

Journal Article

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

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### **Abstract**

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.

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**Introduction**

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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

79 (Francis, Lewis, & Ng, 2002; Tiliopoulos, Francis, & Jiang, 2013), Dutch (Francis &  
80 Hermans, 2000), French (Lewis & Francis, 2003, 2004), German (Francis & Kwiran, 1999;  
81 Francis, Ziebertz, & Lewis, 2002), Greek (Youtika, Joseph, & Diduca, 1999), Italian (Crea,  
82 Baiocco, Ioverno, Buzzi, & Francis, 2014), Norwegian (Francis & Enger, 2002), Portugese  
83 (Ferreira & Neto, 2002), Romanian (Francis, Ispas, Robbins, Ilie, & Iliescu, 2009),  
84 Slovakian (Lewis, Adamovová, & Francis, 2008), Slovenian (Flere, Klanjsek, Francis, &  
85 Robbins, 2009), Spanish (Campo-Arias, Oviedo, Dtaz, & Cogollo, 2006), Swedish (Eek,  
86 2001), and Welsh (Evans & Francis, 1996; Francis & Thomas, 2003).

87 Sahin and Francis (2002) began to address the second of these problems by proposing  
88 a way in which the underlying affective construct accessed by the Francis Scale of Attitude  
89 toward Christianity could be operationalised and made accessible within other religious  
90 traditions. The first step in the process was the Sahin-Francis Scale of Attitude toward Islam,  
91 proposed by Sahin and Francis (2002), and further tested and developed by Khan and Watson  
92 (2006), Francis, Sahin, and Al-Ansari (2006), Musharraf, Lewis, and Sultan (2014), Francis,  
93 Tekke, and Robbins (in press), and Musharraf and Lewis (in press). The second step in the  
94 process was the Katz-Francis Scale of Attitude toward Judaism, proposed by Francis and  
95 Katz (2007) and further tested by Yablon, Francis, and Robbins (2014). The third step in the  
96 process was the Santosh-Francis Scale of Attitude toward Hinduism, proposed by Francis,  
97 Santosh, Robbins, and Vij (2008) and further tested by Tiliopoulos, Francis, and Slattery  
98 (2010) and by Lesmana, Tiliopoulos, and Francis (2011). It is with the third of these  
99 instruments that the present study is concerned.

100 Francis, Santosh, Robbins, and Vij (2008) documented the development of the  
101 Santosh-Francis Scale of Attitude toward Hinduism among 330 Hindu youth and young  
102 adults (158 females and 172 males) between the ages of 12 and 35 years attending the Hindu  
103 Youth Festival 2001 in London. According to this study, the internal consistency reliability of

104 the 19-item scale was demonstrated by an alpha coefficient of .87; the correlation between  
105 the individual items and the sum of the remaining 18 items ranged between .27 (“I have  
106 noticed the benefit of practising yoga”) and .68 (“My religion helps me to lead a better life”).  
107 A second test of homogeneity was provided by factor analysis, with the first factor proposed  
108 by principal component analysis accounting for 33% of the variance. Construct validity was  
109 supported by positive correlations between attitude scores and frequency of prayer and  
110 worship at home ( $r = .36, p < .001$ ) and frequency of visiting a place of worship ( $r = .37, p <$   
111  $.001$ ). There was no significant correlation between attitude toward Hinduism and sex.

112 In a second study, Tiliopoulos, Francis, and Slattery (2010) tested the psychometric  
113 properties of the Santosh-Francis Scale of Attitude toward Hinduism among 100 Hindus (52  
114 females and 48 males) between the ages of 18 and 84 years, from the Bunt caste in the South  
115 Indian State of Karnataka. According to this study, the internal consistency reliability of the  
116 19-item scale was demonstrated by an alpha coefficient of .91; the correlations between the  
117 individual items and the sum of the remaining 18 items ranged between .23 (“I think Hindu  
118 rituals are a waste of time”) and .83 (“I am religious”). A second test of homogeneity was  
119 provided by factor analysis with the first factor proposed by principal component analysis  
120 accounting for 42% of the variance. There was no significant correlation between attitude  
121 toward Hinduism and sex.

122 In a third study, Lesmana, Tiliopoulos, and Francis (2011) tested the psychometric  
123 properties of the Santosh-Francis Scale of Attitude toward Hinduism among 309 Balinese  
124 Hindus (150 females and 159 males), of whom 105 were university students and 204 were  
125 community-based individuals, between the ages of 14 and 43 years. According to the study,  
126 the internal consistency reliability of the 19-item scale was demonstrated by an alpha  
127 coefficient of .83. For positive items the correlations between the individual items and the  
128 sum of the remaining 18 items ranged between .26 (“Reincarnation gives me hope”) and .66

129 (“My religion helps me to lead a better life”). The negative items, however, performed less  
130 well with correlations of .11 (“I find it hard to believe in God”), .23 (“I think Hindu scriptures  
131 are out of date”) and .27 (“I think Hindu rituals are a waste of time”). A second test of  
132 homogeneity was provided by factor analysis, with the first factor proposed by principal  
133 component analysis accounting for 31% of the variance. Construct validity was supported by  
134 positive correlations between attitude scores and frequency of prayer ( $r = .35, p < .001$ )  
135 although there was no significant correlation between attitude scores and frequency of temple  
136 attendance. There was a significant positive correlation between attitude toward Hinduism  
137 and sex ( $r = .15, p < .01$ ), indicating a higher score recorded among women than among men.

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

## 141 Method

### 142 Procedure

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

### 146 Participants

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

### 151 Measures

152 The Santosh-Francis Scale of Attitude toward Hinduism proposed 19 items concerned  
153 with an affective response toward the Hindu faith. Each item is rated on a five-point Likert-

154 type scale: “agree strongly” (5), “agree” (4), “not certain” (3), “disagree” (2), and “disagree  
155 strongly” (1). The instrument contains three reverse-scored items. Higher scale scores  
156 indicate more positive attitude.

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

### 163 **Data analysis**

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

### 166 **Results**

167 The three measures of religious practice and religious experience demonstrated quite  
168 a high level of religiosity, but with a wide range of variation. In terms of going to a temple,  
169 44% reported “weekly”, 24% “at least once a month”, 30% “sometimes”, and 3% “either  
170 never or once or twice a year”. In terms of prayer, 74% reported “daily”, 11% “once or twice  
171 a week”, 13% “sometimes”, and 2% “once or twice a year”. In terms of feeling that life is  
172 being guided by God, 57% reported “yes definitely”, 27% “probably but not really certain”,  
173 13% “perhaps but not really sure”, and 3% “no”.

174 - insert table 1 about here -

175 Table 1 presents the correlations between the individual items and the sum of the  
176 remaining items for 19 items of the Santosh-Francis Scale of Attitude toward Hinduism,  
177 together with the alpha coefficient (Cronbach, 1951). These statistics support the conclusion  
178 that the scale is characterised by homogeneity, unidimensionality, and internal consistency



179 reliability within the sample. The alpha coefficient was established at .90; the correlations  
180 between the individual items and the sum of the remaining 18 items ranged between .26 (“In  
181 my experience meditation does have a positive impact”) and .69 (“I benefit from attending  
182 services, prayer meetings or places of worship”). A second test of homogeneity was provided  
183 by factor analysis, with the first factor proposed by principal component analysis accounting  
184 for 36% of the variance.

185 - insert table 2 about here -

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

## 201 **Conclusion**

202 The Santosh-Francis Scale of Attitude toward Hinduism (Francis, Santosh, Robbins,  
203 & Vij, 2008) was developed as part of a co-ordinated programme designed to extend research

204 initially established in the empirical science of the psychology of religion focusing on  
205 religious affect within the Christian tradition to other faith communities. This instrument was  
206 developed alongside the Sahin-Francis Scale of Attitude toward Islam (Sahin & Francis,  
207 2002), and the Katz-Francis Scale of Attitude toward Judaism (Francis & Katz, 2007).

208         The Santosh-Francis Scale of Attitude toward Hinduism was originally developed and  
209 tested by Francis, Santosh, Robbins and Vij (2008) among a sample of 330 Hindu young  
210 people between the ages of 12 and 35 years attending the Hindu Youth Festival in London.  
211 Two previous studies had begun the process of extending the reach of this instrument by  
212 testing its internal consistency reliability among a sample of 100 Hindus between the ages of  
213 18 and 84 from the Bunt caste in the South Indian State of Karnataka (Tiliopoulos, Francis, &  
214 Slattery, 2010) and among a sample of 309 Balinese Hindus between the ages of 14 and 43  
215 years (Lesmona, Tiliopoulos, & Francis, 2011). The present study has extended the reach  
216 further by testing the scale's internal consistency reliability and construct validity among a  
217 sample of 149 students from Karnatak University Dharwad.

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

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366

367 Table 1

368 *Scale of attitude toward Hinduism: Item-rest-of-test correlations, factor loadings, and item*  
 369 *endorsement*  
 370

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

371

372 Note: \* these items are reverse coded to compute the item-rest-of-test correlations and factor  
 373 loadings  
 374

375 N = 149

376 Table 2

377 *Correlation matrix*

	sex	life guided by God	prayer	temple
Attitude	.21*	.37***	.20*	.06
Temple	-.03	.13	.43***	
Prayer	.17*	.27***		
Life guided by God	-.04			

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379 Note: \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$ 

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