Spirituality Measurement Scale: An Empirical Study

Shikha Makkar
Assistant Professor, Shri Ram College of Commerce, Maurice Nagar University of Delhi, Delhi, India
Email: shikha.269@gmail.com
Ajay Kumar Singh
Professor, Faculty of Commerce and Business, Delhi School of Economics, University of Delhi, Delhi, India

Abstract

The purpose of this investigation is scientific study, and validation of Spirituality Measurement Scale (SMS) developed by Makkar & Singh (2018). This study is an extension and in continuation of SMS which was developed using exploratory factor analysis (EFA). To achieve this purpose a sample of 123 teachers from various colleges of University of Delhi, were selected using quota sampling along with snowball sampling technique. This was measured on a five-point Likert's scale commencing from strongly disagree to strongly agree. To confirm about the validity, confirmatory factor analysis (CFA) was used, on the basis of which the number of measurement items, for each of the five dimensions was reduced and only those items were included whose standardized residual covariances were greater than 0.5 as a result of which five items out of forty four were removed. Discussion and recommendations for future research have been provided at the end of the paper.

Keywords: *Spirituality measurement scale; Confirmatory factor analysis; Transcendence; Self-engagement; Self –awareness; Self-efficacy; and Service towards others.*

Introduction

Since ancient times spirituality has been associated with religion, but recent studies suggest that spirituality is beyond religion and is much broader in its meaning as it focuses on the core domain of an individual rather that something which needs to be objectified. However even today the operational meaning of spirituality still remains a subject of debate and undefined. Many definitions have been proposed to explain the meaning of spirituality and one such comprehensive definition has been developed by Makkar and Singh (2018) who define spirituality "as a transcendental relationship with the higher being, leading us to the path of self-awareness and self-engagement, which enables us to serve others for the benefit of society at large". In other words, when an individual gets connected his/her inner self through various means of self-engagement such as meditation, self-reflection, then it not only benefits himself but transcends beyond as he works selflessly for the progress and advancement of others as well. Muldoon and King (1995) describe spirituality as "the way in which people understand and live their lives in view of their ultimate meaning and value". It can also be termed as an individual relationship with the sacred being or in the words of Murray and Zentner (1989) "a quality that goes beyond religious affiliation, that strives for inspirations, reverence, awe, meaning and purpose, even in those who do not believe in any good". McSherry and Cash (2004) concluded by stating that it should be accepted that spirituality cannot be defined with a single meaning. According to Singh and Singh (2013) Since spirituality acts as a linking pin

making a connection among our mind, body, and soul on one hand and immense burnout being faced by the employees of organizations across all the fields on the other, they thought imperative to develop a scale of spirituality dimension to test and analyze the spirituality score which could further help in developing a stable work environment. While a number of spirituality scales have been developed to measure individual human spirituality (Howden, 1992; Singh & Makkar, 2015; Wheat, 1991), other set of studies have concentrated on leadership, ethics, and spirituality at workplace (Ashmos & Duchon, 2000; Beazley, 1998; Chawla & Guda, 2010; Gupta, Kumar, & Singh, 2014; Mitroff & Denton, 1999; Pawar, 2009; Singh & Dua, 2012; Singh & Singh, 2013; Singh & Kumari, 2016). Although many spirituality scales exist, only few have validated their study by employing techniques like CFA to further refine their study. Therefore, the purpose of this study is to validate the SMS developed covering five dimensions of spirituality Transcendence, Self-Engagement, Self - Awareness, Self-Efficacy, and service towards others.

Literature Review

A number of spirituality scales were duly referred to gain knowledge of the various tools and techniques employed by them to strengthen the rigor of their study and scale development. The Independent Spirituality Assessment Scale (ISAS) established by Rojas (2002) "demonstrated normality using the Kolmogorov-Smirnoff normality test, and Construct validity for the scale was demonstrated, first by achieving internal validity of 0.89 with a known, robust spirituality control group, followed by a t-test between scores of a robust and a fragile spirituality control group" . Beazley (1998) developed a Spirituality assessment scale using 70 measurement items, the technique employed for the scale development was principal component analysis (PCA). Fisher's Spiritual Well-Being questionnaire, was analysed using the correlation, reliability, and factor routines (Fisher, Francis, & Johnson, 2000). After which further studies were conducted by Gomez & Fisher (2003) using Multi group confirmatory analysis to further refine and validate the scale. A holistic instrument to assess spirituality and establish the initial reliability and validity of spirituality scale was developed by Delaney (2005) using Principal Factor Analysis with Oblimin Rotation and internal consistency was evaluated using Cronbach alpha with a sample size of 240 adults. However, the studies conducted in the west had religion domination in the spirituality scales so developed, the objective of the study conducted by Makkar and Singh (2018) was to develop a scale independent of any religion. The review of literature facilitated understanding the various methodologies adopted by the authors for development and measurement of spirituality scales.

Objective

The objective of the study is to assess spirituality measurement scale with the help of confirmatory factor analysis (CFA) in order to gauge reliability and validity of the construct.

Hypothesis

Null hypothesis of this study is that the SMS cannot be validated.

Research Methodology

The study by Makkar and Singh (2018) concluded that "Spirituality can be classified into five dimensions i.e., Transcendence, Self-Engagement, Self -Awareness, Self-Efficacy, and service towards others; using exploratory factor analysis (EFA)" . However to advance the rigour of the

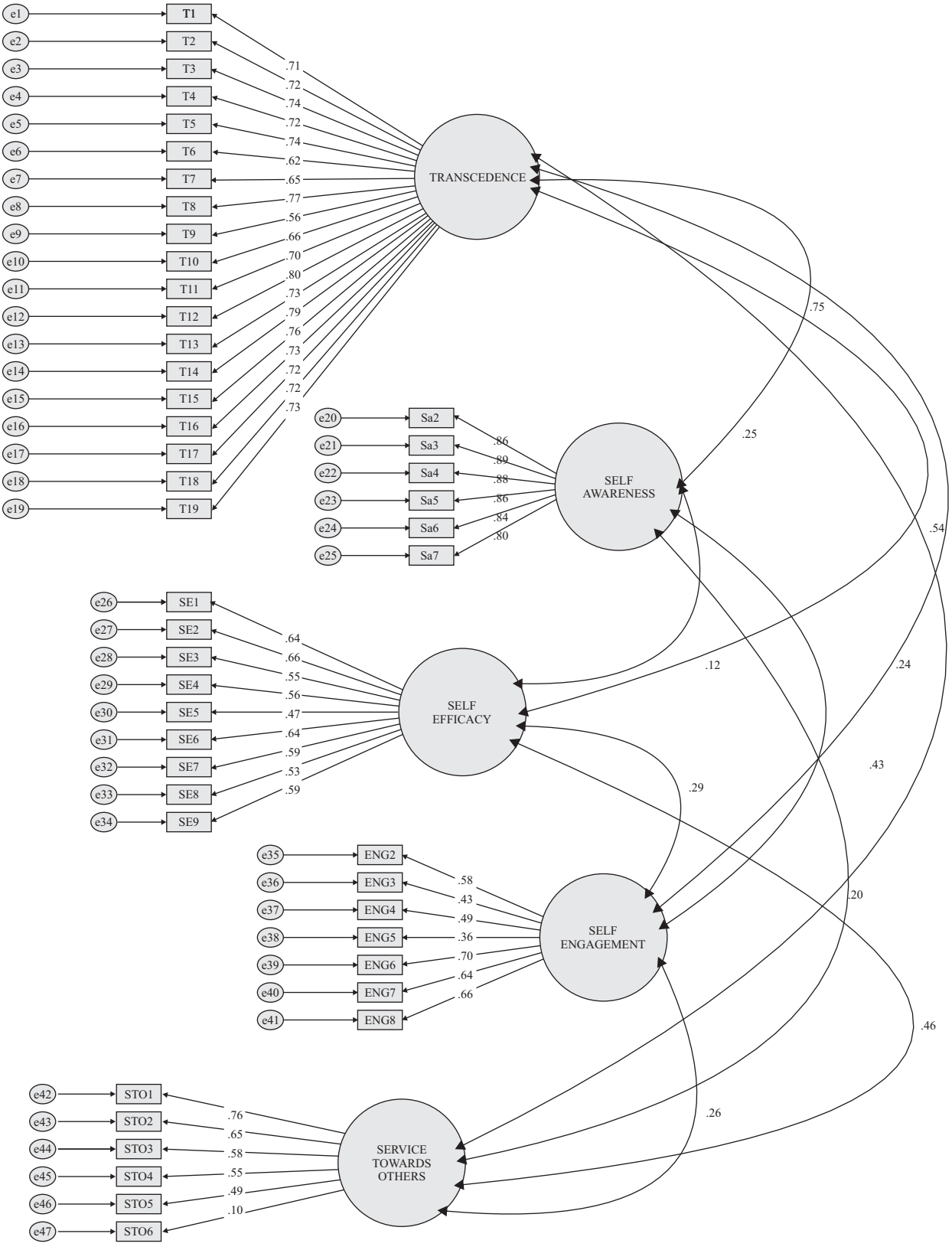
study it was recommended to conduct validation test on the scale so developed using diverse groups. Data based on the questionnaire of Spirituality Measurement scale was collected via survey administration with the help of five point Likert's scale, ranging from strongly disagree (1) to strongly agree (5). With as many as sixteen faculties, eighty six academic departments, seventy seven colleges and five other recognised institutions, University of Delhi is one of the leading universities in India. The projected sample size on the basis of the calculation done was 121 teachers on which quota sampling along with snowball sampling technique was used for data collection. The requirement in case of quota sampling is that each section is largely represented in the sample in the same proportion as in the entire population. The snowball sampling technique is conducted in stages. Initially a few respondents are recognized and then these individuals assist/help in the identification of other persons who may be suitable for becoming a part of the sample. Out of 139 survey responses collected, there were 16 incomplete responses. The sample size thus came to a total of 123 teachers. Of this number, 50 were male and 73 female.

Data Analysis & Findings

In order to build the robustness of the study it is necessary to evaluate the validity of exploratory factor analysis since it is generally data driven "which is dependent on a number of subjective decisions to be taken by the researchers. By employing confirmatory factor analysis, the researchers can cross validate the factor structure in an appropriate way. Validity assessment is done mainly to make the results more vigorous" (Jayaraman, Talib, & Khan, 2018, p.7). "CFA is a technique which is used to assess that how well the measured variables represent a construct. The quality of the measured variables is tested when the employing of CFA is coupled with the construct validity test. No valid conclusions exist for the want of valid measurement. So both the things are inseparable and go hand in hand. In CFA the researchers have to specify beforehand the number of factors that exist for a set of variables" (Kumar, 2014).

The process of confirmatory factor analysis starts with identifying and describing of individual constructs, which has already been done by Makkar and Singh (2018). This step is an essential requirement for further scale development. All the five factors were grouped together and as per the caveat a minimum of three measured variables were designated to each of the latent constructs as shown in Figure No. 1.

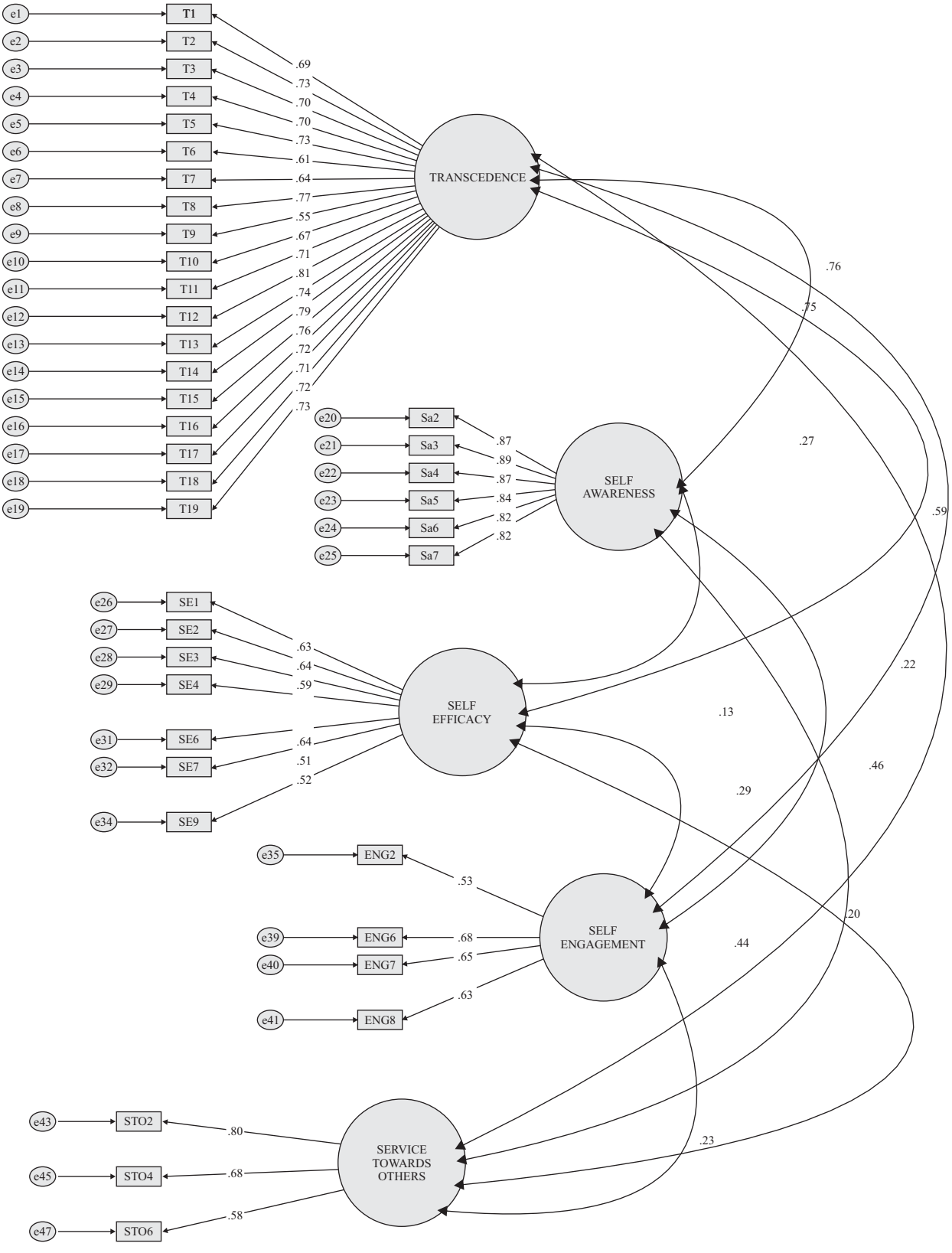
Figure No. 1: Confirmatory Factor Analysis (CFA)



Once reliability is established, it is deemed imperative to examine validity in terms of convergent validity to check the correlation of the scale with the theoretical construct, for this purpose Average Variance Extracted (AVE) is calculated whose value should be more than 0.5 to ensure adequacy in convergent validity. Discriminant validity which is conducted to validate that the present scale is significantly different from other scales. For verification of discriminant validity maximum shared variance (MSV) and average shared variance (ASV) is calculated and utilized (Šebjan & Tominc, 2014). According to Hair et al. (2010) MSV should be less than AVE, and ASV should be less than AVE. As far as Construct Reliability (CR) is concerned it is "calculated from the squared sum of factor loadings for each construct and the sum of the error variance terms for a construct" (Kumar, 2014,). On the basis of these caveats a revised figure of CFA was produced (Figure No. 2). Since the assessment of CFA is very essential, therefore, standardized residual covariances were checked at a threshold of loading to be greater than 0.5 was taken into consideration for deletion of various items. Owing to which the following items were removed:

- So far, I have got everything I deserve. (SE)
- I am generally humble to others. (STO)
- Compassion comes naturally to me. (STO)
- Reading books about self development (ENG)
- Self Reflection (ENG)

Figure No. 2: Revised CFA Measurement Model



After the revised analysis validity assessment Table (No. 1) was generated to check if all the caveats have been met. As it has been demonstrated in Table No. 1, there are no issues with respect to validity.

Table 1: Validity Assessment Table

	CR	AVE	MSV	MaxR (H)	ENG	T	SA	SE	STO
ENG	0·719	0·591	0·342	0·725	0·626				
T	0·951	0·805	0·382	0·958	0·585	0·711			
SA	0·941	0·727	0·582	0·975	0·456	0·763	0·853		
SE	0·790	0·551	0·196	0·978	0·295	0·269	0·128	0·592	
STO	0·731	0·680	0·196	0·979	0·226	0·221	0·201	0·443	0·693

Next step was checking of overall model fit, as per the rule if the CMIN/DOF is less than 3.0 (Kline, 2004) it is considered as a reasonable fit, which in this case was CMIN χ^2 1474.391 with 669 DOF i.e., 2.204 (Table No. 2).

Table 2: CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	111	1474.391	669	0.000	2.204
Saturated model	780	0.000	0		
Independence model	39	12716.735	741	0.000	17.162

Subsequent step was calculation of an absolute fit index, for which root mean square error of approximation (RMSEA), should be less than 0.08, which in the present study comes out to be 0.048 and hence suitable (Table no. 3).

Table 3: RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.048	0.045	0.051	0.857
Independence model	0.175	0.173	0.178	0.000

In order to check incremental fit indices the value of Comparative Fit Index is assessed which produces values between 0-1 and higher the value, better the fit (Cangur & Ercan, 2015). Therefore, the results indicate that the Spirituality measurement model establishes a reasonably good fit, and it is appropriate to examine the results further which involves diagnosis of the model by checking the standardised residuals covariances (SRC). "SRC are the individual differences between observed covariance terms and the fitted or estimated covariance terms" (Hair et al., 2010). For this study the researchers examined the residuals and none of them was having a standardised residual value greater than 4.0, the upper limit.

Subsequent to this, an essential step is to go for

Common Method Bias test, to ensure that no biasness has crept in due to an external factor which is not associated to any of the factors or variables of the data. For this purpose common latent factor (CLF) method in AMOS 23 was used, and the caveat is to check that there are no standardised regression weights less than 0.4. Once the weights were generated, the values were checked (Table No. 4) and no case of low loadings was found having value less than 0.4 and it can be well concluded that this model is free from any kind of irregularities.

Table 4: Standardized Regression Weights

		Particulars	Estimate
T1	<---	TRANSCEDENCE	0.687
T2	<---	TRANSCEDENCE	0.700
T3	<---	TRANSCEDENCE	0.726
T4	<---	TRANSCEDENCE	0.698
T5	<---	TRANSCEDENCE	0.728
T6	<---	TRANSCEDENCE	0.605
T7	<---	TRANSCEDENCE	0.640
T8	<---	TRANSCEDENCE	0.770
T9	<---	TRANSCEDENCE	0.553
T10	<---	TRANSCEDENCE	0.670
T11	<---	TRANSCEDENCE	0.706
T12	<---	TRANSCEDENCE	0.812
T13	<---	TRANSCEDENCE	0.737
T14	<---	TRANSCEDENCE	0.788
T15	<---	TRANSCEDENCE	0.756
T16	<---	TRANSCEDENCE	0.717
T17	<---	TRANSCEDENCE	0.714
T18	<---	TRANSCEDENCE	0.717
T19	<---	TRANSCEDENCE	0.734
SA2	<---	SELFAWARENESS	0.871
SA3	<---	SELFAWARENESS	0.892
SA4	<---	SELFAWARENESS	0.868
SA5	<---	SELFAWARENESS	0.841
SA6	<---	SELFAWARENESS	0.818
SA7	<---	SELFAWARENESS	0.825
SE1	<---	SELFEFFICACY	0.630
SE2	<---	SELFEFFICACY	0.643
SE4	<---	SELFEFFICACY	0.595
SE6	<---	SELFEFFICACY	0.640
SE7	<---	SELFEFFICACY	0.511
SE9	<---	SELFEFFICACY	0.519
ENG2	<---	SELFENGAGEMENT	0.535
ENG6	<---	SELFENGAGEMENT	0.678
ENG7	<---	SELFENGAGEMENT	0.651
ENG8	<---	SELFENGAGEMENT	0.629
STO1	<---	SERVICETOWARDSOTHERS	0.797
STO2	<---	SERVICETOWARDSOTHERS	0.682
STO3	<---	SERVICETOWARDSOTHERS	0.582

Since the Spirituality measurement scale has passed all the tests and stages of refinement and validity, it can be concluded that the spirituality measurement scale after conducting CFA consists of thirty eight items grouped into five dimensions i.e., Transcendence, Self-engagement, Self Awareness, Self efficacy, and service towards others, as demonstrated in annexure 1.

Discussion and Recommendations

In order to assess the structure of the Spirituality Measurement Scale, Confirmatory Factor Analysis was employed. Five factors viz. Transcendence, Self-Engagement, Service towards others, Self-efficacy, and Self Awareness were analysed in the CFA. As a result of which a few items were dropped for want of minimum loading of 0.4. Also all the four caveats of construct validity i.e., standard loading estimates, average variance extracted (AVE), Maximum shared Variance (MSV), and Construct reliability (CR) comfortably met their respective criteria, which was consistent with the findings of Gomez & Fisher (2003). The recommendation of reasonable model fit was also fulfilled as the value of CMIN/DOF was 2.204, well below the threshold limit of 3.0. The RMSEA, which is an absolute fit index was 0.048, way below the guideline of 0.08. Additionally, as no case of common method bias was reported the final results of CFA accentuated that all five factors, were valid and reliable as far as the CFA is concerned, although the same technique was not employed by Beazley (1998), as he developed the instrument with the help of exploratory factor analysis only. It can hence be well concluded that the Spirituality Measurement Scale on the basis of the present analysis containing thirty eight items exhibits empirical and conceptual robustness. Structural Equation Modeling (SEM) can be used to further refine the Spirituality Measurement scale by studying consequences of spirituality and measuring its impact, with different set of samples which can lead towards building-up of a spirituality measurement model. Also research examining demographic differences regarding age, gender, and education, relative to the SMS may be conducted; further research may also be done in terms of concurrent validity of the SMS with other instruments to assess spirituality in adult population.

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Annexure 1: Spirituality Measurement Scale

This questionnaire provides the measure of an individual's spirituality. The statements listed below describes an attitude, feeling or behavior. State your level of agreement/association ranging from 1 to 5. For the thirty eight descriptive statements listed below. There is no right or wrong answer. Tick the box according to your own judgment.

Five point scale [S.D. - Strongly disagree (1) S.A. - Strongly agree (5)]

Sl. No.	Items	S.D.				S.A.
1.	I engage in Meditation.	1	2	3	4	5
2.	Spirituality is a holistic approach that embraces all, under one super natural being.	1	2	3	4	5
3.	I have awareness about my career.	1	2	3	4	5
4.	Spirituality creates an atmosphere of positivity.	1	2	3	4	5
5.	I engage in Spiritual singing.	1	2	3	4	5
6.	Spirituality relates to a person's search for finding greater meaning in one's existence.	1	2	3	4	5
7.	I give my time to help others.	1	2	3	4	5
8.	Spirituality is a feeling of oneness with all living beings.	1	2	3	4	5
9.	I have awareness about my aspirations.	1	2	3	4	5
10.	I engage in Chanting Mantras.	1	2	3	4	5
11.	Spirituality is utilizing the power of the rational mind for the benefit of the society.	1	2	3	4	5
12.	I have a meaningful life.	1	2	3	4	5
13.	I have awareness about my spirit.	1	2	3	4	5
14.	I sacrifice my personal ego needs to do what best serves others.	1	2	3	4	5
15.	Spirituality is a belief, that we all derive the supreme power from one common source.	1	2	3	4	5
16.	I attend spiritual workshops/activities/events.	1	2	3	4	5
17.	Spirituality promotes togetherness among all beings.	1	2	3	4	5
18.	I am aware about my desires.	1	2	3	4	5
19.	Spirituality promotes peaceful living.	1	2	3	4	5
20.	I have confidence in my actions.	1	2	3	4	5
21.	Spirituality is being connected with divinity.	1	2	3	4	5
22.	Most of the time, I have a positive approach.	1	2	3	4	5
23.	Spirituality is what keeps people anchored to happiness.	1	2	3	4	5
24.	I am a self content person.	1	2	3	4	5
25.	Spirituality helps in realizing one's higher purpose in life.	1	2	3	4	5
26.	I am aware about my daily needs.	1	2	3	4	5
27.	Spirituality is the spirit of keep going and not giving up.	1	2	3	4	5
28.	I give my material resources to help others.	1	2	3	4	5
29.	Spirituality helps in having clarity in life.	1	2	3	4	5
30.	I have awareness about my body.	1	2	3	4	5
31.	Spirituality enhances healthy lifestyle.	1	2	3	4	5
32.	The progression of my life is as expected.	1	2	3	4	5
33.	Spirituality is working together to resolve conflicts in a positive way.	1	2	3	4	5
34.	I am satisfied with my life, as a whole.	1	2	3	4	5
35.	Spirituality helps in reducing depression.	1	2	3	4	5
36.	I have awareness about my family.	1	2	3	4	5
37.	Spirituality is bowing before His will without any doubt.	1	2	3	4	5
38.	Spirituality spreads the message of unity in diversity.	1	2	3	4	5