

Reliability and Validity of a German Translation of a Short Scale of Attitude Toward Christianity

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ABSTRACT - To facilitate cross-cultural research in the psychology of religion, the reliability and validity of a German translation of the 7-item short-form of the Francis Scale of Attitude toward Christianity was examined among two samples, one of 725 German school children and one of 331 German undergraduate university students. Data analyses among both samples support the reliability and validity of the scale and commend it for further use with German speaking samples.

The Francis Scale of Attitude toward Christianity (Francis, 1978, 1989) was developed for use among 8-16 years old to aid researchers concerned with monitoring changes or establishing the correlates of attitude toward Christianity during childhood and adolescence. The scale is a 24-item self-report measure concerned with an affective response to God, Jesus, Bible, prayer, and church, scored on a 5-point scale ranging from 'agree strongly', through 'uncertain', to 'disagree strongly'. Scores can range from 24 to 120, with higher scores indicating a more positive attitude toward Christianity.

Satisfactory levels of reliability and validity have been reported for the 24-item scale among school aged samples in England (Francis, 1987, 1989),

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Scotland (Gibson, 1989; Gibson & Francis, 1989), Republic of Ireland (Francis & Greer, 1990; Greer & Francis, 1991), Kenya (Fulljames & Francis, 1987), and Nigeria (Francis & McCarron, 1989). More recently, a 7-item short-form has been developed (Francis, Greer, & Gibson, 1991). The seven items selected were those with the highest item-to-total correlations from the full 24-item scale. The short-form is intended to be a replacement for the 24-item version when administration time or space is short (Francis, Greer, & Gibson, 1991). Scores can range from 7 to 35, with higher scores indicating a more positive attitude toward Christianity. The reliability and validity of the short-form has been reported in England (Francis, 1992a), and England, Scotland and Northern Ireland (Francis, Greer, & Gibson, 1991). Over one hundred independent studies have now been published using either the 24-item or the 7-item junior forms of the Francis Scale. From these data a cumulative picture of the correlates of attitude toward Christianity during the pre-adult years has begun to be constructed (Francis, 1993a), including for example, how attitude toward Christianity is linked with masculinity and femininity, schooling, home influence, personality, science, religious experience and well-being (Kay & Francis, 1996).

To extend this research initiative into the post-adolescence years, Francis and Stubbs (1987) developed an adult form of the Francis Scale of Attitude toward Christianity. The adult form differs from the junior form with respect to the slight modification of two items, since in the junior form they referred directly to religion within a school environment. The item "I like school lessons about God very much" was modified to read "I like to learn about God very much" and the item "I think saying prayers in school does no good" was modified to read "I think saying prayers does no good". The reliability and validity of the scale has been reported among samples of adults in the English speaking world. The 24-item adult form has been employed in Australia (Francis, Lewis, Philipchalk, Brown, & Lester, 1995), Canada (Francis, Lewis, Philipchalk, Brown, & Lester, 1995), England (Francis, 1992b; Francis, Lewis, Philipchalk, Brown, & Lester, 1995), Northern Ireland (Lewis & Maltby, 1997), Republic of Ireland (Maltby, 1994), and the USA (Francis, Lewis, Philipchalk, Brown, & Lester, 1995; Lewis & Maltby, 1995). The 7-item form has been employed in Australia (Francis, Lewis, Philipchalk, Lester, & Brown, 1995), Canada (Francis, Lewis, Philipchalk, Lester, & Brown, 1995), UK (Francis, 1993b; Francis, Lewis, Philipchalk, Lester, & Brown, 1995; Maltby & Lewis, 1997; Lewis, Shevlin, Lloyd, & Adamson, 1998), and the USA (Francis, Lewis, Philipchalk, Lester, & Brown, 1995; Maltby & Lewis, 1997).

More recently, a series of studies have sought to examine the reliability and validity of the adult form outside the English speaking world, including Israel (Munayer, 2000), Czech Republic (Francis, Quesnell, & Lewis, 2005), France (Lewis & Francis, 2002), Greece (Youtika, Joseph, & Diduca, 1999), Hong Kong (Francis, Lewis, & Ng, 2002), the Netherlands (Francis & Hermans,

2000), Norway (Francis & Enger, 2002), Sweden (Eek, 2001), and Wales (Evans & Francis, 1996; Francis & Thomas, 2003).

Two studies have employed the German translation of the adult-form. First, Francis and Kwiran (1999) report data from 741 school children in Germany. The first principal factor of an unrotated solution estimated by principal component analysis accounted for 52.2% of the variance, with individual loadings ranging between 0.35 and 0.87. Further, the alpha coefficient was 0.96 (Cronbach, 1951), with individual item-to-total correlations ranging between 0.34 and 0.84.

Second, Francis, Ziebertz, and Lewis (2002) report data from 331 undergraduate students in Germany. The first principal factor of an unrotated solution estimated by principal component analysis accounted for 56.1% of the variance, with individual loadings ranging between 0.30 and 0.89. Further, the alpha coefficient was 0.96 (Cronbach, 1951), with individual item-to-total correlations ranging between 0.28 and 0.88.

The aim of the present study was to examine the reliability and validity of a German translation of the short-form of the Francis Scale of Attitude toward Christianity.

Method

Participants

Sample one: comprised of 725 school children attending secondary schools within the state-maintained system in Germany educated, aged between 11-16 years old, of whom 404 (56%) were female and 321 (44%) were male. Of these, 494 (68%) were Protestants, 106 (15%) were Roman Catholics, and 125 (17%) claimed no religious affiliation. The small proportion of Islamic pupils completing the survey was excluded from the sample in view of the inappropriate content of the questionnaire.

Sample two: comprised of 331 students attending the University of Würzburg, Germany, of whom 204 (62%) were female and 127 (38%) were male; 6% were under the age of twenty, 90% were in their twenties, 3% were in their thirties, and 1% were aged forty or over. Of these, 187 (57%) were Roman Catholic, 110 (33%) were Protestants, 9 (3%) belonged to other religious groups, and 25 (8%) owned no religious affiliation.

Questionnaire

The German translation of the adult version Francis Scale of Attitude toward Christianity (Francis & Kwiran, 1999; Francis, Ziebertz, & Lewis, 2002) was administered alongside a measure of frequency of church attendance and personal prayer. 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*. Personal prayer was assessed on a five point scale: *never, once or twice a year, sometimes, once a week, and daily*.

Results

The mean scale scores were 19.43 ($SD = 6.45$) for sample one and 22.52 ($SD = 7.54$) for sample two, and both samples had a range of scores between 7 and 35. Levels of church attendance for sample one and sample two were: 105 (15%) and 65 (20%) 'never', 199 (27%) and 85 (26%) 'once or twice a year', 190 (26%) and 82 (25%) 'sometimes', 158 (22%) and 33 (10%) 'at least once a month', 72 (10%) and 64 (19%) 'nearly every week', with, one case missing from sample one and two cases missing from sample two. Levels of personal prayer for sample one and sample two were: 182 (25%) and 83 (25%) 'never', 108 (15%) and 97 (29%) 'once or twice a year', 257 (35%) and 13 (4%) 'at least once a month', 78 (11%) and 45 (14%) 'at least once a week', 100 (14%) and 91 (28%) 'nearly every day' respectively, with no missing cases.

Table 1
Correlations of Items with Rest-of-Test and Factor Loadings

Scale items	Correlation		Factor loading	
	sample one	sample two	sample one	sample two
1. I know that Jesus helps me.	0.8384	0.7660	0.8289	0.8491
2. I think that going to church is a waste of time.*	0.8606	0.5854	0.6491	0.6720
3. God helps me to lead a better life.	0.8350	0.8007	0.8525	0.8717
4. God means a lot to me.	0.8290	0.8002	0.8732	0.8734
5. Prayer helps me a lot.	0.8437	0.7692	0.7868	0.8528
6. I know that Jesus is very close to me.	0.8345	0.8397	0.8463	0.9029
7. I think the Bible is out of date.*	0.8933	0.4045	0.3926	0.4892
Alpha coefficient / % variance explained	0.8676	0.9004	58.4	64.0

* The negative items were reverse scored

Table 1 presents the correlation coefficients for items with the rest of the test for the seven attitude items in the short-form of the scale, together with the alpha coefficient, and the loadings on the first factor (Eigen values: sample one = 4.09, sample two = 4.48) of the unrotated solution proposed by principal component analysis, together with the percentage of variance explained for both sample one and sample two. These statistics confirm the unidimensionality and reliability of the scale among samples of German school children and German undergraduate university students.

In both samples, no significant difference was found between female (sample one $M = 19.40$ $SD = 6.38$; sample two $M = 22.94$ $SD = 7.24$) and male (sample one $M = 19.37$ $SD = 6.48$; sample two $M = 21.83$ $SD = 7.99$) scores (sample one $t = 0.06$, $p > 0.05$; sample two $t = 1.30$, $p > 0.05$) on the scale. The concurrent validity of the short-form scale is suggested by Pearson correlation with the

longer parent scale (sample one = 0.9635, sample two = 0.9743). Interpreting this correlation, it must be remembered that all seven items of the short-form are also included in the parent scale. The construct validity of the scale is supported by the way in which variations in the scale scores are consistent with hypotheses about variations in attitude toward Christianity generated by theories from the psychology of religion (Beit-Hallahmi & Argyle, 1997; Wulff, 1997). For example, a significant association was found between attitude toward Christianity and frequency of church attendance (sample one $r = 0.5129$, $p < 0.001$; sample two $r = 0.6640$, $p < 0.001$) and frequency of personal prayer (sample one $r = 0.6855$, $p < 0.001$; sample two $r = 0.7191$, $p < 0.001$).

Discussion

The aim of the present study was to examine the reliability and validity of a German translation of the short-form of the Francis Scale of Attitude toward Christianity. Three points are worthy of note from the present data. First, the reliability and validity data reported from a German translation of the short-form of the scale is generally consistent with previous studies that have examined the psychometric properties of the short-form of the scale among samples of English speaking children (Francis, Greer, & Gibson, 1991; Francis, 1992a) and adults (Francis, 1993b; Francis, Lewis, Philipchalk, Lester, & Brown, 1995; Maltby & Lewis, 1997; Lewis, Shevlin, Lloyd, & Adamson, 1998).

Second, items 2 and 7 were found to have the lowest item-total correlations and factor loadings. This finding is also in line with all previous psychometric examinations of the scale (Francis, Greer, & Gibson, 1991; Francis, 1992a, 1992b, 1993b; Francis, Lewis, Philipchalk, Lester, & Brown, 1995; Maltby & Lewis, 1997; Lewis, Shevlin, Lloyd, & Adamson, 1998).

Third, since the sample was not selected to be representative of German students, it would be misleading to make comparisons between the groups or use the present mean scores for purposes of comparison with previous published data. Subsequent research among representative samples is now required to establish normative means and standard deviations for this instrument.

On the basis of these findings, the German translation can be recommended for use among German speaking samples when there is insufficient time or space to include the full scale (Francis & Kwiran, 1999; Francis, Ziebertz, & Lewis, 2002), and should lead to valuable cross-cultural comparisons in an empirical psychology of religion.

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