Centrality of religiosity scale (CRS) confirmatory factor analysis

Abstract

The intention of the current study was to translate and cross language validate the Centrality of Religiosity Scale (CSR) from English (source language) to Urdu (target language) by forward-back translation1 method. This scale was made by Huber S & Huber2 having 15 item along with five subscales namely Ideology, Intellect, Experience, Public practice and Private practice. The Urdu version of Centrality of Religiosity Scale was verified and confirmed on a sample of N=300 shrine believers (n=159) and non-shrine believers (n=141) of Abbottabad district, Pakistan by using convenient sampling technique. For psychometric properties of scale statistical analysis revealed that Urdu translation of CRS has satisfactory alpha reliability (α=.77) and three subscales that is exclusive, inclusive and collective religious beliefs significantly correlated with each other. Confirmatory Factor Analysis supported the original exploratory factor analysis after excluding four items and two dimensions which did not fulfill the factor loading criterion and confound that Goodness of Fit Indices (CRS GFI, AGFI, CFI) fall in the range of .95 to .97, p >.05, , χ^2/df = 1.36 and RMSEA is .04. Convergent validity for present research for factor one, two and three is .44, .39 and .39 respectively on other hand composite reliability for factor one, two and three is .76,.72 and.65 and factor loadings of CFA for the CRS were above to .35. Confirmatory factor analysis's result revealed that the final model of CRS in Urdu language, with 11 items and three dimensions is the best fit for Pakistani culture to assess the level of religiosity. Moreover present study findings also indicate that there was statistically significant difference in shrine believers and non-shrine believer's religiosity level. Shrine believers attained higher scored on CRS as compare to non-shrine believers.

Keywords: religiosity, shrine believers and non-shrine believers, confirmatory factor analysis

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Introduction

Religiosity is multi-layered notions consist on motivational, emotional and behavioral characteristics[3] as well as different religious activities, commitment, beliefs and religious practices in organized institution such as Masjid, church, mandar etc.[4] There are different ways to assess the level of religiosity in different religion's individuals. One of the most important scales to assess level of religiosity is developed by Wilkes,[5] to assess the four basic factors of religiosity such as; self-perceived religiousness, significance of religious ethics, church attending, , assurance in religious norms. Aziz & Rehman[6] developed Index of Religiosity (IR) having twenty seven items to assess three dimensions of religiosity in Muslims such as religious effect, doctrine and faith. King & Speck,[7] Spiritual Belief Scale consisting of 6 items designed to measure individual spiritual beliefs. Krauss et al.[8] designed Muslim Religiosity Personality Measurement Inventory (MRPI), to assess individual's Islamic worldview and to what extant he/she has religious personality. Vries-Schot,[9] developed a Mature Religiosity Scale to assess three factors such as higher orientation values to show inner sense of freedom, reliance in God that infuses the whole life and responsibility for take care of other human being. Khan[10] constructed a Muslim Religiosity Scale in Pakistan consist on 30-items based on two factors i.e., Intrinsic and Extrinsic Religiosity which give indication of that intrinsically motivated individuals lives their religion on other hand extrinsically motivated individuals uses their religion.

Huber S[2] made The Centrality of Religiosity Scale (CRS) to assess the significance and implication of spiritual senses in individual's life, CRS was based on Allport & Ross's[11] Religious Orientation Scale (ROS) which was specified for Christian, based on intrinsic (belief to make practice of religion virtues for own sake) and extrinsic (rehearsal of religious activities for social approval) construct of religiousness. CRS deals with the five hypothetical basic dimensions of religiosity such as; First, Intellectual dimension denotes to the community beliefs about individual knowledge of religion. Second dimension was Ideology which mentions about society beliefs that sacred individuals views about existence of marvelous reality. Third dimension was Public practice which means that to what extant religious persons linked with community involvement in different religious rituals e.g., Christians' participation in church activities, Muslims' rituals activities in Masjids specially on the occasions of Friday and Eid prayer, worship of idols in mandar for Hindu etc., Fourth private practice dimension refers to how individual devote themselves for worship whenever he/ she is in alone situation such as offer prayer, meditation, Quran verses for Muslim or Bible verses for Christen different myths for Hindus.

Last dimension of religious experience explain that religious people have mostly strong believe on destiny which leave great impact on their emotion. If individuals have strong believed on destiny then they mostly live as calm and cool.[2] CRS is appropriate for Islam, Christianity and Judaism religion.[10] In Pakistan at Sufi Shrines many people come together and offer different religion rituals for purification of soul.[12] Followers of Sufis shrines indicate positive emotional attachment toward their shrines.[13] Due to emotional

attachment, shrines believers' shows high level of religiosity.[14] CRS has wide-ranging application for religious studies, so in present study researcher was translate and validate the CRS and develops its psychometrics proprieties for Pakistani culture.

Method

The main intentions of the present study were to translate and validate the CRS from English (source language) to Urdu (target language). In order to attain the intentions, study was passed out by two segments; first segment was concerned with translation of CRS in Urdu language. The second segment was concerned with development of psychometric proprieties. Confirmatory Factor Analysis (CFA) was also used to assess the factorial structure of CRS and correlation was assessed between the subscales of CSR. Further level of religiosity between shrine believers and non-shrine believers were also compared on the basis of scores obtained on CRS.

Measures

Centrality of Religiosity Scale (CRS) was made by Huber S[2] having 15 items with the valued of five point likert scale for each item value ranging from; never, rarely, occasionally, often, very often with scoring assign value of 1, 2, 3, 4, and 5 respectively and usually take 15 to 20 minutes to complete. CRS was designed to measure five basic dimensions of religiosity such as Intellect, Ideology, Public practice, Private practice and Experience. The intellectual dimensions contain 3 items (1, 6, 11), ideology comprise of 3 items (2, 7, 12), dimensions of public practice practices contain 3 items (3, 8, 13), private practice contain 3 items (4, 9, 14), religious experience having 3 items (5, 10, 15), and when all dimension summed up together it indicate about whole religiosity level of individual. The reliability range of CRS was (α=0.73 to 0.83).

Phase I: Translation of CRS in the Urdu language

Phase I: At first stage, Brislin's[1] forward-back translation method was applied to translate the CRS from English language to Urdu language by using following four steps; In first step for forward translation researcher was asked to four bilingual specialists to translate CRS from English language to Urdu language translators were (two lecturers and two assistant professors) from English department of Government Girls Postgraduate College No 1 Abbottabad. In second step for Committee approach the translated Urdu version of CRS was engaged before a committee of three experts, two Ph.D. and one M.Phil teachers of Psychology department in Hazara University Mansehra, after comprehensive debate committee of professionals, decided about the appropriateness and standardization of original CRS's every items and its Urdu translation determined relevance of CRS Urdu language version.

At third step to assess the uncertainties, discrepancies and alterations of English to Urdu language CRS, back-translation was done by three bilingual experts of English and Urdu language, they were asked to translate Urdu version of scale into English language but those individuals were not aware about the English version of CRS. Two experts in Urdu language (from the Govt Girls Postgraduate College No 1 Abbottabad) also improved the excellence of item construction. After that translation, the corresponding committee who finalized the forward translation was again accessed, committee counter check the interaction between forward and backward translation of CRS and finalize the Urdu version of CRS. In step four pilot study was

conducted on a sample forty participant (*n*=20 shrine believers, *n*=20 non shrine believers). Results of pilot study revealed that there was no vagueness in construction of items, and Urdu version of CRS was coherent, logical, and ready for additional validation.

Phase II: Psychometric properties of CRS

The second phase is also known as main study phase, to attain psychometric properties of CRS; the Cronbach alpha coefficients were calculated by SPSS 23 and Confirmatory Factor Analysis were investigated through Analysis of Moment Structure (AMOS 20). Compost reliability and Convergent validity were also analyzed as well as difference between shrine and non-shrine believers were also compared by using CRS Urdu version.

Sample: The sample of present study was comprised N=300 participants including shrine believers (*n*=159) and non-shrine believers (*n*=141) from different shrines of Abbottabad district such as Panj Peer (near police line), Dana and Shah Baba (near Mandian) and for non-shrine believers data was collected from neighbors, students and teachers from Govt Girls and boys Post graduate College No 1 ATD. Sample was selected by convenient sampling technique with no restriction of gender, age and financial status.

Procedure: For present research ethical sanction was gained from the ethical committee of the Hazara University Mansehra for conducted research on other hand take sanction from three shrines and two colleges of Abbottabad for data collection. Before going to administer the scale inform consent was signed from participants to check their readiness for participation in research. Mostly the scale was administered to single person but some time also administered in group when students were in class room and teachers were in offices or shrine believers were in shrines. Subjects were asked to give their answer very carefully on each item according to their own choice having no limitation of time but mostly individuals filled within fifteen minutes. After completion of scale participants were acknowledged their support and certified them that their personal information should be retained confidential and only utilize for specific research purpose. For attainment of research purpose CRS Urdu version was administered on 350 participants but just 320 participants gave back questionnaire but twenty were also rejected due to incomplete responses. After data collection result was analyzed by SPSS with different formulas of statistics.

Results

Reliability of CRS: Internal consistency of CRS's items was assessed by Cronbach alpha (.773) indicated that CRS Urdu version has satisfactory reliability, Mean (54.97), SD (7.01), Range (minimum=39 & maximum=68), Skewness (-.296), and kurtosis (-.74) were also found satisfactory on the bases of scores attained by 300 participants.

Validation of CRS: To validate the Urdu version of CRS, Confirmatory Factor Analysis (CFA) was applied to validate structure of factors to confirm the relationships between the dimensions of observed indicators with original factors. CFA is the latest technique by using SPPS-23 along with AMOS-20 to test the pre-specified relationship in different constructs of scale. Regression weight for different constructs should be above to .35.[15] So, in the current study, mostly factor loadings of CFA for the CRS were above to .35 Figure 1. Graphical presentation of the model was presented below for the inclusive analysis (Table 1). Result showed the Goodness of Fit Indices for CRS Urdu version. According to general rule for

goodness of fit indices (GFI, AGFI, CFI) must be>.09 and RMSEA should be<.06 and p>.05.[16] All above stated description confound that Goodness of Fit Indices (CRS GFI, AGFI, CFI) fall in the range of .95 to .97, p >.05 and RMSEA is less than .06 with the second trial of modification indices. Results of second table showed the convergent validity that is assessed by item related to the planned construct. Ideal average variance extracted (AVE) is>.5 but in present study AVE is<.5 but it consider close to satisfactory convergent validity. Table 2 also showed three constructs exclusive, inclusive and collective religious beliefs had satisfactory composite reliability as well as Cronbach's

alpha. So, the reliability for present study model was to some extant satisfactory but good on overall scale that is .77. Table 3, indicated positive correlation between the subscales of CRS, which was helpful to support the convergent validity. Result in table 4 indicated that CRS Urdu version has good construct validity and every item showed statistically positive relationship with total scores of scale. Results in table 5 shows that there was significant difference in shrine believers and non-shrine believer's religiosity level. Shrine believers attained higher scored on CRS as compare to non-shrine believers' p<.05.
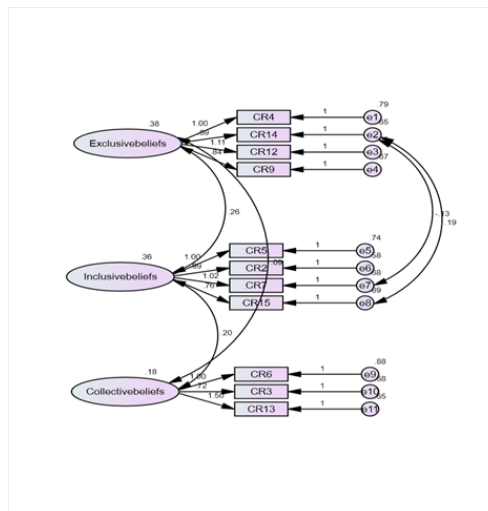

Figure 1 demonstrated the different factors of CRS.

Table 1 Model Fit Indices for CSR (N=300)

| Models | χ^2(df) | χ^2/(df) | p | Goodness of Fit Indices | | | | |
				GFI	AGFI	CFI	IFI	RMSEA
	53.18(37)	1.36	0.06	0.97	0.95	0.97	0.97	0.04

Note: RMSEA, root mean square error of approximation; IFI, incremental fit index; CFI, comparative fit index; AGFI, adjusted goodness of fit index; GFI, goodness of fit index; p, level of significant; χ^2, chi square

Table 2 The CFA reliability and validity result for final model (N=300)

Construct	Item	Factor loading	Cronbach's alpha	CR	AVE
Exclusive beliefs	CR4	0.739	0.67	0.76	0.44
	CR14	0.727			
	CR12	0.63			
	CR9	0.533			
Inclusive beliefs	CR5	0.674	0.63	0.72	0.39
	CR2	0.661			
	CR7	0.618			
	CR15	0.544			
Collective beliefs	CR6	0.68	0.46	0.65	0.39
	CR3	0.661			
	CR13	0.51			

Note: AVE, average variance extracted; CR, composite reliability

Table 3 Correlation between the Subscales of CRS (N=300)

	Exclusive beliefs	Inclusive beliefs	Collective beliefs	CRS total
exclusive beliefs	.395**	.181**		.788**
inclusive beliefs		.404**		.761**
Collective beliefs			.561**	
CRS total				

**p < .01 CRS, certainty of religiosity scale

Table 4 Correlation of CRS with total items (N = 300)

Item No	r	Item No	r
1	.214**	9	.600**
2	.567**	10	.405**
3	.392**	11	.373**
4	.508**	12	.593**
5	.528**	13	.480**
6	.293**	14	.535**
7	.508**	15	.498**
8	.401**		

Note: r, pearson correlation, **p< .01

Table 5 Mean Standard Deviation and t-value of shrine believers and non-shrine believers on Centrality of religiosity scale (CRS; N=300)

	Shrine believers		Non-shrine		believers					
	(n= 159)		(n= 141)					95%CI		
Variables	M	SD	M	SD	t(298)	P	LL	UL	Cohen's d	
Intellect	10.81	1.58	9.94	1.85	4.35	0	0.47	1.25	0.51	
Ideology	12.28	1.71	10.3	2.31	8.52	0	1.53	2.44	0.97	
Public practice	11.4	1.76	10.4	1.93	4.71	0	0.59	1.43	0.54	
Private practice	11.33	2.24	10.8	2.25	2.05	0.042	0.02	1.04	0.24	
Experience	11.74	1.75	10.62	3.22	5.04	0	0.68	1.56	0.43	

***p < .001. * p < .05.

Discussion

The purpose of current study was to translate and cross language validate the Centrality of Religiosity Scale (CSR) from source language (English) to target language (Urdu) to full fill the purpose, study was conducted in two phases. In first phase Brislin[1] forward back-translation method was used to translate CRS from English language to Urdu language. In second phase, psychometric properties of Urdu language version of scale were assessed by cronbach's alpha reliability, correlation coefficient, exploratory and Confirmatory Factor Analysis (CAF). Reliability analysis of present study revealed that CRS (Urdu translation) is satisfactorily reliable (0.77) and are companionable with the original scale's[2] reliability range was (α=0.73 to 0.83). The reliability of current study is also similar with [9,17–19] with reliability range was (α=0.70 to 0.85) in Pakistan but with English language version of CRS.

The original CSR was consisted on five domains to assess religiosity level namely, Intellectual dimension having items (1, 6, 11), Ideology (2, 7, 12), Public practice (3, 8, 13) private practice (4, 9, 14), and religious experience (5, 10, 15). While, when Urdu translated version of CRS is tested in Pakistani culture result of exploratory factor analysis revealed that there are only three domains such as exclusive beliefs (4, 14, 12,9) which indicate individual's belief, experience and activity about their religion, inclusive beliefs (5, 2 ,7, 15) measured the all the activities which are performed by group of people and believed on existence of divine and collective religious beliefs (6, 3, 13) done by people acting as group activities such as offering eid pray or Friday pray at Masjid, all these three dimensions were analyzed for CFA from five domains because of cultural difference. Confirmatory factor analysis (CFA) is useful in situation when researchers have clear insight about scale' factors or dimensions, and their association between factors and items .The

theoretical analysis of present study was assessed by CFA by using analysis of a moment structures (AMOS). The criteria for factor loading were>.35 decided. Present finding indicated that mostly values of factor loading range from .26 to 1.50. So after exploratory factor analysis of CRS, Confirmatory factor analysis was applied and result revealed three factors of Urdu version. The original version of CRS was consist on fifteen items along with five dimension in final model of CRS in Urdu language using eleven items which were loaded into three dimensions and revealed satisfactory Goodness of Fit Indices (CRS GFI, AGFI, CFI) fall in the range of .95 to .97, p > .05, $\chi^2/df = 1.36$ and RMSEA is less than .06 with the second trial of modification indices (Table 2). Confirmatory factor analysis's result revealed that the final model of CRS in Urdu language, utilizing 11 items with three dimensions is the best fit.

Another objective of study is to assess the composite reliability & convergent validity. Convergent validity (AVE) is assessed by items related to the planned construct. Value of AVE is mostly near to 0.5 which is indication of satisfactory convergent reliability. Convergent validity for present research for factor one, two and three is 0.44, 0.39 and 0.39 respectively. Composite reliability can be attained by merging covariance & all of the true score variances with composite of indicator variables, connected with paradigms, and by dividing with the sum of total variance (formula summation of lambda whole square by summation of lambda whole square plus summation e where e = 1–lambda square) composite reliability for present study is for factor one, two and three is 0.76, 0.72 and 0.65 respectively.

Last intension of the current study is to assess the difference between shrine believers and non-shrine believer's level of religiosity. For this purpose hypothesis assumed level of religiosity is in shrine believers than non-shrine believers. The results obtained supported the hypothesis, that the shrine believers have the more level of religiosity that is Intellect 10.81(SD=1.57), Ideology 12.28(SD=1.71), Public practice 11.40 (SD =1.76), Private practice 11.33 (SD=2.24), Experience 11.74 (SD= 1.75) as compare to the non-believers that is Intellect 9.94(SD=1.85), Ideology 10.30(SD=2.31), Public practice 10.40(1.93), Private practice 10.80 (SD=2.25), Experience 10.62(SD=2.09). For this hypothesis no previous specific research on the shrines with same variables are found but the results are highly significant as shown in the (see table 6). Therefore, CRS Urdu language is establishing greatly reliable and valid self-report questionnaire for the assessment of level of religiosity. So CRS indicated satisfactory convergent validity and composite reliability.

Limitation

Even with the hard and zealous work of investigator, perfection is impossible. Few curb and restrain are there in present research as other researches of social sciences. Most common is due to cultural differences original construct (five domains) of CRS was no able to sustain in Pakistani culture. On other hand main author did not perform CFA, so result of present study differ from original scales especially with the analysis of sub scales.

Conclusion

CRS is translated and validated in Urdu language as related with Pakistani culture context showed that the 15-item Urdu version of CRS has attained the content validity by translational process of forward back-translation. Confirmatory factor analysis of present study revealed that the final model of CRS Urdu language utilizing 11 items had reliable Goodness of Fit Indices (RMSEA = 0.04, GFI =

0.97, CFI = 0.97, TLI = 0.96, and $\chi^2/df = 1.36$). Three new merging constructs exclusive, inclusive and collective religious beliefs confound good cronbach alpha reliability, composite reliability and convergent validity. For further studies to assess the level of religiosity is suggested to settle the specific criteria for examining its invariance among different samples. Finding of present study would be helpful for further researchers to use Urdu version of CRS for assessing religiosity from Urdu- speaking individuals.

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None.

Conflicts of interest

The author declares there is no conflict of interest.

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