'ā'</i> does no good*	0.2707	0.2943
Belief in Allah/God means much to me	0.5381	0.6243
I do not find it hard to believe in Allah/God	0.4944	0.5613
I am happy to be a Muslim	0.5129	0.6139
I love to follow the life/ <i>sunnah</i> of the Prophet	0.5786	0.6603
Alpha/percent variance	0.8503	28.8%

Note * these negative items were reverse scored

behaviour, as demonstrated by repeated studies using the Francis Scale of Attitude toward Christianity among children and adolescents (Francis, 1989). In the present study attitude scores correlated +0.4099 ($p < .001$) with personal prayer. This statistic supports the construct validity of the attitude scale within the sample and clearly indicates that, although the two constructs are significantly correlated, attitude toward Islam and the practice of personal prayer access different aspects of religiosity.

Table 2 presents the mean scale scores recorded on the Sahin-Francis Scale of Attitude toward Islam by a range of key demographic factors: sex, age, subject major, father's educational level, mother's educational level, family income, parental marital status, and whether both parents are still alive.

The data demonstrate that only three of these eight demographic variables predict individual differences in mean scale scores of attitude toward Islam, namely father's educational level, parental marital status and whether both parents are still alive.

Table 2: Mean scale scores

group	N	mean	sd	F	P<
<i>sex</i>					
male	603	99.6	10.2	3.7	NS
female	596	100.6	9.2		
<i>age</i>					
under 18	812	100.2	9.8	0.2	NS
18 and above	387	99.9	9.5		
<i>subject major</i>					
science	591	100.3	10.1	0.3	NS
arts	608	99.9	9.3		
<i>father's education</i>					
illiterate	46	102.4	11.8	4.1	.01
intermediate	267	100.6	9.5		
secondary	195	100.2	9.5		
diploma	219	97.8	9.6		
graduate	472	100.6	9.5		
<i>mother's education</i>					
illiterate	133	101.3	10.3	1.7	NS
intermediate	270	100.7	8.8		
secondary	176	100.4	9.4		
diploma	237	99.0	8.6		
graduate	382	99.7	10.7		
<i>family income</i>					
under 600KD	270	100.2	9.8	0.4	NS
600-799 KD	243	100.0	8.5		
800-999 KD	304	100.5	8.8		
1,000 plus KD	382	99.7	10.9		
<i>parents' living</i>					
both alive	1066	100.0	9.7	6.1	.001
father dead	92	101.3	8.4		
mother dead	33	102.8	6.6		
both dead	8	87.3	22.7		
<i>parents' marital status</i>					
intact	1132	100.3	9.4	13.5	.001
separated	67	95.9	12.5		

Conclusion

The Sahin-Francis Scale of Attitude toward Islam was originally developed for use among English-speaking Muslim adolescents living in England. The present study has extended this earlier research by adapting and translating the instrument for use among adolescents living in the Islamic culture of Kuwait. The data derived from 1,199 17- to 18-year-old students selected from secondary schools in six educational districts in Kuwait have supported the unidimensionality, internal consistency reliability and construct validity of this instrument. The data have also demonstrated the usefulness of the instrument to examine the power of a range of key demographic factors to predict individual differences in religiosity among this population.

Further research would now be helpful to confirm the psychometric properties of this instrument among other age groups in other Islamic countries. The evidence so far, however, suggests that this instrument is likely to prove to be robust and can be commended for further use. A connected programme of empirical research employing this instrument within an Islamic context would be capable of building up a secure knowledge about the empirical correlates of religion comparable with the knowledge generated by the programme of research using Francis' original instrument within a Christian context. Several strands of research using the Francis Scale of Attitude toward Christianity may prove to be particularly worth replicating within an Islamic context in order to develop valuable cross-cultural comparisons in an empirical psychology of religion. The following three examples would provide a good starting point.

The first strand concerns the relationship between religiosity and mental health. This relationship has been examined by a number of studies employing the Francis Scale of Attitude toward Christianity alongside the Eysenck family of personality tests, including the Eysenck Personality Questionnaire (Eysenck and Eysenck, 1975) and the Eysenck Personality Questionnaire Revised (Eysenck, Eysenck and Barrett, 1985). This dimensional model of personality conceptualises neurotic disorders and psychotic disorders as continuous with two orthogonal factors of normal personality. Using this model a number of studies have demonstrated the absence of a relationship between neuroticism scores and attitude toward Christianity and a significant negative relationship between psychoticism scores and attitude toward Christianity, including studies in Australia and Canada (Francis, Lewis, Brown, Philipchalk and Lester, 1995), France (Lewis and Francis, 2000), Germany (Francis and Kwiran, 1999b; Francis, Ziebertz and Lewis, 2003), Greece (Youtika, Joseph and Diduca, 1999), Hong Kong (Francis, Lewis and Ng, 2003), Northern Ireland (Lewis and Joseph, 1994), Norway (Francis and Enger, 2005), Republic of Ireland (Maltby, 1997), South Africa (Francis and Kerr, 2003), United States of America (Lewis and Maltby, 1995b), and the United Kingdom (Francis, 1991, 1993, 1999; Bourke, Francis and Robbins, 2005). In other words, there is some evidence to suggest a positive association between religiosity and better mental health (lower psychoticism scores). New research in an Islamic culture using the Sahin-Francis Scale of Attitude toward Islam could now extend this work on the relationship between religiosity and mental health using various editions of the Eysenckian personality measures.

The second strand concerns the relationship between religiosity and positive psychology. This relationship has been examined by a number of studies employing

the Francis Scale of Attitude toward Christianity alongside the Oxford Happiness Inventory (Argyle, Martin and Crossland, 1989). This instrument conceptualises psychological well-being or happiness in terms of three main components: the frequency and degree of positive affect or joy; the average level of satisfaction over a period; and the absence of negative feelings, such as depression and anxiety. Using this model a number of studies have demonstrated a significant positive relationship between happiness scores and attitude toward Christianity, including studies among undergraduates in the United Kingdom (Robbins and Francis, 1996), undergraduates in the United States of America (Francis and Lester, 1997), undergraduates in England (French and Joseph, 1999), three samples of secondary school pupils in England, first year undergraduates in Wales and senior citizens in England (Francis, Jones and Wilcox, 2000), participants attending workshops and courses on the psychology of religion in England (Francis and Robbins, 2000), and students in Wales (Francis, Robbins and White, 2003). New research in an Islamic culture using the Sahin-Francis Scale of Attitude toward Islam could now extend this work on the relationship between religiosity and psychological well-being using the Oxford Happiness Inventory.

The third strand concerns the relationship between religiosity and a wide range of individual differences which are of considerable personal and social significance. In this connection, the Francis Scale of Attitude toward Christianity has been employed alongside a number of measures concerned with assessing constructs such as: altruism (Eckert and Lester, 1997), conservatism (Lewis and Maltby, 2000), dissociation (Dorahy and Lewis, 2001), dogmatism (Francis, 2001; Francis and Robbins, 2003), empathy (Francis and Pearson, 1987), gender orientation (Francis and Wilcox, 1996, 1998; Francis, 2005), intelligence (Francis, 1998), life satisfaction (Lewis, Joseph and Noble, 1996, Lewis, 1998), obsessionality (Lewis, 1994, 1996), openness (Greer, 1985), pro-social values (Schludermann, Schludermann and Huynh, 2000), psychological adjustment (Schludermann, Schludermann, Needham and Mulenga, 2001), psychological balanced affect (Francis, Jones and Wilcox, 1997), psychological distress (O'Connor, Cobb and O'Connor, 2003; Francis, Robbins, Lewis, Quigley and Wheeler, 2004), purpose in life (French and Joseph, 1999), schizotypal traits (Joseph and Diduca, 2001), self-esteem (Jones and Francis, 1996), and suicidal ideation (Lester and Francis, 1993). New research in an Islamic culture using the Sahin-Francis Scale of Attitude toward Islam could now extend this work on the relationship between religiosity and a wide range of individual differences which are of considerable personal and social significance.

Note

Scholars interested in collaborating with a programme of research employing the Sahin-Francis Scale of Attitude toward Islam are invited to contact Dr Abdullah Sahin at sahin.abdullah@gmail.com or Professor Leslie J Francis at l.j.francis@bangor.ac.uk

References

- Abdel-Khalek, A.M. (2002), Age and sex differences for anxiety in relation to family size, birth order, and religiosity among Kuwaiti adolescents, *Psychological Reports*, 90, 1031-1036.
- Abdel-Khalek, A.M. (2006), Happiness, health, and religiosity: significant relations, *Mental Health, Religion and Culture*, 9, 85-97.
- Ajzen, I. (1988), *Attitudes, Personality and Behaviour*, Milton Keynes, Open University Press.
- Argyle, M., Martin, M. and Crossland, J. (1989), Happiness as a function of personality and social encounters, in J.P. Forgas and J.M. Innes (eds), *Recent Advances in Social Psychology: an international perspective*, pp 189-203, Amsterdam, North Holland, Elsevier Science Publishers.
- Bourke, R., Francis, L.J. and Robbins, M. (2005), Personality and attitude toward Christianity among church musicians, *North American Journal of Psychology*, 7, 85-88, 2005.
- Cronbach, L.J. and Meehl, P. (1955), Construct validity in psychological tests, *Psychological Bulletin*, 52, 281-302.
- Dorahy, M.J. and Lewis, C.A. (2001), The relationship between dissociation and religiosity: an empirical evaluation of Schumaker's theory, *Journal for the Scientific Study of Religion*, 40, 317-324.
- Ebel, R.L. (1961), Must all tests be valid?, *American Psychologist*, 16, 640-647.
- Edwards, A.L. (1957), *Techniques of Attitude Scale Construction*, New York, Appleton-Century-Crofts.
- Eek, J. (2001), *Religious Facilitation through Intense Liturgical Participation: a quasi-experimental study of Swedish pilgrims to Taizé*, Lund, University of Lund Studies in Psychology of Religion.
- Eiser, J.R. and van der Pligt, J. (1988), *Attitudes and Decisions*, London, Routledge.
- Evans, T.E. and Francis, L.J. (1996), Measuring attitude toward Christianity through the medium of Welsh, in L.J. Francis, W.K. Kay and W.S. Campbell (eds), *Research in Religious Education*, Leominster, Fowler Wright Books, pp 279-294.
- Eysenck, H.J. and Eysenck S.B.G. (1975), *Manual of the Eysenck personality questionnaire (adult and junior)*, London, Hodder and Stoughton.
- Eysenck, S.B.G., Eysenck, H.J. and Barrett, P. (1985), A revised version of the psychoticism scale, *Personality and Individual Differences*, 6, 21-29.
- Ferreira, A.V. and Neto, F. (2002), Psychometric properties of the Francis Scale of Attitude toward Christianity among Portuguese university students, *Psychological Reports*, 91, 995-998.
- Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intention and Behaviour: an introduction to theory and research*, Reading, Massachusetts, Addison-Wesley.
- Fowler, J.W. (1981), *Stages of Faith: the psychology of human development and the quest for meaning*, San Francisco, Harper and Row.
- Francis, L.J. (1978a), Attitude and longitude: a study in measurement, *Character Potential: a record of research*, 8, 119-130.
- Francis, L.J. (1978b), Measurement reapplied: research into the child's attitude towards religion, *British Journal of Religious Education*, 1, 45-51.
- Francis, L.J. (1987), Measuring attitudes towards Christianity among 12-18 year old pupils in Catholic schools, *Educational Research*, 29, 230-233.
- Francis, L.J. (1988), The development of a scale of attitude towards Christianity among 8-16 year olds, *Collected Original Resources in Education*, 12, 3, fiche 1, A04.
- Francis, L.J. (1989), Measuring attitude towards Christianity during childhood and adolescence, *Personality and Individual Differences*, 10, 695-698.
- Francis, L.J. (1991), Personality and attitude towards religion among adult churchgoers in England, *Psychological Reports*, 69, 791-794.
- Francis, L.J. (1992), Reliability and validity of the Francis scale of attitude towards Christianity

- (adult), *Panorama*, 4, 1, 17-19.
- Francis, L.J. (1993), Personality and religion among college students in the UK, *Personality and Individual Differences*, 14, 619-622.
- Francis, L.J. (1998), The relationship between intelligence and religiosity among 15 to 16 year olds, *Mental Health, Religion and Culture*, 1, 185-196.
- Francis, L.J. (1999), Personality and attitude toward Christianity among undergraduates, *Journal of Research on Christian Education*, 8, 179-195.
- Francis, L.J. (2001), Christianity and dogmatism revisited: a study among fifteen and sixteen year olds in the UK, *Religious Education*, 96, 211-226.
- Francis, L.J. (2005), Gender role orientation and attitude toward Christianity: a study among older men and women in the United Kingdom, *Journal of Psychology and Theology*, 33, 179-186.
- Francis, L.J. and Enger, T. (2002), The Norwegian translation of the Francis Scale of Attitude toward Christianity, *Scandinavian Journal of Psychology*, 43, 363-367.
- Francis, L.J. and Enger, T. (2005), Psykisk helse og holdning til Kristendommen blant grunnskoleelever i Norge, *Tidsskrift for Norsk Psykologforening*, 42, 700-705.
- Francis, L.J. and Greer, J.E. (1990), Measuring attitudes towards Christianity among pupils in Protestant secondary schools in Northern Ireland, *Personality and Individual Differences*, 11, 853-856.
- Francis, L.J. and Hermans, C.A.M. (2000), Internal consistency reliability and construct validity of the Dutch translation of the Francis scale of Attitude toward Christianity among adolescents, *Psychological Reports*, 86, 301-307.
- Francis, L.J., Jones, S.H. and Wilcox, C. (1997), Religiosity and dimensions of psychological well-being among 16-19 year olds, *Journal of Christian Education*, 40, 1, 15-20.
- Francis, L.J., Jones, S.H. and Wilcox, C. (2000), Religiosity and happiness: during adolescence, young adulthood and later life, *Journal of Psychology and Christianity*, 19, 245-257.
- Francis, L.J. and Kerr, S. (2003), Personality and religion among secondary school pupils in South Africa in the early 1990s, *Journal of Religion and Theology: a journal of contemporary religious discourse*, 10, 224-236.
- Francis, L.J., Kerr, S. and Lewis, C.A. (2005), Assessing attitude toward Christianity among adolescents in South Africa: the Francis scale, *South African Journal of Psychology*, 35, 147-155.
- Francis, L.J. and Kwiran, M. (1999b), Personality and religion among secondary pupils in Germany, *Panorama*, 11, 34-44.
- Francis, L.J. and Lester, D. (1997), Religion, personality and happiness, *Journal of Contemporary Religion*, 12, 81-86.
- Francis, L.J., Lewis, J.M., Brown, L.B., Philipchalk, R. and 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. and Ng, P. (2002), Assessing attitude toward Christianity among Chinese speaking adolescents in Hong Kong: the Francis scale, *North American Journal of Psychology* 4, 431-440.
- Francis, L.J., Lewis, C.A. and 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., and Lester, D. (1995), The internal consistency reliability and construct validity of the Francis scale of attitude towards Christianity (adult) among undergraduate students in the UK, USA, Australia and Canada, *Personality and Individual Differences*, 19, 949-953.
- Francis, L.J. and McCarron, M.M. (1989), The measurement of attitudes towards Christianity among Nigerian secondary school students, *Journal of Social Psychology*, 129, 569-571.
- Francis, L.J. and Pearson, P.R. (1987), Empathic development during adolescence: religiosity

- the missing link? *Personality and Individual Differences*, 8, 145-148.
- Francis, L.J., Quesnell, M. and Lewis, C.A. (2003), Assessing attitude toward Christianity among adolescents in the Czech Republic: the Francis scale, *Ceskoslovenská Psychologie*, (in press).
- Francis, L.J. and Robbins, M. (2000), Religion and happiness: a study in empirical theology, *Transpersonal Psychology Review*, 4 (2), 17-22.
- Francis, L.J. and Robbins, M. (2003), Christianity and dogmatism among undergraduate students, *Journal of Beliefs and Values*, 24, 89-95.
- Francis, L.J., Robbins, M., Lewis, C.A., Quigley, C.F. and Wheeler, C. (2004), Religiosity and general health among undergraduate students: a response to O'Connor, Cobb and O'Connor, *Personality and Individual Differences*, 37, 485-494.
- Francis, L.J., Robbins, M. and White, A. (2003), Correlation between religion and happiness: a replication, *Psychological Reports*, 92, 51-52.
- Francis, L.J. and Stubbs, M.T. (1987), Measuring attitudes towards Christianity: from childhood to adulthood, *Personality and Individual Differences*, 8, 741-743.
- Francis, L.J. and Thomas, E.M. (2003), The reliability and validity of the Francis Scale of Attitude toward Christianity among Welsh speaking 9-11 year olds, *The Psychologist in Wales*, 16, 9-14.
- Francis, L.J. and Wilcox, C. (1996), Religion and gender orientation, *Personality and Individual Differences*, 20, 119-121.
- Francis, L.J. and Wilcox, C. (1998), Religiosity and femininity: do women really hold a more positive attitude toward Christianity? *Journal for the Scientific Study of Religion*, 37, 462-469.
- Francis, L.J., Ziebertz, H.-G. and Lewis, C.A. (2002), The psychometric properties of the Francis Scale of Attitude toward Christianity among German students, *Panorama*, 14, 153-162.
- Francis, L.J., Ziebertz, H.-G. and Lewis, C.A. (2003), The relationship between personality and religion among undergraduate students in Germany, *Archiv für Religionspsychologie*, 24, 121-127.
- French, S. and Joseph, S. (1999), Religiosity and its association with happiness, purpose in life, and self-actualisation, *Mental Health, Religion and Culture*, 2, 117-120.
- Fulljames, P. and Francis, L.J. (1987), The measurement of attitudes towards Christianity among Kenyan secondary school students, *Journal of Social Psychology*, 127, 407-409.
- Ghorbani, N. and Watson, P.J. (2006), Religious orientation types in Iranian Muslims: differences in alexithymia, emotional intelligence, self-consciousness, and psychological adjustment, *Review of Religious Research*, 47, 303-310.
- Ghorbani, N., Watson, P.J., Ghramaleki, A.F., Morris, R.J. and Hood, R.W. (2000), Muslim attitudes toward religion scale: factors, validity and complexity of relationships with mental health in Iran, *Mental Health, Religion and Culture*, 3, 125-132.
- Ghorbani, N., Watson, P.J., Ghramaleki, A.F., Morris, R.J. and Hood, R.W. (2002), Muslim-Christian religious orientation scales: distinctions, correlations, and cross-cultural analysis in Iran and the United States, *The International Journal for the Psychology of Religion*, 12, 69-91.
- Ghorbani, N., Watson, P.J., Krauss, S.W., Bing, M.N. and Davison, H.K. (2004), Social science as dialogue: narcissism, individualist and collectivist values, and religious interest in Iran and the United States, *Current Psychology: developmental, learning and personality*, 23, 111,123.
- Greer, J.E. (1985), Viewing 'the other side' in Northern Ireland: openness and attitude to religion among Catholic and Protestant Adolescents, *Journal for the Scientific Study of Religion*, 24, 275-292.
- Gibson, H.M. (1989), Measuring attitudes towards Christianity among 11-16 year old pupils in non-denominational schools in Scotland, *Educational Research*, 31, 221-227.
- Gibson, H.M. and Francis, L.J. (1989), Measuring attitudes towards Christianity among 11- to

- 16- year old pupils in Catholic schools in Scotland, *Educational Research*, 31, 65-69.
- Greer, J.E. and Francis, L.J. (1991), Measuring attitudes towards Christianity among pupils in Catholic Secondary schools in Northern Ireland, *Educational Research*, 33, 70-73.
- Guttman, L. (1944), A basis for scaling qualitative data, *American Sociological Review*, 9, 139-150.
- Hill, P.C. and Hood, R.W. (eds) (1999), *Measures of Religiosity*, Birmingham, Alabama, Religious Education Press.
- Hood, R.W. jr., Ghorbani, N. Watson, P.J., Ghramaleki, A.F., Bing, M.N., Davison, H.K., Morris, R.J. and Williamson, W.P. (2001), Dimensions of the Mysticism Scale: confirming the three-factor structure in the United States and Iran, *Journal for the Scientific Study of Religion*, 40, 691-705.
- Jones, S.H. and Francis, L.J. (1996), Religiosity and self-esteem during childhood and adolescence, in L.J. Francis, W.K. Kay and W.S. Campbell (eds), *Research in Religious Education*, Leominster, Fowler Wright Books, pp 189-206.
- Joseph, S. and Diduca, D. (2001), Schizotypy and religiosity in 13-18 year old school pupils, *Mental Health, Religion and Culture*, 4, 63-69.
- Kay, W.K. and Francis, L.J. (1996), *Drift from the Churches: attitude toward Christianity during childhood and adolescence*, Cardiff, University of Wales Press.
- Khan, Z.H. and Watson, P.J. (2004), Religious orientation and the experience of *Eid-ul-Azha* among Pakistani Muslims, *Journal for the Scientific Study of Religion*, 34, 537-545.
- Khan, Z.H. and Watson, P.J. (2006), Construction of the Pakistani Religious Coping Practices Scale: correlations with religious coping, religious orientation, and reactions to stress among Muslim university students, *International Journal for the Psychology of Religion*, 16, 101-112.
- Khan, Z.H., Watson, P.J. and Habib, F. (2005), Muslim attitudes toward religion, religious orientation and empathy among Pakistanis, *Mental Health, Religion and Culture*, 8, 49-61.
- Krauss, S.E., Hamzah, A.H., Suandi, T., Noah, S.M., Juhar, R., Manap, J.H., Mastor, K.A., Kassan, H. and Mahmood, A. (2006), Exploring regional differences in religiosity among Muslim youth in Malaysia, *Review of Religious Research*, 47, 238-252.
- Krech, D., Crutchfield, R.S. and Ballackey, E.L. (1962), *Individual in Society*, New York, McGraw-Hill.
- Leach, M.M., Piedmont, R.L. and Monteiro, D. (2001), Images of God among Christians, Hindus, and Muslims in India, *Research in the Social Scientific Study of Religion*, 12, 207-225.
- Lester, D. and Francis, L.J. (1993), Is religiosity related to suicidal ideation after personality and mood are taken into account? *Personality and Individual Differences*, 15, 591-592.
- Lewis, C.A. (1994), Religiosity and obsessionality: the relationship between Freud's 'religious practices', *Journal of Psychology*, 128, 189-196.
- Lewis, C.A. (1996), Religiosity and obsessionality, in L.J. Francis, W.K. Kay and W.S. Campbell (eds), *Research in Religious Education*, pp 219-227, Leominster, Gracewing.
- Lewis, C.A. (1998), Towards a clarification of the association between religiosity and life satisfaction, *Journal of Beliefs and Values*, 19, 119-122.
- 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. and Francis, L.J. (2002), Reliability and validity of a Welsh translation of a short scale of attitude toward Christianity, *Irish Journal of Psychology*, 23, 101-108.
- Lewis, C.A. and Francis, L.J. (2003), Evaluer l'attitude d'étudiantes universitaires françaises à l'égard du Christianisme: l'Echelle de Francis, *Sciences Pastorals*, 22, 179-190.
- Lewis, C.A. and Francis, L.J. (2004), Reliability and validity of a French translation of a short scale of attitude toward Christianity, *Pastoral Psychology*, 52, 459-464.
- Lewis, C.A., Francis, L.J. and Enger, T. (2003), Reliability and validity of a Norwegian translation of a short scale of attitude toward Christianity, *Individual Differences Research*,

- 1, 230-235.
- Lewis, C.A., Francis, L.J. and Ng, P. (2003), Reliability and validity of a Chinese translation of a short scale of attitude toward Christianity, *Journal of Personality and Clinical Studies*, 19, 195-200.
- Lewis, C.A. and Hermans, C.A.M. (2003), Reliability and validity of a Dutch translation of a short scale of attitude toward Christianity, *Journal of Beliefs and Values*, 24, 97-100.
- Lewis, C.A. and Joseph, S. (1994), Religiosity: Psychoticism and obsessionality in Northern Irish university students, *Personality and Individual Differences*, 17, 685-687.
- Lewis, C.A., Joseph, S. and Noble, K.E. (1996), Is religiosity associated with life satisfaction? *Psychological Reports*, 79, 429-430.
- Lewis, C.A. and Maltby, J. (1995a), The reliability and validity of the Francis scale of attitude towards Christianity among US adults, *Psychological Reports*, 76, 1243-1247.
- Lewis, C.A. and Maltby, J. (1995b), Religiosity and personality among US adults, *Personality and Individual Differences*, 18, 293-295.
- Lewis, C.A. and Maltby, J. (1997), Reliability and validity of the Francis Scale of Attitude toward Christianity (adult) among Northern Irish university students, *Irish Journal of Psychology*, 18, 349-354.
- Lewis, C.A. and Maltby, J. (2000), Conservatism and attitude toward Christianity, *Personality and Individual Differences*, 29, 793-798.
- Likert, R. (1932), A technique for the measurement of attitudes, *Archives of Psychology*, 140, 1-55.
- Livingston, S.A. (1988), Reliability of test results, in J.P. Keeves (ed.), *Educational Research, Methodology and Measurement: an international handbook*, pp 386-392, Oxford, Pergamon Press.
- Maltby, J. (1994), The reliability and validity of the Francis scale of attitude towards Christianity among Republic of Ireland adults, *Irish Journal of Psychology*, 15, 595-598.
- Maltby, J. (1997), Personality correlates of religiosity among adults in the Republic of Ireland, *Psychological Reports*, 81, 827-831.
- Munayer, S.J. (2000), The ethic identity of Palestinian Arab Christian adolescents in Israel, Unpublished PhD dissertation, University of Wales (Oxford Centre for Mission Studies).
- O'Connor, D.B., Cobb, J. and O'Connor, R.C. (2003), Religiosity, stress and psychological distress: no evidence for an association among undergraduate students, *Personality and Individual Differences*, 34, 211-217.
- Orton, R.E. (1987), The foundations of construct validity: towards an update, *Journal of Research and Development in Education*, 21, 22-35.
- Osgood, C.E., Suci, G.J. and Tannenbaum, P.H. (1957), *The Measurement of Meaning*, Urbana, Illinois, University of Illinois Press.
- Robbins, M. and Francis, L.J. (1996), Are religious people happier? a study among undergraduates, in L.J. Francis, W.K. Kay and W.S. Campbell (eds), *Research in Religious Education*, Leominster, Fowler Wright Books, pp 207-218.
- Sahin, A. and Francis, L.J. (2002), Assessing attitude toward Islam among Muslim adolescents: the psychometric properties of the Sahin Francis scale, *Muslim Educational Quarterly*, 19(4), 35-47.
- Schludermann, E.H., Schludermann, S.M. and Huynh, C.-L., (2000), Religiosity, prosocial values, and adjustment among students in Catholic high schools in Canada, *Journal of Beliefs and Values*, 21, 99-115.
- Schludermann, E.H., Schludermann, S.M., Needham, D. and Mulenga, M. (2001), Fear of rejection versus religious commitment as predictors of adjustment among Reformed and Evangelical college students in Canada, *Journal of Beliefs and Values*, 22, 209-224.
- Spilka, B., Hood, R.W., Hunsberger, B. and Gorsuch, R. (eds) (2003), *The Psychology of Religion: an empirical approach* (third edition), New York, Guilford Press.
- Thorson, J.A., Powell, F.C., Abdel-Khalek, A.M. and Beshai, J.A. (1997), Constructions of

- religiosity and death anxiety in two cultures: the United States and Kuwait, *Journal of Psychology and Theology*, 25, 374-383.
- Thurstone, L.L. (1928), Attitudes can be measured, *American Journal of Sociology*, 33, 529-554.
- Watson, P.J., Ghorbani, N., Davison, H.K., Bing, M.N., Hood, R.W. and Ghramaleki, A.F. (2002), Negatively reinforcing personal extrinsic motivations: religious orientation, inner awareness, and mental health in Iran and the United States, *International Journal for the Psychology of Religion*, 12, 255-276.
- Wilde, A. and Joseph, S. (1997), Religiosity and personality in a Moslem context, *Personality and Individual Differences*, 23, 889-900.
- Youtika, A., Joseph, S. and Diduca, D. (1999), Personality and religiosity in a Greek Christian Orthodox sample, *Mental Health, Religion and Culture*, 2, 71-74.
- Zeller, R.A. (1988), Validity, in J.P. Keeves (ed.), *Educational Research, Methodology, and Measurement: an international handbook*, pp 322-330, Oxford, Pergamon Press.