Development and Validation of a Three-Dimensional Religious Activity Scale in Bengali

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ABSTRACT Religion is a global phenomenon, blending culture and personal beliefs and varies across race, society, country, and economies. In India, where people hail from multiple religious beliefs, it is necessary to understand religious diversity for developing interfaith conversations and foster tolerance which are crucial for sustainability. For this, the researchers conducted a study with 421 participants across five geographical regions in West Bengal and tried to conceptualise a Religious Activity Scale for measuring common practices across religions and their adherence to maintaining religious identity. From a pool of 20 items, the researchers used Exploratory Factor Analysis, manually reducing the number of factors to 3. Factor 1 accounted for 9.83 percent of the variance, while Factor 2 and Factor 3 accounted for 8.70 percent and 7.87 percent, respectively. The final scale consisted of 15 items, which are confirmed exclusively in either of three dimensions, that is, acceptance belief, moral imperative and religious solidarity.

INTRODUCTION

Religion encompasses a significant account of one's everyday life (Ammerman 2014). It is a vessel where culture and personal belief are blended so that one may find it difficult to separate the two. Since time immemorial, people have worshipped the supreme power, sometimes in the form of natural objects (Rajeev 2013) and phenomena, and sometimes through idealising superhuman characters (Van Tongeren et al. 2018) with expectancy of blessings and a good life. Although modern civilisation reduced the effect of religiosity on people through scientific and exploratory innovations toward the secrets of nature and its laws, it is still practised by many people around the world. The nature of religiosity varies significantly across race, society (Abdulla 2018), country, and even economies (Lin et al. 2022). As a secular nation, India welcomes different religious identities amalgamated to give rise to a conglomerate religiosity (Singh and Singh 2004). Here religiousness is perceived synonymously with cultural practices, which are comprehensive and for the greater good, but sometimes the supremacy of religiosity is reflect-

ed in certain people's activities that are needed to sustain their religious identity (Lipnicka and Peciakowski 2021). Variability in religious faith, the need for undertaking research studies on religious phenomena, and the need to comprehend the role of religion in society all contribute to the need for a scale to measure religiousness. Religious beliefs and practices are frequently studied by scholars, psychologists, sociologists, and other experts in order to better understand human behaviour (Koenig 2012), culture, and society (Arrey et al. 2016). Understanding the levels of religiousness in different groups can be significant for developing interfaith conversation (Mayhew and Rockenbach 2021) and fostering religious tolerance (Carlile et al. 2020) and understanding in an increasingly varied society. Religiousness scales can be used in academic settings to teach students about the diversity of religious views and practices (Mathur 2012). They can also be used to examine students' comprehension of religious concepts (Glaz 2021) as well as their own religious experiences (Hall et al. 2008). It should be noted that developing a trustworthy and legitimate religiousness scale might be a difficult endeav-

our because religion is a very personal and varied phenomena. There should also be careful consideration of the cultural and environmental elements that can influence a person's religious views and practices (Jenkins and Chapple 2011). West Bengal, with more than 90 million people, represents a multi-religious and multi-ethnic set of characteristics, and it is crucial to understand their degree of religious beliefs and practices for maintaining interfaith living. Existing measures of religiosity are contextually more focused on a single religion rather than incorporating representations of multiple religions altogether, which is quite unfit for assessing religiousness and religious activity in the context of Bengal.

Objectives

With the purpose to develop and validate a Religious Activity Scale that measures common religious practices and the degree of adherence to them and which people follow to maintain their religious identity, the study was conceptualised. Religious practices can be observed in daily events or recorded through self-reporting in an unbiased manner. To date, there are a very few measures that exclusively assess people's religiosity based on their everyday religious practices. The scale was developed with the major religions prevalent in Indian states in mind, where culture and religion are often perceived synonymously.

METHODOLOGY

Participants

The present empirical study followed a quantitative design with a cross-sectional survey method to capture, at a specific chronological frame, the underlying phenomena of the study that is religiousness, which varies largely across people and societies. Participants (N=421) comprised students at colleges and universities in five districts of West Bengal, namely, Jalpaiguri, Nadia, South 24 Parganas, Bankura and West Midnapore. The sample was primarily female (n = 326, 77.43%), rural (n = 376, 89.31%), college students (n = 329, 78.15%), of unreserved category (n = 156, 37.05%), from nuclear families (n =

295, 70.07%) and unmarried (n = 407, 96.67%). The religious identity of the sample was primarily Hinduism (69.36%), followed by Islam (29.93%), and Christianity (0.72%). Table 1 indicates variations in participant's demographics.

Table 1: Frequency table for sample distribution

Variable	Participants (n)	Percentage (%)
Gender		
Male	95	22.57
Female	326	77.43
Habitat		
Rural	376	89.31
Urban	45	10.69
Institution Type		
College	329	78.15
University	92	21.85
Education Level		
Undergraduate	329	78.15
Postgraduate	83	19.71
Teacher Training	9	2.14
Social Category		
Unreserved	156	37.05
Scheduled caste	107	25.42
Scheduled tribe	10	2.38
Other backward classes	148	35.15
Religion		
Hinduism	292	69.36
Islam	126	29.93
Christianity	3	0.72
Family Type		
Nuclear	295	70.07
Joint	126	29.93
Marital Status		
Unmarried	407	96.67
Married	14	3.33
Total	421	100

Measure

From an initial pool of 20 face-valid items adhering to the practical ideas of religious activity (RA) to reflect everyday practice of religious activities by people at a younger age. Example items included, "আমার ধর্মের প্রতি পূর্ণ বিশ্বাস আছে" ("I have complete faith in my religion") . "আমি ধর্মীয় কারণে উপবাস পালন করি" ("I fast for religious causes"), and "আমি একাগ্র চিত্তে ধর্মীয় সাধনা করি" ("I practice religious activities mindfully"). Participants rated their religious activity (RA) by indicating frequency level using a 5-point Likert rating scale where 0 = never, 1 = sometimes, 2 = prefer not to mention, 3 = most of the times, and 4 = always.

Procedure

The researchers approached the participants independently at their institutions after getting consent from the university's concerned principal or head of the department. The questionnaire was supplied in paper-and-pencil mode. Participants were adults, residents of West Bengal as well as fluent in Bengali. Before completing the questionnaires, participants were debriefed on the purpose of the study.

Analysis

The factor loadings were interpreted by applying the criterion proposed by Comrey and Lee (Lee and Howard 2013) to the absolute value of each loading. Excellent values are those beyond 0.71 followed by very good (0.63 to 0.71), good (0.55 to 0.53), fair (0.45 to 0.53), and poor (0.32 to 0.45). Additionally, Tabachnick and Fidell (2019) suggest that a minimum threshold of 0.32 be applied in order to detect substantial factor loadings. While these guidelines may assist in determining, which variables to incorporate for a particular component, the researcher retains discretion regarding the cut-off utilised to ascertain which loadings have to be included for each factor. The method of manual selection was utilised to finalise components to be retained in the factor analysis. This conclusion was reached based on an awareness of the pragmatic aspects of religious engagement in daily existence. Three parameters were therefore incorporated into the EFA. For exploratory factor analysis to produce factors that are repeatable and dependable, the sample size is critical. As stated by Costello and Osborne and (2005), the prevailing recommendation is that the participant-to-item ratio (portion of variables to sample size) should be a minimum of 10 to 1. However, many studies propose a lower threshold of 5 to 1. Based on the study conducted, the participant-to-item ratio was about 21 to 1, with a sample size of 421 and 20 variables. This suggests that the sample size provided is adequate for generating dependable outcomes.

RESULTS

Factor Structure

EFA was conducted for 20 items using Maximum Likelihood estimation with an oblimin rotation, manually reducing the number of factors to 3. Despite knowing more frequent use of orthogonal rotation by the researcher, the researchers employed oblimin rotation to allow factors to correlate with one another (Reise et al. 2000) as social science research mainly deals with behaviour of people which varies to a great extent.

Factor Summary

Nearly 10 percent of the variance was accounted to Factor 1 with an eigenvalue of 1.97. Factor 2 indicated 8.70 percent of the variance (eigenvalue is 1.74). Factor 3 accounted for 7.87 percent of the variance with an eigenvalue of 1.57. The three-factor model accounted for 26.39 percent of the total variance. Summary of the factor structure is shown in Table 2. A $\div^2$ test was conducted to determine if the hypothesised three-factor model fits observed data at á =.05 and found $\div^2(133) = 227.61$, $p < .001$, which indicates that the three-factor model statistically deviated from the predicted distribution.

Table 2: Eigenvalues, percentages of variance, and cumulative percentages for factors for the 20 item variable set

Factor	Eigen-value	% of variance	Cumulative %
1	1.97	9.83	9.83
2	1.74	8.70	18.52
3	1.57	7.87	26.39

Note: $\chi^2(133) = 227.61$, $p < .001$

Factor Interpretation

Factor 1 loadings were quite high for the variables RA3, RA2, and RA7 and all three items reiterate the disciplinary practices as folkways within an individual's respective religion. Factor 1 showed fair loadings for RA1. Factor 2 loadings were quite high for RA17 and RA19 and reasonable for the variables RA4 and RA8, which mainly focused on realising moral obligation to the supreme power through wisdom and conduct. RA16 showed high loading to Factor 3 and RA6, RA12, RA15 showed moderate loadings. Factor 3 loadings were low for the following variables of RA5, RA18, and RA14. For Factor 3, any other loadings were minor but all the

items loaded to Factor 3 indicates practice of moral and religious conduct by being part of a larger community. Table 3 displays the factor analysis loadings.

Table 3: Factor loadings of all 20 items from exploratory factor analysis

Variable	Factor loading 1	2	3	Communality
RA3	0.67			0.43
RA1	0.52			0.33
RA2	0.64			0.49
RA5			0.36	0.16
RA4		0.51		0.38
RA6			0.43	0.31
RA9*	0.17			0.29
RA12			0.48	0.29
RA15			0.43	0.14
RA18			0.39	0.27
RA7	0.67			0.47
RA10*			0.20	0.27
RA13*			0.12	0.15
RA16			0.58	0.45
RA19		0.60		0.41
RA8		0.48		0.34
RA11*		0.27		0.29
RA14			0.36	0.25
RA17		0.67		0.52
RA20*	0.25			0.18

* Factor loadings < .32 are suppressed.

Evaluating the Factor Structure

A number of effective methods for assessing the validity of the factor structure include measuring the communality of each variable, cross-loadings across several factors, and the number of strong loadings for each factor (Costello and Osborne 2005). RA1, RA5, RA4, RA6, RA9, RA12, RA15, RA18, RA10, RA13, RA8, RA11, RA14, and RA20 were all variables with a communality of less than 0.40. This suggests that the factor structure does not fully reflect the data and that an extra factor may need to be addressed (Costello and Osborne 2005). Cross-loadings of a single variable across many factors occur when loadings are greater than 0.32. The absence of cross-loading variations among the variables indicates a straightforward and comprehensible factor structure. It is suggestive of a robust and stable factor because each factor exhibited a minimum of three significant loadings (>.32) (Costello and Osborne 2005). In

order to mitigate the aforementioned issues and prevent a weak factor structure, Costello and Osborne (2005) propose eliminating variables that have poor communality, cross-loadings, or are the only major loading on a factor. Upon careful examination of the content of the factors, the researchers determined that the nature of the items cross-loaded to each component determined the new names for factor 1, acceptance belief (AB), factor 2, moral imperative (MI), and factor 3, religious solidarity (RS). Regarding the authority of their religious system and their conviction that religious truths are true, acceptance belief refers to an individual's position. A set of beliefs that obligates an individual to maintain a persistent commitment to the fraternity and adherence to religious convictions constitutes the moral imperative. A welfare-oriented and proactive approach to religious solidarity promotes the formation of links amongst adherents of the same faith, in accordance with the societal perspective of religiosity.

The Religious Activity Scale was reduced to 15 items for reliability analysis, leaving only the five RA9, RA10, RA11, RA13, and RA20 items that did not exhibit significant loadings (<.32) to any of the three components.

Cronbach's Alpha

Internal consistency of the 15-item RAS was examined by calculating Cronbach's alpha coefficient. The items for Religious Activity had a Cronbach's alpha coefficient of .82, indicating good reliability (George and Mallery 2018) and therefore can be treated as a consistent measure. Table 4 highlighted reliability coefficient and other values.

Table 4: Reliability table for religious activity

Scale	No. of Items	α	Lower Bound	Upper Bound
Religious activity	15	.82	.80	.84

Note. The lower and upper bounds of Cronbach's α were calculated using a 95.00% confidence interval

The researchers further computed the mean and standard deviation (N = 421) of the items and presented along in Table 5 with the three subscales, that is, the three extracted factors,

Table 5: Items, means, standard deviations, and factor loadings of religious activity scale

Scale item	Item description	Mean	sd	AB	MI	RS
RA1	I have complete faith in my religion.	3.40	0.991	0.52	-	-
RA2	I follow the religious disciplines.	2.68	1.159	0.64	-	-
RA3	I try to stay pious as per my religious testimonies.	3.02	1.092	0.67	-	-
RA4	I read religious texts and literatures.	1.48	1.060	-	0.51	-
RA5	I go to my religious places.	2.01	1.213	-	-	0.36
RA6	I practice religious activities mindfully.	1.89	1.253	-	-	0.43
RA7	I obey my religious ideals in every aspect of life.	2.55	1.181	0.67	-	-
RA8	I fast for religious causes.	2.16	1.321	-	0.48	-
RA9*	I watch and listen to religious programmes in television, radio, or social medias.	1.52	1.15	-	-	-
RA10*	I dress as per my religious standards.	1.56	1.34	-	-	-
RA11*	I eat as per my religious standards.	2.11	1.47	-	-	-
RA12	I pray at my religious places.	2.29	1.344	-	-	0.48
RA13*	I know life stories and work of my religious prophets.	2.70	1.05	-	-	
RA14	I participate in assembly for religious lessons.	1.31	1.163	-	-	0.36
RA15	I have done religious tourism or pilgrimage.	2.46	1.431	-	-	0.43
RA16	I participate in religious practices, procession gathering.	1.53	1.179	-	-	0.58
RA17	I pray before or after having meals.	1.77	1.519	-	0.67	-
RA18	I contribute financially to religious works.	1.67	1.173	-	-	0.39
RA19	I greet people by religious words.	1.45	1.259	-	0.60	-
RA20*	Not only at religious places, but I also pray a home and other places.	2.95	1.13	-	-	-t

Factor loadings < .32 are suppressed. AB = acceptance belief, MI = moral imperative, RS = religious solidarity*
Items removed from 15-item Religious Activity Scale

namely acceptance belief (AB), moral imperative (MI), and religious solidarity (RS) after establishing good reliability of the scale.

DISCUSSION

The Religious Activity Scale's (RAS) final version comprises 15 items, with three factors consistent with the practical essence of religious activity. The Acceptance Belief (AB) subscale includes items related to accepting the supremacy of the religion, and consequently, being devoted to its beliefs at a personal level. The second subscale has been renamed after Kant's concept of the Moral Imperative (MI). It includes items that relate to the connection between pure reason and acting correctly as part of everyday religious practices. The Religious Solidarity (RS) subscale contains items that indicate in-group activities and people's solidarity in social participation within the realm of religion. Compared to the Religious Involvement Scale by Roth et al. (2012), the Religious Activity Scale explores the religious practices of individuals who identify themselves as mono-religious in a more comprehensive manner. It is an instrumental tool for identifying people's religiosity based on the religious activities they perform as part of their everyday lives. This scale is a standardised method for collecting and analysing data on religious trends in the context of a multi-religious population. It enables comparisons of religious beliefs and behaviours among people, organisations, and societies as found in a study with administration of Religious Belief Scale on Taiwanese population by Chiang et al. (2017), which has a four-factor structure as well as research on British undergraduate students using Dimensions of Religiosity Scale by Joseph and DiDuca (2007) which also has a four-dimensional structure. Researchers can use this scale to identify patterns, contrasts, and parallels in religious behaviour and views.

CONCLUSION

The researchers tried to develop a technique for assessing religious activities from a psychological perspective, which is applicable to people of multiple religious identities. This scale will be useful for scholars and academics in understanding religious beliefs as they are manifest-

ed in everyday practices. To develop tolerance, humility, and contribute towards meaningful living and yearning together, it is important to understand the diversity in religious practices of people surrounding one from a secular point of view.

RECOMMENDATIONS

Religion is a multifaceted concept that encompasses a wide range of beliefs, practices, and experiences. To quantify these aspects, researchers can use the Religious Activity Scale, which assigns numerical values to otherwise subjective or qualitative aspects of religion. This scale can also be used by psychologists and counsellors to better understand the role of religion in an individual's life. This may also prove useful in therapeutic contexts, particularly when addressing spiritual or religious coping challenges. This Religious Activity Scale can be utilised to gather data on a population's religious demographics, which can be beneficial for policy development, resource allocation, and understanding the needs of various religious communities. It is important to maintain objectivity and avoid biassed language when using this scale. Overall, it can be utilised to gather data on a population's religious demographics, which can be beneficial for policy development, resource allocation, and understanding the needs of various religious communities. As the newly developed instrument addresses only a specific language speaking population, that is Bengali (which is not less than 280 million globally), there is immense potential for further research in validation and adaptation of the scale in other languages across the world.

DATA AVAILABILITY

Dataset can be accessed upon reasonable request to the authors.

CONFLICTS OF INTEREST

There is no financial or institutional bounding that may see as a potential conflict of interest.

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AUTHOR'S CONTRIBUTION

LM, BKP and MPS conceptualized the study. Design and implementation were done by LM and BKP. Analyses were conducted by BKP. Drafting the manuscript was done by LM, BKP and MPS.

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