The internal consistency reliability and construct validity of the Santosh-Francis Scale of Attitude toward Hinduism among students in India

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The Santosh-Francis Scale of Attitude toward Hinduism was originally developed and tested among Hindus in the UK as part of a programme designed to assess religious affect across faith traditions. The present study tests the internal consistency reliability and construct validity of the instrument among 149 students in Karnatak University Dharwad (74 males and 75 females). The data demonstrated an alpha coefficient of .90, suggesting a high level of internal consistency reliability and commending the instrument for further application within Hindu communities.

Keywords: Religious affect, Hinduism, psychology of religion, Santosh-Francis Scale.
Introduction

Elsewhere, Francis and colleagues have drawn attention to two core problems with the empirical science of the psychology of religion. The first problem, documented for example by Jones and Francis (1996), concerns the difficulty of co-ordinating and integrating findings from disparate studies when these studies have utilised a wide range of measures of religiosity, since such measures may be accessing quite distinct and different notions of religion. The second, problem, documented for example by Sahin and Francis (2002), concerns the difficulty of drawing conclusions about the correlates, antecedents and consequences of individual differences in religiosity when the main contributions to the research evidence have been compiled within Christian and post-Christian contexts.

Francis (1978a, 1978b) attempted to address the first of these problems by advocating a co-ordinated range of independent studies agreeing to employ a common measure of religiosity, the Francis Scale of Attitude toward Christianity. Two main lines of argument underpinned the case for focusing on the affective or attitudinal dimension of religion. Religious affect may get close to the heart of an individual’s religion, being less contaminated than behavioural measures (like worship attendance) by contextual factors and less subject to church tradition than cognitive measures (like aspects of Christian belief).

Religious affect may be accessed by a common measure across a wide age span. By the mid-1990s, Kay and Francis (1996) drew together findings from around a hundred studies that had accepted the invitation to co-ordinate and integrate disparate studies within the empirical science of the psychology of religion by agreeing on the use of the Francis Scale of Attitude toward Christianity.

In order to broaden the reach of research using the Francis Scale of Attitude toward Christianity, this instrument has now been translated and tested within a range of languages, including: Arabic (Munayer, 2000), Czech (Francis, Quesnell, & Lewis, 2010), Chinese
(Francis, Lewis, & Ng, 2002; Tiliopoulos, Francis, & Jiang, 2013), Dutch (Francis & Hermans, 2000), French (Lewis & Francis, 2003, 2004), German (Francis & Kwiran, 1999; Francis, Ziebertz, & Lewis, 2002), Greek (Youtika, Joseph, & Diduca, 1999), Italian (Crea, Baiocco, Ioverno, Buzzi, & Francis, 2014), Norwegian (Francis & Enger, 2002), Portuguese (Ferreira & Neto, 2002), Romanian (Francis, Ispas, Robbins, Ilie, & Iliescu, 2009), Slovakian (Lewis, Adamovová, & Francis, 2008), Slovenian (Flere, Klanjsek, Francis, & Robbins, 2009), Spanish (Campo-Arias, Oviedo, Díaz, & Cogollo, 2006), Swedish (Eek, 2001), and Welsh (Evans & Francis, 1996; Francis & Thomas, 2003).

Sahin and Francis (2002) began to address the second of these problems by proposing a way in which the underlying affective construct accessed by the Francis Scale of Attitude toward Christianity could be operationalised and made accessible within other religious traditions. The first step in the process was the Sahin-Francis Scale of Attitude toward Islam, proposed by Sahin and Francis (2002), and further tested and developed by Khan and Watson (2006), Francis, Sahin, and Al-Ansari (2006), Musharraf, Lewis, and Sultan (2014), Francis, Tekke, and Robbins (in press), and Musharraf and Lewis (in press). The second step in the process was the Katz-Francis Scale of Attitude toward Judaism, proposed by Francis and Katz (2007) and further tested by Yablon, Francis, and Robbins (2014). The third step in the process was the Santosh-Francis Scale of Attitude toward Hinduism, proposed by Francis, Santosh, Robbins, and Vij (2008) and further tested by Tiliopoulos, Francis, and Slattery (2010) and by Lesmana, Tiliopoulos, and Francis (2011). It is with the third of these instruments that the present study is concerned.

Francis, Santosh, Robbins, and Vij (2008) documented the development of the Santosh-Francis Scale of Attitude toward Hinduism among 330 Hindu youth and young adults (158 females and 172 males) between the ages of 12 and 35 years attending the Hindu Youth Festival 2001 in London. According to this study, the internal consistency reliability of
the 19-item scale was demonstrated by an alpha coefficient of .87; the correlation between
the individual items and the sum of the remaining 18 items ranged between .27 ("I have
noticed the benefit of practising yoga") and .68 ("My religion helps me to lead a better life").
A second test of homogeneity was provided by factor analysis, with the first factor proposed
by principal component analysis accounting for 33% of the variance. Construct validity was
supported by positive correlations between attitude scores and frequency of prayer and
worship at home ($r = .36, p < .001$) and frequency of visiting a place of worship ($r = .37, p <
.001$). There was no significant correlation between attitude toward Hinduism and sex.

In a second study, Tiliopoulos, Francis, and Slattery (2010) tested the psychometric
properties of the Santosh-Francis Scale of Attitude toward Hinduism among 100 Hindus (52
females and 48 males) between the ages of 18 and 84 years, from the Bunt caste in the South
Indian State of Karnataka. According to this study, the internal consistency reliability of the
19-item scale was demonstrated by an alpha coefficient of .91; the correlations between the
individual items and the sum of the remaining 18 items ranged between .23 ("I think Hindu
rituals are a waste of time") and .83 ("I am religious"). A second test of homogeneity was
provided by factor analysis with the first factor proposed by principal component analysis
accounting for 42% of the variance. There was no significant correlation between attitude
toward Hinduism and sex.

In a third study, Lesmana, Tiliopoulos, and Francis (2011) tested the psychometric
properties of the Santosh-Francis Scale of Attitude toward Hinduism among 309 Balinese
Hindus (150 females and 159 males), of whom 105 were university students and 204 were
community-based individuals, between the ages of 14 and 43 years. According to the study,
the internal consistency reliability of the 19-item scale was demonstrated by an alpha
coefficient of .83. For positive items the correlations between the individual items and the
sum of the remaining 18 items ranged between .26 ("Reincarnation gives me hope") and .66
“My religion helps me to lead a better life”). The negative items, however, performed less well with correlations of .11 (“I find it hard to believe in God”), .23 (“I think Hindu scriptures are out of date”) and .27 (“I think Hindu rituals are a waste of time”). A second test of homogeneity was provided by factor analysis, with the first factor proposed by principal component analysis accounting for 31% of the variance. Construct validity was supported by positive correlations between attitude scores and frequency of prayer ($r = .35, p < .001$) although there was no significant correlation between attitude scores and frequency of temple attendance. There was a significant positive correlation between attitude toward Hinduism and sex ($r = .15, p < .01$), indicating a higher score recorded among women than among men.

Against this background, the aim of the present study is to assess the internal consistency reliability and construct validity of the Santosh-Francis Scale of Attitude toward Hinduism among a sample of students in India.

**Method**

**Procedure**

The Santosh-Francis Scale of Attitude toward Hinduism was completed during class-time. Participants recorded their names, age, and gender but were assured of confidentiality, and participation was voluntary. All respondents were tested in English.

**Participants**

Full data were provided by 149 participants (74 males and 75 females), the majority of whom were between the ages of 20 and 24 years (93%). In terms of religious affiliation, 18% reported none, 15% Vishuinites, 27% Shivunites, and the remaining 40% a range of other groups.

**Measures**

The Santosh-Francis Scale of Attitude toward Hinduism proposed 19 items concerned with an affective response toward the Hindu faith. Each item is rated on a five-point Likert-
type scale: “agree strongly” (5), “agree” (4), “not certain” (3), “disagree” (2), and “disagree strongly” (1). The instrument contains three reverse-scored items. Higher scale scores indicate more positive attitude.

Frequency of prayer was assessed on a five-point scale: “daily” (5), “once or twice a week” (4), “sometimes” (3), “twice a year” (2), and “never” (1). Frequency of temple attendance was assessed on a five-point scale: “weekly” (5), “at least once a month” (4), “sometimes” (3), “once or twice a year” (2), and “never” (1). Sense of life being guided by God was assessed on a four-point scale: “yes definitely” (4), “probably but I am not really certain” (3), “perhaps but I am not really sure” (2), and “no” (1).

Data analysis

Data were analysed by SPSS, using the frequency, correlation, reliability and factor routines.

Results

The three measures of religious practice and religious experience demonstrated quite a high level of religiosity, but with a wide range of variation. In terms of going to a temple, 44% reported “weekly”, 24% “at least once a month”, 30% “sometimes”, and 3% “either never or once or twice a year”. In terms of prayer, 74% reported “daily”, 11% “once or twice a week”, 13% “sometimes”, and 2% “once or twice a year”. In terms of feeling that life is being guided by God, 57% reported “yes definitely”, 27% “probably but not really certain”, 13% “perhaps but not really sure”, and 3% “no”.

Table 1 presents the correlations between the individual items and the sum of the remaining items for 19 items of the Santosh-Francis Scale of Attitude toward Hinduism, together with the alpha coefficient (Cronbach, 1951). These statistics support the conclusion that the scale is characterised by homogeneity, unidimensionality, and internal consistency.
reliability within the sample. The alpha coefficient was established at .90; the correlations between the individual items and the sum of the remaining 18 items ranged between .26 (“In my experience meditation does have a positive impact”) and .69 (“I benefit from attending services, prayer meetings or places of worship”). A second test of homogeneity was provided by factor analysis, with the first factor proposed by principal component analysis accounting for 36% of the variance.

Table 2 presents the correlations between scores recorded on the Santosh-Francis Scale of Attitude toward Hinduism, sex, frequency of prayer, frequency of temple attendance, and sense of life being guided by God. The positive correlations between attitude scores and both frequency or prayer and sense of life being guided by God support the construct validity of the Santosh-Francis Scale of Attitude toward Hinduism on the grounds of the connection between religious affect and personal religiosity. The independence of attitude scores and frequency of temple attendance is consistent with the findings of Lesmana, Tilipoulos, and Francis (2011) and with the view that temple attendance tends largely to serve a social function (extrinsic religiosity) rather than an intrinsically religious function and that the attitudinal dimension of religion is associated with intrinsic religiosity, rather than with extrinsic religiosity (Francis & Orchard, 1999; Hills & Francis, 2003; Lesmana & Tiliopulos, 2009). In this study there was also a significant positive correlation between attitude toward Hinduism and sex, indicating a higher score recorded among women than among men. This is consistent with the general finding regarding sex differences in religiosity within Christian contexts (Francis & Penny, 2013).

**Conclusion**

The Santosh-Francis Scale of Attitude toward Hinduism (Francis, Santosh, Robbins, & Vij, 2008) was developed as part of a co-ordinated programme designed to extend research
initially established in the empirical science of the psychology of religion focusing on
religious affect within the Christian tradition to other faith communities. This instrument was
developed alongside the Sahin-Francis Scale of Attitude toward Islam (Sahin & Francis, 2002), and the Katz-Francis Scale of Attitude toward Judaism (Francis & Katz, 2007).

The Santosh-Francis Scale of Attitude toward Hinduism was originally developed and
tested by Francis, Santosh, Robbins and Vij (2008) among a sample of 330 Hindu young
people between the ages of 12 and 35 years attending the Hindu Youth Festival in London.
Two previous studies had begun the process of extending the reach of this instrument by
testing its internal consistency reliability among a sample of 100 Hindus between the ages of
18 and 84 from the Bunt caste in the South Indian State of Karnataka (Tiliopoulos, Francis, &
Slattery, 2010) and among a sample of 309 Balinese Hindus between the ages of 14 and 43
years (Lesmona, Tiliopoulos, & Francis, 2011). The present study has extended the reach
further by testing the scale’s internal consistency reliability and construct validity among a
sample of 149 students from Karnataka University Dharwad.

Taken together these four studies provide a firm body of knowledge commending the
Santosh-Francis Scale of Attitude toward Hinduism for further use among Hindus in a range
of cultural settings to being to build up a set of interrelated studies examining the correlates,
consequences and antecedents in individual differences in religious affect. A beginning to
this wider literature has been illustrated by studies like: Francis, Robbins, Santosh, and
Bhanot (2008) exploring the connection between the attitudinal dimension of religion and
mental health among Hindu young people in England; Kamble, Watson, Marigoudar, and
Chen (2013) exploring the connections between the attitudinal dimension of religion,
religious orientations and psychological adjustment in India; and Kamble, Watson,
Marigoudar, and Chen (2014) exploring the connection between the attitudinal dimension of
religion and psychological openness in India.
References


Table 1

Scale of attitude toward Hinduism: Item-rest-of-test correlations, factor loadings, and item endorsement

<table>
<thead>
<tr>
<th>Item</th>
<th>r</th>
<th>agree %</th>
</tr>
</thead>
<tbody>
<tr>
<td>I find it hard to believe in God*</td>
<td>.50</td>
<td>26</td>
</tr>
<tr>
<td>Spirituality is important in my life</td>
<td>.41</td>
<td>85</td>
</tr>
<tr>
<td>I have a close relationship with God</td>
<td>.55</td>
<td>69</td>
</tr>
<tr>
<td>I find it easy to understand Hinduism</td>
<td>.54</td>
<td>79</td>
</tr>
<tr>
<td>I think Hindu rituals are a waste of time*</td>
<td>.64</td>
<td>9</td>
</tr>
<tr>
<td>Knowing about the law of Karma helps me to lead a better life</td>
<td>.57</td>
<td>67</td>
</tr>
<tr>
<td>I am happy to be a Hindu</td>
<td>.65</td>
<td>90</td>
</tr>
<tr>
<td>My religion helps me to lead a better life</td>
<td>.67</td>
<td>75</td>
</tr>
<tr>
<td>I find Hindu scriptures inspiring</td>
<td>.60</td>
<td>77</td>
</tr>
<tr>
<td>It is easy to understand Hindu rituals</td>
<td>.48</td>
<td>87</td>
</tr>
<tr>
<td>I benefit from attending services, prayer meetings or places of worship</td>
<td>.69</td>
<td>70</td>
</tr>
<tr>
<td>Prayer helps me a lot</td>
<td>.64</td>
<td>85</td>
</tr>
<tr>
<td>I am religious</td>
<td>.41</td>
<td>90</td>
</tr>
<tr>
<td>Reincarnation gives me hope</td>
<td>.47</td>
<td>52</td>
</tr>
<tr>
<td>It is important for me to practise my religion/spiritual beliefs</td>
<td>.42</td>
<td>79</td>
</tr>
<tr>
<td>In my experience meditation does have a positive impact</td>
<td>.26</td>
<td>84</td>
</tr>
<tr>
<td>I have noticed the benefits of practising yoga</td>
<td>.51</td>
<td>75</td>
</tr>
<tr>
<td>I think Hindu scriptures are out of date*</td>
<td>.52</td>
<td>7</td>
</tr>
<tr>
<td>Hinduism is relevant in the modern world</td>
<td>.59</td>
<td>65</td>
</tr>
</tbody>
</table>

Alpha % variance .90

Note: * these items are reverse coded to compute the item-rest-of-test correlations and factor loadings

N = 149
Table 2

*Correlation matrix*

<table>
<thead>
<tr>
<th></th>
<th>sex</th>
<th>life guided by God</th>
<th>prayer</th>
<th>temple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>.21*</td>
<td>.37***</td>
<td>.20*</td>
<td>.06</td>
</tr>
<tr>
<td>Temple</td>
<td>-.03</td>
<td>.13</td>
<td>.43***</td>
<td></td>
</tr>
<tr>
<td>Prayer</td>
<td>.17*</td>
<td>.27***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life guided by God</td>
<td>-.04</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * = p < .05; ** = p < .01; *** = p < .001