

**Original citation:**

Lewis, C. A. et al. (2011). The association between church attendance and psychological health in Northern Ireland : a national representative survey among adults allowing for sex differences and denominational difference. *Journal of Religion and Health*, 50(4), pp. 986-995.

**Permanent WRAP url:**

<http://wrap.warwick.ac.uk/49380/>

**Copyright and reuse:**

The Warwick Research Archive Portal (WRAP) makes the work of researchers of the University of Warwick available open access under the following conditions. Copyright © and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners. To the extent reasonable and practicable the material made available in WRAP has been checked for eligibility before being made available.

Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

**Publisher's statement:**

The original publication is available at [www.springerlink.com](http://www.springerlink.com)

**A note on versions:**

The version presented here may differ from the published version or, version of record, if you wish to cite this item you are advised to consult the publisher's version. Please see the 'permanent WRAP url' above for details on accessing the published version and note that access may require a subscription.

For more information, please contact the WRAP Team at: [wrap@warwick.ac.uk](mailto:wrap@warwick.ac.uk)

warwick**publications**wrap  
  
highlight your research

<http://go.warwick.ac.uk/lib-publications>

The association between church attendance and psychological health in Northern Ireland: A national representative survey allowing for sex differences and denominational difference.

Christopher Alan Lewis, Mark Shevlin

School of Psychology, University of Ulster at Magee College, Northern Ireland

Leslie J. Francis

School of Education, University of Warwick, England

Catherine F. Quigley

School of Psychology, University of Sheffield, England

Running Head: Church attendance and psychological health in Northern Ireland

Keywords: Church attendance, religiosity, psychological health, Northern Ireland

Address correspondence to: Dr Christopher Alan Lewis, School of Psychology,  
University of Ulster at Magee College, Londonderry, Northern Ireland, BT48 7JL.

Email: [ca.lewis@ulster.ac.uk](mailto:ca.lewis@ulster.ac.uk)

Phone: 0044 2871 375320

Fax: 0044 2871 375493

The association between church attendance and psychological health in Northern Ireland: A national representative survey allowing for sex difference and denominational difference.

#### ABSTARCT

This study extends previous research concerning the association between religion and psychological health in six ways: (1) by focusing clearly on religious attendance (church attendance); (2) by employing a robust measure of psychological distress (GHQ-12); (3) by studying a highly religious culture (Northern Ireland); (4) by taking sex differences into account (male or female); (5) by taking denominational differences into account (Catholic or Protestant); (6) and by obtaining a national representative sample (N = 4281 adults aged 16 and above). Results from a 2 (sex) by 2 (denomination) ANCOVA demonstrated that Catholics recorded significantly lower levels of psychological health compared to Protestants, and that females showed significantly lower levels of psychological health compared to males. In addition, females reported higher frequency of religious service attendance than males, and Catholics reported higher attendance rates than Protestants. A significant positive association was found between frequency of religious attendance and GHQ-12 scores, and this association was moderated by sex and denomination. In conclusion, the results suggest that there may be sex and denominational differences in further understanding the relationship between frequency of religious attendance and psychological health.

## INTRODUCTION

The association between religion and health in general and between religion and psychological or mental health in particular remains a complex field of study, not least in view of the problems involved in defining and operationalising measures of these two broad and problematic variables of religion and health. Overall, reviews of the literature suggest that there are more studies that support that religion has a beneficial effect on mental health, than suggest that this is not the case (Bergin, 1983; Gartner, Larson & Allen, 1991; Matthews, McCullough Larson, Koenig, Swyers & Milano, 1998; Koenig, McCullough & Larson, 2000). For example, in their review of the literature, Koenig, McCullough and Larson, (2000) identified more than 850 articles examining the association between religion and mental health and found that more than two-thirds of these studies reported a positive association between the two variables. The problem persists, however, concerning the discrepancy in the literature regarding the remaining third of the studies. The aim of the present study was to add to existing knowledge in this field in six ways by focusing specifically on: church attendance as a recognised measure of religiosity; the General Health Questionnaire (GHQ) as a recognised measure of psychological health; Northern Ireland as a highly distinctive social and cultural context in which to examine the association between religion and psychological health; the potential contaminants of sex differences; the significance of denominational identity as a further potential contaminant; and the utilisation of a national representative sample of adults.

First, church attendance has been well established as an indicator of individual differences in religiosity. In terms of physical health, religious attendance has been found to be related to fewer hospital admissions and fewer days spent in hospital

(Koenig & Larson, 1998) and lower mortality rates (Hummer, Rogers, Nam, & Ellison, 1999; Koenig, Hays, Larson, George, Cohen, McCullough, Meador, & Blazer, 1999; Strawbridge, Cohen, Shema, & Kaplan, 1997). In terms of mental health, religious attendance has been found to serve as a buffer against the harmful effects of stressful life events, such as political violence (Wilson & Cairns, 1992), unemployment (Shams & Jackson, 1993), and to be related to both a lower prevalence of depression (Ellison, 1995; Koenig, Hays, George, Blazer, Larson, & Landerman, 1997), and to better mental health (for example, Hintikka, Koskela, Kontula, & Viinamaki, 2000). The present study builds on this received tradition.

Second, most previous research has operationalised psychological well-being in terms of low scores on a variety of non-diagnostic measures of depression and anxiety (e.g., Watson, Hood, Foster, & Morris, 1988; Watson, Morris, & Hood, 1989; Ross, 1990; Kennedy, Kelman, Thomas, & Chen, 1996). By way of contrast, only a small number of studies have examined the relationship between indices of religiosity and mental health employing the GHQ. This is somewhat surprising as the family of GHQ measures (Goldberg & Williams, 1988: GHQ-12, GHQ-28, GHQ-30, and GHQ-60) are much favoured measures in health, epidemiology, and clinical psychology. It is a widely used scale in the UK and other countries for measuring psychiatric disturbance (Bowling, 1997), has been cross-culturally validated (for example, Daradkeh, Ghubash, & El-Rufaie, 2001), and has been employed by the World Health Organisation (Goldberg, Gater, Sartorius, Ustun, Piccinelli, Gureje, & Rutter, 1997). Higher scores on the GHQ indicate a higher level of psychological distress.

The limited numbers of studies concerned with religion that have employed the GHQ have demonstrated a consistent pattern of associations with various indices

of religiosity. For example, GHQ scores have been found to be negatively associated with the attitudinal dimension of religion among UK students ( $r = -.28$ ,  $p < .001$ , Francis, Robbins, Lewis, Quigley, & Wheeler, 2004) and among US caregivers ( $r = -.24$ ,  $p < .05$ , Rabins, Fitting, Eastham, & Fetting, 1990), with extrinsic religious orientation among a US Christian College sample ( $r = -.20$ ,  $p < .05$ , Ryan, Rigby, & King, 1993), with church attendance among Finnish adults ( $\chi^2 = 10.70$ ,  $df = 3$ ,  $p < .05$ , Hintikka, Koskela, Kontula, & Viinamak, 2000), and among UK students ( $r = -.18$ ,  $p < .05$ , Francis, Robbins, Lewis, Quigley, & Wheeler, 2004), and with personal prayer among UK students ( $r = -.19$ ,  $p < .05$ , Francis, Robbins, Lewis, Quigley, & Wheeler, 2004). The present study builds on this developing tradition.

Third, the clear weight of previous research evidence on the association between religiosity and mental health has been generated by studies conducted in the USA (Koenig, McCullough & Larson, 2000). While this is consistent with the weight of research evidence in other related fields within the psychology of religion (Hood, Spilka, Hunsberger, & Gorsuch, 1996), there are clear advantages in this research tradition being extended to other social and cultural contexts. Northern Ireland would seem to be a particularly appropriate place in which to examine the possible psychological benefits of religion due to the saliency of religion in many socio-political aspects of life (e.g., Cairns & Lewis, 1999; Dorahy & Lewis, 2001; Lewis, 2001). Northern Ireland is generally considered to be the one of the most religious countries in the Western World (Cairns, 1991). For example, over thirty years ago Rose (1976, p. 11) argued that Northern Ireland is “probably the most Christian Society in the Western World except for the Republic of Ireland”. More recent research confirms the persistence of religious affiliation, belief, and practice in Northern Ireland (Francis, Robbins, Barnes, & Lewis, 2006a, 2006b; Francis, ap Siôn,

Lewis, Barnes, & Robbins, 2006). Moreover, Northern Ireland is of particular interest and relevance in view of the clearly established divisions between Catholic and Protestant communities. In short, “Religious affiliation in Northern Ireland tends to define two groups with distinctly different values and attitudes about many aspects of life, not just political” (Northern Ireland Health and Social Wellbeing Survey, 2001, p. 15). The present study is shaped in Northern Ireland.

Fourth, sex differences may provide a serious contaminant for empirical research conducted in the areas of religion and psychological well-being. The finding that women are more religious than men is one of the most secure findings in this field (Argyle & Beit-Hallahmi, 1975; Beit-Hallahmi & Argyle, 1997). More recent reviews have confirmed this (Francis, 1997), especially within predominantly Christian or post-Christian contexts, although some other studies have cautioned against generalizing these conclusions to contexts shaped by other major world faiths (Loewenthal, MacLeod, & Cinnirella, 2002). On the other hand, sex differences have also been recorded for a number of other indicators of psychological stability or mental health (Francis, 1993). In terms of the GHQ, where higher scores indicate higher levels of psychological distress, studies based on national probability samples have reported higher scores for females in Australia (Finaly-Jones & Burvill, 1977), Canada (D’Arcy, 1982), and England (Cox, Blaxter, Buckle, Fenner, Golding, Gore, Huppert, Nickson, Roth, Stark, Wadsworth, & Wicheloe, 1987). However, this difference has not always been found (Jenkins, 1985; Hodiament, Peer, & Syben, 1987). The present study is designed to take sex differences into account.

Fifth, denominational differences may provide a second serious contaminant for empirical research concerned with the association between religious practice and psychological well-being. On the one hand, there is evidence to suggest that

Protestants report significantly lower frequency of religious service attendance than Catholics. This is, for example, the case in Northern Ireland (Greer & Francis, 1990; Giles & Cairns, 1996; Francis & Greer, 1999) and in England (Francis, 1982a, 1982b; Francis & Richter, 2007). On the other hand, there is evidence to suggest that Protestants report significantly higher levels of psychological well-being than Catholics. This is the case, for example, in Northern Ireland, where Catholics record higher scores than Protestants on the GHQ (Cairns & Lewis, 1999). The present study is designed to take denominational differences into account.

Sixth, most previous research has employed non-representative samples, including in-patients, out-patients, the elderly, and university students (see Koenig, McCullough, & Larson, 2000). The present study address this limitation by analysing data provided by a national representative sample of adults who participated in the Northern Ireland Health and Social Wellbeing Survey (2001).

## Method

### Participants

Data from the Northern Ireland Health and Social Wellbeing Survey (2001) were used in this study. The survey was based on a representative sample of all adults aged 16 and over living in Northern Ireland. The random sample of 5,000 households was drawn from the Valuation and Lands Agency (VLA) list, the most recent listing of private households, and made available to the Northern Ireland Statistics and Research Agency for research purposes. Data were collected between February and June 2001 by face-to-face interview. Elements of the survey, in particular The General Health Questionnaire (Goldberg & Williams, 1988), were self-completed by each participant. The response rate (eligible addresses) was 68%, yielding 5205

participants (41.5% male and 58.5% female). The religious denomination of the sample comprised 1806 (40.4%) Catholics, and 2513 (56.3%) Protestants (this category included Presbyterian, Church of Ireland, Methodist, Baptist, Free Presbyterian, Brethren, and Protestant - not specified). The remaining participants either refused to answer or were labeled 'other religion' (N=147, 3.3%). The mean age was 47.12 (SD=18.58). Participants were also classified in terms of socio-economic groups according to a 'Standard Industrial Classification', a five category classification from 'Professional/Managerial' (1) to 'Unskilled' (5). The effective sample size after listwise deletion of missing values was approximately 4281, although this varied by analysis.

### Materials

As part of the Northern Ireland Health and Social Wellbeing Survey (2001) respondents completed the 12-item General Health Questionnaire (GHQ-12: Goldberg & Williams, 1988). Responses to the GHQ-12 were used to measure psychological wellbeing. The GHQ-12 is a self-report scale scored using the Likert method (0, 1, 2, 3) and has demonstrated excellent psychometric properties (for example see Goldberg & Williams, 1988; Shevlin & Adamson, 2005). Total possible scale scores range from 0 to a maximum of 36, higher scores indicating higher levels of psychological distress.

Respondents indicated their religious denomination. Responses were subsequently classified as 'Roman Catholic', 'Protestant', or 'Others'. The latter category was excluded from the subsequent analyses. Attendance at religious services was assessed using the question, "How often do you attend your place of worship?" The response format used a seven-point scale: (1) More than once a week, (2) At least

once a week, (3) At least once a fortnight, (4) At least once a month, (5) At least once every few months, (6) At least once a year, and (7) Less often. Total possible scores range from 1 to a maximum of 7, with lower scores indicating a greater frequency of religious attendance.

### Analysis and Results

Mean GHQ-12 scores and ratings of frequency of attendance at place of worship, categorized by sex and religious denomination, are presented in Table 1.

Insert Table 1 here

For the entire sample females (11.79) scored higher than males (11.25) on the GHQ-12, and this difference was consistent for each denominational group, and Catholics (11.51) scored higher than Protestants (11.05). A 2 (sex) x 2 (denomination) ANCOVA, using socio-economic group and age as covariates, produced a significant main effect for sex ( $F(1,3719)=42.24, p=.00, \eta^2=.011$ ) and denomination ( $F(1,3719)=4.73, p=.03, \eta^2=.001$ ). The sex by denomination interaction was not statistically significant ( $F(1,3719)=.06, p=.81, \eta^2=.00$ ). The effect size ( $\eta^2$ ) for each main effect was small, and the two independent variables accounted for a small percentage of the total variance ( $R^2 = .014$ ).

For the entire sample females (4.02) reported higher frequency of religious service attendance than males (4.59), and this difference was consistent for each denominational group, and Catholics (3.37) reported higher attendance rates than Protestants (4.90). A 2 (sex) x 2 (denomination) ANCOVA, using socio-economic

group and age as covariates, with attendance as the dependant variable, produced a significant main effect for sex ( $F(1,3748)= 46.22, p=.00, \eta^2=.02$ ), and denomination ( $F(1,3748)= 433.95, p=.00, \eta^2=.10$ ). The sex by denomination interaction was not statistically significant  $F(1,3748)=.06, p=.81, \eta^2=.00$ . The effect size ( $\eta^2$ ) for each main effect was small, and the two independent variables accounted for a small percentage of the total variance ( $R^2 = .150$ ).

The association between psychological wellbeing and frequency of religious service attendance in the entire sample was estimated by correlating GHQ-12 scores and frequency of religious attendance. Using all sample data the correlation was small ( $r=.096$ ) but statistically significant ( $p=.00$ ). The partial correlation, controlling for socio-economic group and age, was  $r=.088$  ( $p=.00$ ). These correlations suggest that higher levels of religious service attendance are associated with higher levels of psychological well-being. The zero-order and partial correlations between GHQ-12 scores and frequency of religious service attendance were also calculated for each level of sex and denomination. The correlations are reported in Table 2. Partial correlations controlling for socio-economic group and age are reported in parenthesis.

Table 2 here

In general the correlation between psychological wellbeing and attendance was higher for Catholics, and the association being higher for females ( $r = .186$ ) than males ( $r = .141$ ) although the difference between the two correlations was not statistically significant ( $z=0.95, p=0.17$ ). The weakest association was for Protestant males ( $r = .053$ ), with Protestant females showing a higher association ( $r = .127$ ). The difference between the correlation coefficients was statistically significant ( $z=1.84, p=0.03$ ).

The difference between the correlations for Catholic and Protestant females was not significant ( $z=1.50$ ,  $p=0.06$ ), but the difference between Catholic and Protestant males was significant ( $z=1.83$ ,  $p=0.03$ ) with a higher correlation for Catholics. The magnitude of the partial correlations was very similar to the zero-order correlations. Although all the correlations are statistically significant they represent small effect sizes.

### Discussion

In the present study religious denomination, sex, and attendance at worship were found to be significant predictors of psychological well-being as measured by the GHQ-12 among a large representative sample of adults in Northern Ireland. Three points from the results reported in Table 1 seem noteworthy.

First, with respect to denominational differences, Protestants reported significantly lower frequency of religious service attendance than Catholics. This finding is consistent with the literature of church attendance in Northern Ireland (Francis & Greer, 1999; Giles & Cairns, 1996; Greer & Francis, 1990), and more generally within the psychology of religion (Francis, 1982a, 1982b). In addition, Catholics showed lower levels of psychological well-being than Protestants, by scoring significantly higher on the GHQ. This finding is consistent with the literature on GHQ scores in Northern Ireland (Cairns & Lewis, 1999).

Second, with respect to sex differences, males reported significantly lower frequency of religious service attendance than females. This finding is consistent with the literature of church attendance within the empirical literature in the psychology of religion (for example Argyle & Beit-Hallahmi, 1975; Beit-Hallahmi & Argyle, 1997; Francis, 1997; Wulff, 1997). In addition, females scored significantly higher, than

males on the GHQ-12, indicating greater psychological distress. This finding is consistent with the literature on the GHQ-12 (Cox, et al., 1987; D'Arcy, 1982; Finaly-Jones & Burvill, 1977) and the wider literature on sex differences in mental health (for example, Prince, Beekman, Deeg, Fuhrer, Kivela, Lawlor, Lobo, Magnusson, Meller, Van Oyen, Reischies, Roelands, Skoog, Turrina, & Copeland, 1999; Silverstein 1999).

Third, the correlation between GHQ-12 and frequency of religious service attendance demonstrates a low positive correlation between psychological distress and less frequent religious service attendance ( $r=.096$ ,  $p = .00$ ). Alternatively stated, better psychological well-being is associated with a greater frequency of service attendance. The present findings further suggest that there may be important sex and cultural differences in understanding the relationship between religion and mental health (see Loewenthal, 1995). The degree of association between psychological well-being and frequency of attendance at a place of worship is moderated by sex and religious denomination. Table 2 shows that the association is generally stronger for Catholics, and within each denomination the association is strongest for females. Overall, these findings are consistent with previous research that has examined the relationship between GHQ scores and frequency of church attendance (Hintikka, Koskela, Kontula, & Viinamaki, 2000; Francis, Robbins, Lewis, Quigley, & Wheeler, 2004), religious orientation scores (Ryan, Rigby, & King, 1993), religious attitude scores (Francis, Robbins, Lewis, Quigley, & Wheeler, 2004), frequency of personal prayer (Francis, Robbins, Lewis, Quigley, & Wheeler, 2004), and more generally with studies that have examined the relationship between religiosity and mental health (see Koenig, McCullough, & Larson, 2000).

## **Conclusion**

The present study has drawn carefully and creatively on the Northern Ireland Health and Social Wellbeing Survey (2001) in order to examine and elucidate the association between church attendance and psychological health. Taking the GHQ-12 as a measure of psychological health, these data have demonstrated a positive association between more frequent attendance and better psychological health and also drew attention to the role of sex differences and denominational differences in shaping that association.

The major strength of the present study concerns the sophistication of the sampling. Here is a random sample of 5000 households designed to be representative of all adults aged 16 and over living in Northern Ireland. It is unusual in the UK for data on the association between religion and psychological health to be generated within such a secure framework. There are, however, two limitations with the study that could be addressed in future surveys of this nature in Northern Ireland, given the clear evidence from the present analysis concerning the positive link between religion and psychological health. The first limitation concerns the measure of psychological health employed in the study. While the 12-item General Health Questionnaire provides a useful and well-established short measure of general well-being highly appropriate for surveys of this nature, the longer forms of the General Health Questionnaire provide more nuanced measures.

The second limitation concerns the restricted measures of religiosity included in the study, namely church attendance (as a measure of religious practice) and denomination (as a measure of religious affiliation). A more nuanced account of the association between religion and psychological health could be provided by including in such surveys measures of other key dimensions of religiosity as illustrated by the

compendium of instruments published by Hill and Hood (1999), including scales accessing religious beliefs, God images and attitudes toward religion. In particular there are distinct benefits from employing a measure concerned with the attitudinal dimension of religion, since this is generally regarded as a highly salient dimension of religion for predicting individual differences (Kay & Francis, 1996). Unlike indicators of religious denomination, attitude measures are not contaminated by the problem of nominalism (Fane, 1999). Unlike indicators of religious practice (such as church attendance), attitude measures are not contaminated by the problem of personal and contextual influences, like ill health, which may inhibit attendance or social conformity that may predispose attendance.

Notwithstanding these limitations, at a practical level, the finding suggests ways in which religiosity, in terms of religious denomination and religious practice, may be a matter of social significance in understanding variations in levels of self-reported psychological health across different sectors of the community. If religiosity is a significant predictor of self-assessed psychological health, it is clearly a mistake to build models of health-related needs without taking religiosity into account.

In conclusion, the results of the present study support previous studies showing a positive association between frequency of religious attendance and psychological health. Significant denominational and sex effects were found, and as such suggest these factors are likely to be important in further understanding the relationship between religion and psychological health.

REFERENCES

- Argyle, M., & Beit-Hallahmi, B. (1975). *The social psychology of religion*. London: Routledge and Kegan Paul.
- Beit-Hallahmi, B., & Argyle, M. (1997). *The psychology of religious behaviour, belief and experience*. London: Routledge.
- Bergin, A.E. (1983). Religiosity and mental health: A critical re-evaluation and meta-analysis. *Professional Psychology: Research and Practice, 14*, 170-184.
- Bowling, A. (1997). *Measuring health: A review of life measurement scales* (2nd ed.). Philadelphia, PA: Open University Press.
- Cairns, E. (1991). Is Northern Ireland a conservative society? In P. Stringer & G. Robinson (Eds.), *Social attitudes in Northern Ireland*, (pp. 142-151). Belfast, UK: Blackstaff Press.
- Cairns, E., & Lewis, C.A. (1999). Memories for political violence and mental health. *British Journal of Psychology, 90*, 25-33.
- Cox, B.D., Blaxter, M., Buckle, A.L.J., Fenner, A.P., Golding, J.F., Gore, M., Huppert, F., Nickson, J., Roth, M., Stark, J, Wadsworth, M., & Wicheloe, M. (1987). *The Health and Lifestyle Survey*. Cambridge: Health Promotion Research Trust.
- D'Arcy, C. (1982). Prevalence and correlates of nonpsychotic psychiatric symptoms in the general population. *Canadian Journal of Psychiatry, 27*, 316-324.
- Daradkeh, T.K., Ghubash, R., & El-Rufaie, O.E.F. (2001). Reliability, validity and factor structure of the Arabic version of the 12-item General Health Questionnaire. *Psychological Reports, 89*, 85-94.

- Dorahy, M.J., & 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.
- Ellison, C.G. (1995). Race, religious involvement and depressive symptomatology in a southern eastern U.S. community. *Social Science and Medicine*, 40, 1561-1572.
- Fane, R.S. (1999). Is self-assigned religious affiliation socially significant? In L.J. Francis (Ed.), *Sociology, theology and the curriculum*, (pp. 113-124). London: Cassell.
- Finally-Jones, R.A., & Burvill, P.W. (1977). The prevalence of minor psychiatric morbidity in the community. *Psychological Medicine*, 7, 475-489.
- Francis, L.J. (1982a). *Youth in transit*. Aldershot, UK: Gower Publishing Co. Ltd.
- Francis, L.J. (1982b). *Experience of adulthood*. Aldershot, UK: Gower Publishing Co. Ltd.
- Francis, L.J. (1993). The dual nature of the Eysenckian neuroticism scales: A question of sex differences? *Personality and Individual Differences*, 15, 43-59.
- Francis, L.J. (1997). The psychology of gender differences in religion: A review of empirical research. *Religion*, 27, 81-96.
- Francis, L.J., ap Siôn T., Lewis, C.A., Barnes, L.P., & Robbins, M. (2006). Attitude toward Christianity and religious experience: Replication among 16- to 18- year-old adolescents in Northern Ireland. *Research in Education*, 76, 56-61.
- Francis, L.J., & Greer, J.E. (1999). Religious experience and attitude toward Christianity among Protestant Catholic adolescents in Northern Ireland. *Research in Education*, 61, 1-15.

- Francis L.J., & Richter, P. (2007). *Gone for good? Church-leaving and returning in the 21st century*. Peterborough, UK: Epworth.
- Francis, L.J., Robbins, M., Barnes, L.P., & Lewis, C.A. (2006a). Sixth form religion in Northern Ireland: The Protestant profile 1968-1998. *British Journal of Religious Education*, 28, 3-18.
- Francis, L.J., Robbins, M., Barnes, L.P., & Lewis, C.A. (2006b). Religiously affiliated schools in Northern Ireland: The persistence of denominational differences in pupils' religious and moral values. *Journal of Empirical Theology*, 19, 182-202.
- Francis, L.J., Robbins, M., Lewis, C.A., Quigley, C.F., & Wheeler, C. (2004). Religiosity and general health among undergraduate students: A response to O'Connor, Cobb & O'Connor (2003). *Personality and Individual Differences*, 37, 485-494.
- Gartner, J., Larson, D.B., & Allen, G.D. (1991). Religious commitment and mental health: A review of the empirical literature. *Journal of Psychology and Theology*, 19, 6-25.
- Greer, J.E., & Francis, L.J. (1990). The religious profile of pupils in Northern Ireland: A comparative study of pupils attending Catholic and Protestant secondary schools. *Journal of Empirical Theology*, 3, 35-50.
- Giles, M., & Cairns, E. (1996). Church attendance in Northern Ireland: Catholics and Protestants compared. *Journal of Community and Applied Social Psychology*, 6, 299-305.
- Goldberg D., & Williams, P. (1988). *A user's guide to the General Health Questionnaire*. Windsor, England: NFER-NELSON Publishing Co Ltd.

- Goldberg D.P., Gater, R., Sartorius N., Ustun T.B., Piccinelli M., Gureg O., & Rutter C. (1997). The validity of two versions of the GHQ in the WHO Study of Mental Illness in General Health Care. *Psychological Medicine*, 27, 191-197.
- Goldberg, D.P., Gater, R., Sartorius, N., Ustun, T.B., Piccinelli, M., Gureje, O., & Rutter, C. (1997). The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychological Medicine*, 27, 191-197.
- Hill, P.C., & Hood, R.W. (1999). *Measures of religiosity*. Birmingham, Al.: Religious Education Press.
- Hintikka, J., Koskela, K., Kontula, O., & Viinamaki, H. (2000). Gender differences in associations between religious attendance and mental health in Finland. *Journal of Nervous and Mental Disease*, 188, 772-776.
- Hodiamont, P., Peer, N., & Syben, N. (1987). Epidemiological aspects of psychiatric disorder in a Dutch health area. *Psychological Medicine*, 17, 495-506.
- Hood, R.W., Spilka, B., Hunsberger, B., & Gorsuch, R.L. (1996). *The psychology of religion: An empirical approach*. New York: Guildford Press.
- Hummer, R.A., Rogers, R.G., Nam, C.B., & Ellison, C.G. (1999). Religious involvement and U.S. adult mortality. *Demography*, 36, 273-285.
- Jenkins, R. (1985). Sex differences in minor psychiatric morbidity. Monograph Supplement No 7. *Psychological Medicine*. Cambridge: Cambridge University Press.
- Kay, W.K., & Francis, L.J. (1996). *Drift from the churches: Attitude toward Christianity during childhood and adolescence*. Cardiff, UK: University of Wales Press.

- Kennedy, G. J., Kelman, H. R., Thomas, C., & Chen, J. (1996). The relation of religious preference and practice to depressive symptoms among 1,855 adults. *Journal of Gerontology: Psychological Sciences, 51B*, 301-308.
- Koenig, H.G., Hays, J.C., George, L.K., Blazer, D.G Larson, D.B., & Landerman, L.R. (1997). Modelling the cross-sectional relationships between religion, physical health, social support, and depressive symptoms. *American Journal of Geriatric Psychiatry, 5*, 131-144.
- Koenig, H.G., Hays, J.C., Larson, D.B., George, L.K., Cohen, H.J., McCullough, M.E., Meador, K.G., & Blazer, D.G. (1999). Does religious attendance prolong survival? A six-year follow-up study of 3,968 older adults. *Journal of Gerontology A Biological Sciences Medical Sciences, 54*, 370-376.
- Koenig, H.G., & Larson, D.B. (1998). Use of hospital services, religious attendance, and religious affiliation. *Southern Medical Journal, 91*, 925-932.
- Koenig, H.G., McCullough, M., & Larson, D. (2000). *Handbook of religion and health*. New York: Oxford University Press.
- Lewis, C.A. (2001). Cultural stereotype of the effects of religion on mental health. *British Journal of Medical Psychology, 74*, 359-367.
- Loewenthal, K.M. (1995). *Mental health and religion*. London: Chapman and Hall.
- Loewenthal, K. M., MacLeod A. K., & Cinnirella, M. (2002). Are women more religious than men? Gender differences in religious activity among different religious groups in the UK. *Personality and Individual Differences, 32*, 133-139.
- Matthews, D.A., McCullough, M.E., Larson, D.B., Koenig, H.G., Swyers, J.P., & Milano, M.G. (1998). Religious commitment and health status: A review of the

- research and implications for family medicine. *Archives of Family Medicine*, 7, 118-124.
- Northern Ireland Health and Social Wellbeing Survey (2001). *Northern Ireland Health and Social Wellbeing Survey 2001 user guide*. Belfast, UK: NISRA.
- Prince, M.J., Beekman, A.T., Deeg, D.J., Fuhrer, R., Kivela, S.L., Lawlor, B.A., Lobo, A., Magnusson, H., Meller, I., Van Oyen, H., Reischies, F., Roelands, M., Skoog, I., Turrina, C., & Copeland, J.R. (1999). Depression symptoms in late life assessed using the EURO-D Scale: Effects of age, gender and marital status in 14 European Centres. *British Journal of Psychiatry*, 174, 339-345.
- Rabins, P.V., Fitting, M.D., Eastham, J., & Fetting, J. (1990). The emotional impact of caring for the chronically ill. *Psychosomatics*, 31, 331-336.
- Rose, R. (1976). *Northern Ireland: A time for choice*. London: Macmillan.
- Ross, C.E. (1990). Religion and psychological distress. *Journal for the Scientific Study of Religion*, 29, 236-245.
- Ryan, R.M., Rigby, S., & King, K. (1993). Two types of religious internalization and their relations to religious orientations and mental health. *Journal of Personality and Social Psychology*, 65, 586-596.
- Shams, M., & Jackson, P.R. (1993). Religiosity as a predictor of well-being and moderator of the psychological impact of unemployment. *British Journal of Medical Psychology*, 66, 341-352.
- Shevlin, M., & Admson, G. (2005). Alternative factor models and factorial invariance of the GHQ-12: A large sample analysis using confirmatory factor analysis. *Psychological Assessment*, 17, 231-236.

- Silverstein, B. (1999). Gender differences in the prevalence of clinical depression: The role played by depression associated with somatic symptoms. *American Journal of Psychiatry*, 156, 480-482.
- Strawbridge, W.J., Cohen, R.D., Shema, S.J., & Kaplan, G.A. (1997). Frequent attendance at religious services and mortality over 28 years. *American Journal of Public Health*, 87, 957-961.
- Watson, P. J., Morris, R.J., & Hood, R.W. (1989). Sin and self-functioning, part 4: Depression, assertiveness, and religious commitments. *Journal of Psychology and Theology*, 17, 44-58.
- Watson, P.J., Hood, R. W., Foster, S.G., & Morris, R.J. (1988). Sin, depression, and narcissism. *Review of Religious Research*, 29, 295-305.
- Wilson, R., & Cairns, E. (1992). Troubles, stress and psychological disorder in Northern Ireland. *The Psychologist*, 5, 347-350.
- Wulff, D.M. (1997). *Psychology of religion: Classic and contemporary views* (2<sup>nd</sup> edition). New York: John Wiley and Sons.

Table 1

Descriptive statistics for the GHQ-12 and attendance at worship by sex and religious denomination.

Religion	Sex	Mean	Std. Deviation	N
Catholic	Male	10.74	5.60	707
	Female	12.02	6.05	1081
	Total	11.51	5.91	1788
Protestant	Male	10.29	5.18	1068
	Female	11.62	5.70	1425
	Total	11.05	5.52	2493
Total	Male	10.47	5.35	1775
	Female	11.79	5.86	2506
	Total	11.25	5.69	4281

Frequency of attendance at place of worship

Religion	Sex	Mean	Std. Deviation	N
Catholic	Male	3.65	2.38	714
	Female	3.19	2.22	1092
	Total	3.37	2.29	1806
Protestant	Male	5.21	2.49	1077
	Female	4.66	2.56	1436
	Total	4.90	2.55	2513
Total	Male	4.59	2.56	1791
	Female	4.02	2.53	2528
	Total	4.26	2.56	4319

Table 2

Correlations between GHQ-12 and attendance by sex and denomination.

	Male	Female
	r=.141 (.148)	r=.186 (.208)
	p=.000 (.000)	p=.000 (.000)
Catholic	N=707 (631)	N=1081 (882)
	r=.053 (.066)	r=.127 (.100)
Protestant	p=.000 (.039)	p=.000 (.000)
	N=1068 (964)	N=1436 (1232)

Note: partial correlations in parenthesis.