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Brazilian Validation of Centrality of Religiosity Scale (CRS-10BR and CRS-5BR)

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Abstract: The centrality of religiosity scale (CRS), available in three versions (with 5, 10 and 15 items), is a measuring instrument that identifies the central importance of religiosity in the psychological construction and in the behavior of an individual. According to the literature, five components together express the centrality of religion in life: Public practice, private practice, ideological, intellectual, and religious experience. These components are the ground on which religious constructs are formed and activated. For the validation of the scale in the Brazilian cultural context, two versions were tested (CRS-10BR and CRS-5BR) with data collected from a general population (N = 687). Exploratory Factor Analysis (N = 334) resulted in a five-factor solution congruent to CRS-10BR. Confirmatory Factor Analysis (N = 353) demonstrated that a five-factor solution (Intellect, Ideology, Private Practice, Public Practice and Religious Experience) indicated better fit indexes than the single-factor solution of five items (CRS-5BR). Thus, CRS-10BR is recommended to capture CRS full construct. However, the CRS-5BR version can be considered suitable for use in the Brazilian population when the context is demanding simpler and faster data collection.

Keywords: centrality of religiosity scale; validation; religion; spirituality; psychology of religion; Brazil

1. Introduction

The religious dimension of human subjectivity has multifaceted expressions. This is exhibited by the enormous variety of forms of religious expression that are shaped in society, stem from individual and collective experiences and are identified as a religious experience. Religiosity, while occupying a central place in the subjectivity of the individual, impacts decisions and predicts human behavior, whether this centrality is intrinsic or extrinsic. Religious beliefs impact the way people think, make choices, and behave (Allport and Ross 1967).

In Brazil, a country of approximately 200 million inhabitants, the importance of religion and spirituality/religiosity in both the individual and social domain is evident as indicated by the last religious census conducted by the Brazilian Institute of Geography and Statistics (IBGE). While Romain Catholicism, a predominant religion since colonization, appears to be declining progressively in all regions of the country, from 73.6% in the 2000 census to 64.6% in 2010, other religious groups have been gaining prominence, mainly Evangelicals, which jumped from 15.4% to 22.2% (IBGE 2010). Furthermore, the census shows that the Non-Religious group represent 8.03%. Among that 8.03%, about 4% declare to be atheists, and 0.8% are agnostics (IBGE 2010).

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Facing the alteration in the Brazilian religious map in the decade of 2000–2010, and considering the rapid changes in this constantly changing field, it is a fact that there is a lack of a measuring instrument that significantly contributes to data collection in studies that take the spirituality/religiosity variable into account. Checking the religious affiliation and attendance to religious activities is not enough. It is necessary to evaluate the extent to which religiosity occupies a central place in the life of the individual, for "only if the religious construct-system is situated in a central position, religious beliefs can be powerful enough to influence subjective experience and behavior" (Huber 2007, p. 209). The centrality of religiosity "is related to the efficacy of religion. The more central religion is, the greater is its impact on the experience and behavior of a person" (Huber 2006, p. 2). Empirical results indicate that the centrality of religiosity impacts decisions and behavior in the area of politics (Huber 2009). In the social context, its relevance was tested by the experience of feeling forgiven by God and by the ability (or readiness) to practice forgiveness (Huber et al. 2011).

The impact mentioned by Huber can be observed in Brazil in diverse domains, including the field of Politics, Education, Health and others, but mainly in the Politics realm. It may be illustrated by the last presidential election. Mr. Bolsonaro, the current president of Brazil, won the election supported by Evangelical groups. His campaign logo was "Brazil above everything, God above everyone". This is, obviously, a hypothesis that should be verified in future studies. However, from the perspective of the centrality of religiosity, this could explain the Brazilian's behavior. As Huber and Huber (2012) had already pointed out, Brazilians are considered highly religious. Therefore, it seems relevant to verify the reliability and the multi-dimensionality of the centrality of religiosity scale (CRS) scale as it can be used not only to verify the centrality of religiosity in individuals' lives, but also to predict and/or explain certain forms of human behavior at which the variable of religiosity plays an important role.

The applicability of the Huber's centrality of religiosity scale in different cultures is also demonstrated by Gheorge (2019) and Fradelos et al. (2018). Gheorge (2019) validated the CRS-15 in the Romanian cultural context, and he encountered good fit indexes and congruent results for the original five dimensions of CRS-15. However, the study of Fradelos et al. (2018) revealed only two dimensions using of the Greek translation: The first corresponded to religious practices; and the second corresponded to religious beliefs and experiences, indicating that regional and cultural differences could imply different perceptions of religiosity. Thus, this study aims to verify the reliability of the centrality of religiosity scale (Huber and Huber 2012) in the Brazilian context.

Although Brazil is seen as a religious country, the centrality of religiosity cannot simply be presupposed in scientific studies, especially when taking into account the alteration in the Brazilian religious map. Thus, a rigorous investigation requires measurement instruments that contribute to the collection of more accurate data for a better interpretation of the results. In this sense, the validation of the centrality of religiosity scale for use in the Brazilian cultural context is relevant for the development of several studies that involve data collection on the religiosity of participants. Therefore, this article presents the preliminary validation process of the centrality of religiosity scale, by Huber and Huber (2012) (in two versions regarding the extension of the instrument—CRS-5 with five items and CRS-10 with 10 items). The theoretical background of the scale is presented initially, thereafter the method/procedures used in the validation process are described, and finally, the results of the application of the scale in the Brazilian cultural context are presented and discussed.

2. Theoretical Background of the Centrality of Religiosity Scale

The centrality of religiosity scale was created by Stefan Huber (2003, 2004, 2009) and is an instrument developed to measure the "centrality, importance or salience of religious meanings in personality" (Huber and Huber 2012, p. 711). It is presented in six versions. The versions of the present validation (CRS-10 and CRS-5) focus on the predominantly monotheistic Brazilian religious context, with an Abrahamic tradition, in which the majority is Christian. The original scale, in its different versions, reflects an interreligious pattern, including the CRS-15 with 15 items, the CRS-10 with 10 items and the shorter version CRS-5, with five items. The other three versions (CRS-7, CRS-14 and

CRS-20) were developed later in order to embrace new forms of spirituality in the Western context, in which meditation and mystical experiences are of great relevance (Huber and Huber 2012).

The centrality of religiosity scale was constructed on an interdisciplinary theoretical basis, at the interface between Theology/Studies of Religion, Sociology and Psychology, and distinguishes five core-dimensions of religion: Intellectual, ideological, private practice, public practice, and of religious experience; and three degrees of religiosity: Highly Religious, religious and Non-Religious.

Based on Huber and Huber (2012) work of validation, the five core-dimensions can be characterized as follows: *Intellectual Dimension* refers to the social expectation that religious people—regardless of religious affiliation or any denominational bias—have religious knowledge, interest, hermeneutical skills, styles of thought and interpretation that provides them with explanations on transcendence, religion and religiosity. The *Ideological dimension* comprehends that religious individuals have beliefs, convictions and standards of plausibility in the existence of a transcendent reality, being a fundamental assumption in order to construct the concepts and dogmas for most religious traditions. The *Public Practice* dimension refers to patterns of action in which, the religious individual with a sense of belonging to religious groups, participates and shares collective practices in certain activities and rituals. Similarly, the *Private Practice* dimension refers to the social expectation that religious individuals practice religious activities and rituals, but in the private space. Prayers and meditation are some examples. Through these practices, the basic patterns of action and personal style of devotion to transcendence and spirituality are expressed. The last dimension, *Religious Experience,* refers to the religious individual's experience of feeling connected to an ultimate reality, an experience of being one with something divine, or feeling part of something greater that affects them emotionally.

Huber made use of the central dimensions of religiosity from Charles Glock (1962, 1973) studies in the field of Sociology of Religion, and adapted them, from the perspective of Personality Psychology, especially the concepts on intrinsic and extrinsic religiosity by Allport and Ross (1967), and the concepts on psychology of the personal religious construct-system by Kelly (1955). Theology, or Studies of Religion, contribute to the aspects related to the religious contents expressed in the five dimensions, such as concepts of God, theological concepts, religions quest, etc. (Table 1).

Table 1. Items and versions (5 and 10) of the centrality of religiosity scale (CRS). * General contents (GC) and specific contents (SC). Adapted from Huber (2009).

<table>
<tr><th>Socio-Psychological Dimensions and Theological Contents *</th><th>Items</th><th colspan="2">Versions</th></tr>
<tr><td>Intellect (interest in religious matters [GC]: Religious quest [SC])</td><td>01: How often do you think about religious issues?</td><td rowspan="5">CRS-5
S-5</td><td rowspan="10">CRS-10</td></tr>
<tr><td>Ideology (plausibility of transcendence (GC): Theological concepts [SC])</td><td>02: To what extent do you believe that God or something divine exists?</td></tr>
<tr><td>Public Practice (religious/worship service, rituals [GC] religious network [SC])</td><td>03: How often do you take part in religious services?</td></tr>
<tr><td>Private Practice (Prayer/Meditation [GC]: Personal religious practice [SC])</td><td>04: How often do you pray?</td></tr>
<tr><td>Experience (One-to-one experience; experience of being at one [GC]: Religious emotions and experience [SC])</td><td>05: How often do you experience situations in which you have the feeling that God or something divine intervenes in your life?</td></tr>
<tr><td>Intellect
(interest in religious matters [GC]: Religious reflexivity; religious quest [SC])</td><td colspan="2">06: How interested are you in learning more about religious topics?</td></tr>
<tr><td>Ideology (plausibility of transcendence [GC]: Religious pluralism; God-concepts [SC])</td><td colspan="2">07: To what extent do you believe in an afterlife—e.g., immortality of the soul, resurrection of the dead or reincarnation?</td></tr>
<tr><td>Public practice
(religious/worship service [GC]: Religious affiliation; religious practice [SC])</td><td colspan="2">08: How important is to take part in religious services?</td></tr>
<tr><td>Private practice
(Prayer/Meditation [GC]: Religious coping [SC])</td><td colspan="2">09: How important is personal prayer for you?</td></tr>
<tr><td>Experience (One-to-one experience; experience of being at one [GC]: Religious emotions; themes of religious experience [SC])</td><td colspan="2">10: How often do you experience situations in which you have the feeling that God or something divine wants to communicate or to reveal something to you?</td></tr>
</table>

It is important to emphasize that both the intrinsic and extrinsic expression of religiosity can occupy a central place in the individual's life in order to impact the personal religious construct-system that guides their behavior. For Allport and Ross (1967), intrinsic religiosity is constant, devout and internalized. Extrinsic religiosity is casual, irregular and, in general, religion is used in an instrumental and utilitarian way. Although these "ideal types of religiosity" were constructed by Allport and Ross in a context that was different from the current Brazilian scenario, these concepts still offer contributions, because of the types of religiosity they describe. The expression of a religiosity that is intrinsic and well-integrated in the subjectivity, as well as a utilitarian and pragmatic expression of the extrinsic religiosity, can occupy centrality in the subject's life, if they are considered Highly Religious.

Centrality of the Personally Constructed System

The five dimensions described (Intellectual, Ideological, Public Practice, Private Practice and Religious Experience) can be seen as representative of the totality of religious life, and in this sense, the measure of their frequency and intensity expresses whether or not religiosity is central to the individual's life. The centrality of religiosity is observed by the sum of the scores. The total result is the sum of the results of the five factors. The sum of the indexes allows the categorization of the personal religious construct-system of individuals and/or groups into three levels: Highly Religious, Religious or Non-Religious.

For Highly Religious individuals, the religious system occupies a central position, meaning that the religious content and beliefs exert a strong influence on the psychological system.

As for the category "Religious", this refers to individuals whom:

> ... the personal religious system holds merely a subordinate position within the personality's cognitive and emotional architecture. Though religious content can indeed be found in the person's life-horizon, it cannot be expected to have a clearly determinant effect on experience and behavior. Religion plays more of a background role. (Huber 2009, p. 21)

Individuals in this category rarely use religious beliefs and values to construct meaning for their experiences. The third category raised by the scale characterizes the Non-Religious. In this group, religious contents do not appear, or very rarely appear in the personal religious construct-system of these individuals. "The presence of religiosity remains so weak that one cannot speak of the personality having an independent religious system—or if so, only for comparative purposes" (Huber 2009, p. 21).

3. Method

In order to access validation of the centrality of religiosity scale proposed by Huber and Huber (2012) in the Brazilian cultural context, data were collected from a general population using CRS-10BR (which also enables to test the CRS-5BR version of the scale) and sociodemographic questions. Therefore, the aim was to verify not only the dimensionality and reliability of both versions (CRS-10BR and CRS-5BR), but also comparing their results in terms of individuals' categorization of the centrality of religiosity across sociodemographic characteristics.

The first step of this process was the translation and the adaptation of its questions for the use in the Brazilian context, followed by separate Exploratory Factor Analysis and Confirmatory Factor Analysis to attest the dimensionality and reliability of both versions (CRS-10BR and CRS-5BR). As both versions demonstrated good reliability and mostly acceptable fit indexes, we performed agreement categorizations tests using Huber and Huber (2012) proposal in the extent of its CRS Score.

3.1. Translation and Adaptation Procedures

The centrality of religiosity scale is being validated in the versions CRS-5 (with five items) and CRS-10 (with 10 items). The process of translation, adaptation and validation for use in the Brazilian context followed the standard procedure of scale validation. First, a version of the scale with 10 items was translated into Portuguese and sent to three experts that are fluent in English and have knowledge

about the subject. The experts were asked to make an analysis of the clarity, reading comprehension, general presentation and adequacy of the original meaning in English to Portuguese. The experts were instructed to first read the instrument in English. As one of the consulted experts was of Swiss origin, and therefore, also fluent in German, he added the German version in his analysis. All of them answered a specific evaluation sheet (analyzing each item), with the opportunity to make suggestions and improvements concerning the translation. There was a consensus among the specialists about adding some examples between brackets in order to clarify the meaning of "religious service" in the third item. The term is not culturally recognized as it is not part of Brazilians' vocabulary, and people would not understand its meaning. Depending on the individual's religious background a variety of terms like "worship", "mass", "sessions", "bible studies", "meetings", "prayer group", etc., could be employed to refer to what in English is stated as "religious service".

After incorporating the observations, a first Portuguese version of the scale with 10 items was created. Except for the first item (about the attendance to religious services, with seven seven-point answer scale) and the last one (about the frequency of prayer practice, with nine-point answer scale), the answers are given on a Likert scale of five points, measuring the level of interest/importance (1—not at all to 5—very much) and frequency (1—never to 5—frequently). The instrument was sent to the author of the scale, in a reverse translation from Portuguese to English. The author suggested the use of the original version in English (there is also an original version in German) and approved the reverse translation.

This first version of the scale was given to 42 college students who also served as a focus group. They discussed its semantic clarity and evaluated the words that could be understood by the general population, regardless of religion/belief. An equivalent version of the original scale was obtained, with appropriate adaptations to Brazilian culture. In the Brazilian version, the first and last items are closer to the German version, in which seven-point answer scale and nine-point answer scale are presented. For the analysis procedures, these alternatives were recoded to the Likert scale from 1 to 5 (according to Tables 2 and 3). After these procedures, the final version was applied to the general population.

Table 2. Recoding of objective frequencies of the items concerning prayer, meditation, and religious services into five score levels. Adapted from Huber and Huber (2012, p. 720).

Objective Frequencies of Participation in Religious Services	Recoding into 5 Levels	Objective Frequencies of Prayer	Recoding into 5 Levels
How often do you take part in religious services (worship, mass, sessions, bible studies, meetings, prayer group, etc.)? (*Com que frequência você costuma participar de serviços religiosos (cultos, missas, sessões, estudos bíblicos, reuniões, grupos de oração, etc.*)?		How often do you pray? (*Com que frequência você normalmente ora/reza?)*	
(a) Never (Nunca)	1	(a) Never (*Nunca*)	1
(b) Once a year (*Uma vez por ano*) (c) A few times a year (*Algumas vezes por ano)*	2	(b) Once a year (*Uma vez por ano*) (c) A few times a year (*Algumas vezes por ano*)	2
(d) Once a month *(Uma vez por mês*)	3	(d) About once a month (*Cerca de uma vez por mês*)	3
(e) Every 14 days (*A cada 14 dias*)	4	(e) Every 14 days (*A cada 14 dias*) (f) About once a week (*Cerca de uma vez por semana*) (g) A few times a week (*Várias vezes por semana*)	4
(f) Once a week (*Uma vez por semana*) (g) A few times a week (*Várias vezes por semana*)	5	(h) About once a day (*Cerca de uma vez por dia*) (i) A few times a day (*Várias vezes por dia*)	5

Table 3. Hermeneutics of the wording a five-level answer scale. (Huber and Huber 2012, p. 720).

	Score	Wording		Hermeneutics
		Frequency	Importance	Presence of Personal Constructs in Personality
Categories of a five-level answer-scale	5	Very often	Very much so	Clear presence
	4	Often	Quite a bit	
	3	Occasionally	Moderately	Transition area: Background presence
	2	Rarely	Not very much	No or only marginal presence
	1	Never	Not at all	

3.2. Coding of Frequencies of Religious Behaviors

Except for the items related to the attendance to religious services and frequency of prayer practice, the items on the scale are rated from 1 to 5 according to the Likert scale. For the calculation of the CRS score, the items are summed up and divided by the number of scores for each item. Thus, the classification results in the following parameters for the scale categorization: Highly Religious—4.0 to 5.0; Religious—2.1 to 3.9; Non-Religious—1.0 to 2.0.

Considering that the items on attendance to religious services and frequency of prayer practice are presented with a greater number of possible selected answers, these items were recoded from 1 to 5 (Table 2) for the calculation of the Likert scale. The alternatives presented in these two items consider the religious context of the Brazilian population. In this sense, the hermeneutic proposal of Huber and Huber (2012) is used for the recoding of these items (see Table 3).

Huber points out that the levels 1 and 2 about frequency ("rarely", "never") and importance ("not very much", "not at all") of religious services and prayer practice indicate that such religious constructs are almost absent from the individual. Consequently, they are not psychologically relevant, being categorized as Non-Religious. Conversely, individuals who indicate "very often" or "often" for the question on the attendance of religious services and "very much so" or "quite a bit" for the question on personal prayer practice, clearly express the presence of such constructs in their personal religious construct-system and evidence, therefore, that these elements have high psychological relevance for them, being plausibly categorized as Highly Religious. The "intermediary" level 3 presents responses, such as "occasionally" or "moderately", thus, indicating an infrequent and not very intense presence of religious elements that characterize the "religious" individuals.

3.3. Sample

All participants gave their informed consent for inclusion before participating in the study. The study was conducted in accordance with the declaration of Helsinki, and the protocol was approved by PUCPR Research Ethics Committee (Process 1.354.361, from 7 December 2015).

A link to an electronic inquiry developed in Qualtrics Online software was broadly distributed in social media inviting people to participate. A total of 796 individuals started the questionnaire, but only 723 completed it. Still, it was necessary to exclude 36 individuals as they were considered outliers (they completed the questionnaire in less than 1 minute), answering most of the questions in a pattern (same answers) or made inappropriate comments during the survey.

Therefore, the total valid sample of this study consisted of 687 participants from several different states in Brazil. Later, this sample was randomly divided into two different samples (approximately 50% each) for the Exploratory Factor Analysis (EFA—Sample 1) and the Confirmatory Factor Analysis (CFA) Sample 2). The majority of the total valid sample were women (64.9%) and had a high instruction degree (28.4% were college students, 26.8% had college degrees, and 35.4% had higher degrees—MBA, PHD, etc.), 7.6% had school degrees, and 1.2% did not complete school. Although this pattern indicates

a sample of higher education above Brazilian standards, it can be explained by the form and means the data was collected with. Nevertheless, most of the sample had a general income below eight minimum wage. A minimum wage in Brazil is currently equivalent to the US $264.00. (19.2% below one minimum wage, 29.1% between one and three, 28.1% less than eight) and only 23.6% with income above it—similar to the Brazilian socioeconomic pyramid.

Table 4 shows that, although women and men demonstrated no difference in their CRS score, some items reveal relevant differences between gender. In general, compared with men, women believe slightly more in God or something divine (item 02) having experiences where they felt God or something divine tried to communicate something (item 10), pray more (item 04) and think prayer is more important (item 09). Men, on the other hand, are more interested in learning about religious topics (item 06) and answered that they take part in religious activities more frequently (item 02).

Table 4. CRS items T-tests: Differences between men and women.

Dimension			Male	Female	*t*	*p*
Intellect	01: How often do you think about religious issues?	*mean*	4.17	4.09	1.052	0.293
		sd	0.99	0.97		
	06: How interested are you in learning more about religious topics?	*mean*	3.88	3.54	3.769	<0.001
		sd	1.09	1.06		
Ideology	02: To what extent do you believe that God or something divine exists?	*mean*	4.27	4.48	−2.170	0.031
		sd	1.309	1.00		
	07: To what extent do you believe in an afterlife—e.g., immortality of the soul, resurrection of the dead or reincarnation?	*mean*	3.83	3.95	−1.018	0.309
		sd	1.45	1.31		
Public Practice	03: How often do you take part in religious services?	*mean*	3.66	3.38	2.109	0.035
		sd	1.70	1.69		
	08: How important is to take part in religious services?	*mean*	3.59	3.43	1.437	0.151
		sd	1.46	1.42		
Private Practice	04: How often do you pray?	*mean*	3.99	4.24	−2.494	0.013
		sd	1.46	1.18		
	09: How important is personal prayer for you?	*mean*	3.86	4.16	−2.918	0.004
		sd	1.36	1.09		
Religious Experience	05: How often do you experience situations in which you have the feeling that God or something divine intervenes in your life?	*mean*	3.49	3.58	−0.861	0.390
		sd	1.26	1.25		
	10: How often do you experience situations in which you have the feeling that God or something divine wants to communicate or to reveal something to you?	*mean*	3.68	4.00	3.202	0.001
		sd	1.31	1.10		
CRS score		*mean*	3.84	3.88	−0.509	0.611
		sd	1.09	0.91		

The random division of the sample resulted in a Exploratory Factor Analysis (EFA) sample (Sample 1) composed of 334 participants (48.62% of total valid sample), with a female majority (64.4%) and a Confirmatory Factor Analysis (CFA) sample (Sample 2) with of 353 individuals (51.38% of total valid sample), again with a female majority (65.4%).

There were no significant differences between samples regarding Age (M = 37.60 SD = 13.82) or regarding most of the questions from the CRS scale (all *p*-values non-significant, above 0.445). There was no statistically significant difference in the CRS score (the sum of all items divided by the number of items, Huber and Huber 2012, p. 720) between samples ($p = 0.633$) and its 10 items (the order and the translation of the items used in the questionnaire can be seen in Appendix A).

We did not find any significant difference regarding marital status (Married—36.0%; Singles—46.4%; As a marital status—9.6%, Separated/Divorced—6.3%; Widowers—1.7%) between Sample 1 and Sample 2. Both samples included participants from different religions, without significant differences between them ($p = 0.719$), with Catholics as the largest group (33.5%), Evangelicals as the second largest group (24.5%) and Spiritism as the third (11.9%). Although 15% of the sample said they believed in God, they said they had no religion. Furthermore, smaller percentages of other religions were reported: African-Brazilian, Pentecostal, Buddhism and combinations of different religions.

4. Results and Discussion

4.1. Correlations and Exploratory Analysis—Sample 1

Following Fradelos et al. (2018), for the conduction of the Exploratory Factor Analysis, a principal components analysis and Varimax Rotation method were both used. This choice was made due to the correlations found between items (shown below in Table 5) and in order to make comparisons between results.

Table 5. Correlations among ten CRS items.

Dimension		01	06	02	07	03	08	04	09	05	10
Intellect	01	1									
	06	0.565 **	1								
Ideology	02	0.568 **	0.441 **	1							
	07	0.471 **	0.378 **	0.597 **	1						
Public Practice	03	0.562 **	0.475 **	0.546 **	0.408 **	1					
	08	0.608 **	0.533 **	0.664 **	0.517 **	0.764 **	1				
Private Practice	04	0.527 **	0.361 **	0.641 **	0.495 **	0.653 **	0.625 **	1			
	09	0.591 **	0.447 **	0.781 **	0.555 **	0.616 **	0.714 **	0.773 **	1		
Religious Experience	05	0.471 **	0.346 **	0.582 **	0.477 **	0.455 **	0.511 **	0.548 **	0.563 **	1	
	10	0.476 **	0.261 **	0.695 **	0.478 **	0.493 **	0.566 **	0.647 **	0.671 **	0.738 **	1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5 shows there are significant correlations between all items, indicating initially that the items would converge into a construct (the CRS).

The strongest correlations of each item (marked) are set between items formerly belonging to the dimension described by Huber and Huber (2012). For example, although item 05 ("How often do you experience situations in which you have the feeling that God or something divine intervenes in your life?") significantly correlates with item 02 ("To what extent do you believe that God or something divine exists?") or with item 09 ("How important is personal prayer for you?"), it has a stronger correlation with item 10 which belongs to the same factor ("religious experience") described by these authors.

The exploratory factor analysis (EFA) was conducted with the 10 items of the scale on a sample of 334 participants, that comply with the majority of the recommendations in the literature and also respects the minimum of 200 cases for any EFA (Guilford 1954; MacCallum et al. 1999; Hair et al. 2009). Results showed that the sample was adequate for a factor analysis (KMO = 0.904, Bartlett's sphericity $x^2 = 2300.25$ $p < 0.001$ df = 45). The first attempt used the K1 method proposed by Kaiser (1960), and eigenvalues analysis (Cattell 1966) presented a single factor solution with 60.27% of total variance explained. Still, it showed that a 05 factors—solution congruent with Huber and Huber (2012)—would explain 86.79% of the total variance. This was 05 factors solution with a Varimax Rotation and resulted in convergent results (Table 6) of the factors proposed by Huber and Huber (2012) with the exception of one item (02).

The Rotated Component Matrix table suppressing coefficients smaller than 0.4 presented that only item 02 from Ideology ("To what extent do you believe that God or something divine exists?") showed some different results from Huber and Huber (2012) as it should preferably be grouped with the Private Practice factor. We analyzed this factor grouping difference and discovered that it only happens on individuals who declared themselves as Catholics (about 1/3 of the sample), mainly because it revealed a strong correlation (r = 0.742 $p < 0.001$) with the item 09 ("How important is personal prayer for you?") (only a minor correlation with item 04, r = 0.386). Therefore, as item 02 was still grouped with the Ideology factor with a score higher than 0.40, we decided to maintain it in the Ideology dimension.

Due to these results, the CFA was tested with these concurrent models: (1) The CRS-10BR with five dimensions proposed by Huber and Huber; (2) the CRS-10BR with a single dimension, and; (3) the CRS-5BR within a single dimension.

Table 6. Rotated component matrix of the five factors solution.

Dimension	Item	5 Factors Solution				
		1 (18.5% var.)	2 (18.2% var.)	3 (18.1% var.)	4 (16.9% var.)	5 (15.0% var.)
Intellect	01				0.694	
	06				0.878	
Ideology	02	0.626				0.426
	07					0.930
Public Practice	03			0.862		
	08			0.687		
Private Practice	04	0.645		0.480		
	09	0.714				
Religious Experience	05	0.462	0.884			
	10		0.747			

4.2. Confirmatory Analysis

With results congruent with Huber and Huber (2012), we conducted a series of CFA analysis using the remaining half of the data (Sample 2). As with an EFA, a CFA can be used to reduce the overall number of observed variables into latent dimensions based on their commonalities. This is done by reducing measurement error and adding a level of statistical precision that is useful to scale validation (McArdle 1996).

The first model tested in AMOS v.20 for SPSS v.20 was the original CRS-10 with five dimensions (Intellect, Ideology, Public Practice, Private Practice and Religious Experience) model proposed by Huber and Huber (2012). It resulted in good fit indexes (χ^2/df = 3.992, NFI = 0.96, IFI = 0.97, TLI = 0.95, CFI = 0.97, AGFI = 0.90, SRMR = 0.04, GFI = 0.90, as recommended by Kline (2011); Hooper et al. (2008); Schreiber et al. (2010)—only RMSEA = 0.09—above 0.08) that are similar to Gheorge (2019) CFA (although this author tested the CRS-15).

With this fit index, Hair et al. (2009) recommend that the model should be tested for its convergent and discriminant validity. Convergent validity tests if the items that form a dimension have a lot of common variances, and therefore, relates to the same dimension "as they converge to a common point". Discriminant validity assumes that one scale (or subscale) is different from other related scales (or subscales). Therefore, testing for discriminant validity between dimensions (and its inner items) is a way of testing if the dimensions are different from other dimensions of the same construct.

Convergent validity was established for all five dimensions based on AVE (Average Variance Extracted) values higher than 0.5, as recommended by Hair et al. (2009). Composite Reliability (CR) of all five dimensions were over 0.8, showing high reliabilities (Hair et al. 2009).

In the last step, the discriminant validity was confirmed as the AVE demonstrated in Table 7 is higher than the corresponding correlation coefficient between factors demonstrated in Table 8 (Fornell and Larcker 1981). Accordingly, it is possible to assume that, for this sample, the dimensions are or were perceived as different from the other dimensions of the CRS-10 scale. Also, general internal consistency for CRS-10BR was 0.921 (Sample 1 = 0.922/Total Sample = 0.922), again congruent with the authors, the internal consistency is highly acceptable.

The second model tested was the CRS-10BR with One dimension because of the single factor solution from the Exploratory Analysis and the high correlations with most of the items. Although it performed with good general reliability using Cronbach's alpha (0.921), it performed having non acceptable fit indexes, and therefore, is not being recommended for use (χ^2/df = 15.53, NFI = 0.80, IFI = 0.81, TLI = 0.75, CFI = 0.80, GFI = 0.76, AGFI = 0.62, RMSEA = 0.20, SRMR = 0.08) (Kline 2011; Hooper et al. 2008; Schreiber et al. 2010).

As a final model, we tested the CRS-5BR with one dimension (Huber and Huber 2012). Similar to Huber and Huber (2012), our initial results for internal consistency using Cronbach's Alpha for CRS-5 were above acceptable (0.852) in the total sample (Sample 2: 0.862/total sample = 0.857), but not for

all fit indexes (χ^2/df = 5.636, NFI = 0.96, IFI = 0.97, TLI = 0.94, CFI = 0.97, GFI = *not available*, AGFI = *not available*, RMSEA = 0.115, SRMR = 0.03) (see Table A1 for the comparison of all models in the Appendix B). Therefore, it would be preferable to use the CRS-10BR with the five original dimensions rather than its CRS-5 counterpart.

Table 7. Results for CRS-10 with five dimensions: Standardized regression weights, AVE, and CR.

Item	Dimension	St. Reg. Weights	*p*-Value	CR	AVE
06	Intellect	0.81	<0.001	0.80	0.67
01		0.83	<0.001		
07	Ideology	0.70	<0.001	0.82	0.70
02		0.96	<0.001		
08	Public Practice	0.93	<0.001	0.89	0.81
03		0.86	<0.001		
09	Private Practice	0.92	<0.001	0.89	0.80
04		0.88	<0.001		
05	Religious Experience	0.92	<0.001	0.86	0.76
10		0.83	<0.001		

Table 8. Results for CRS-10 with five dimensions: Correlations, squared correlations, AVE, and CR.

Dimension	Intellect	Ideology	Public Practice	Private Practice	Religious Experience
Intellect	1.00	0.29	0.65	0.46	0.42
Ideology	0.53	1.00	0.30	0.57	0.49
Public Practice	0.80	0.55	1.00	0.60	0.49
Private Practice	0.68	0.76	0.78	1.00	0.71
Experience	0.65	0.70	0.70	0.84	1.00
AVE	0.67	0.70	0.81	0.80	0.76
CR	0.80	0.82	0.89	0.89	0.86

4.3. CRS-Score Categorization Comparisons

We performed another comparison of the CRS-10 and CRS-5 by categorizing the individuals using Huber and Huber (2012) method. Individuals should be categorized as Highly Religious (CRS scores from 4 to 5), Religious (from 2.1 to 3.9) and Non-Religious (from 1 to 2) using the CRS score. First, we computed the average of 05 items (CRS-5—1 dimension) and last, with the average of the five dimensions (CRS-10—5 dimensions). Categorization results showed significant congruence with a general convergence of 90.5% of the cases (CRS-5: HR—65.6%; R—26.5%; NR—7.9%/CRS-10—HR—59.8%; R—32.2%; NR—8.0%/Kappa = 0.817, $p < 0.001$). Most of the differences (46 cases from the 65 not convergent) were due to individuals being categorized as "Religious" using CRS-10 instead of being categorized as Highly Religious using CRS-5 from the start. Paired *t*-test demonstrated similar results showing a high correlation between the CRS scores (r = 0.971, $p < 0.001$) and, although it presented different means—nonetheless it was a very small difference effect (M_{5items} = 4.01, SD = 1.02/$M_{5factors}$ = 3.87, SD = 0.98, t(0.686) = −15.436, $p < 0.001$, d = 0.137).

Evangelicals, Pentecostals and Spiritists showed larger groups of Highly Religious individuals, followed closely by Catholics. Although 103 individuals declared they had no religion (but believe in God) more than 75% of them were categorized as Religious in both categorizations. Table 9 shows that there are few distortions between categorizations, mostly on Catholics and Spiritists.

Table 9. CRS categorization between religions.

		Catholic	Evangelical	Spiritism	I Believe in God, but I Have No Religion	Pentecostal	Brazilian Afro-Religions	Others	TOTAL
CRS-5	Non-Religious	3.4%	1.2%	2.4%	4.9%	0.0%	30.0%	41.0%	7.9%
	Religious	20.9%	4.2%	20.8%	74.8%	18.2%	30.0%	33.7%	26.5%
	Highly Religious	75.7%	94.6%	76.8%	20.3%	81.8%	40.0%	25.3%	65.6%
CRS-10	Non-Religious	3.9%	1.2%	2.4%	6.8%	0.0%	10.0%	41.0%	8.0%
	Religious	28.7%	10.1%	20.7%	80.6%	27.3%	40.0%	37.3%	32.2%
	Highly Religious	67.4%	88.7%	76.8%	12.6%	72.7%	50.0%	21.7%	59.8%
	n	230	168	82	103	11	10	83	687

Still, our mean scores are a little lower than Huber and Huber (2012) (here M_{5items} = 4.01, SD = 1.02/$M_{5factors}$ = 3.87, SD = 0.98—in their article M = 4.18, SD = 0.70) as our group categorizations were also a little different from surveys that previous presented in Brazil (p. 722) (NR = 2%/R = 24%/HR = 74%) by Huber and Huber (2012).

Crosstab analyses of the CRS categorizations between Educational levels demonstrated most of the same differences between Religious and Highly Religious (Table 10). The analyses revealed that most of the individuals were Highly Religious, followed Religious individuals. Nevertheless, people with Incomplete Graduation presented less Highly Religious and more Religious individuals than the other educational levels (CRS-5 p = 0.014/CRS-10 = 0.036) (13 individuals excluded because of fewer cases of other educational levels).

Table 10. CRS categorization between educational level.

		High School	Incomplete Graduation	Complete Graduation	Postgraduate	TOTAL
5 items (CRS-5)	Non-Religious	3.8%	10.3%	4.6%	9.5%	7.9%
	Religious	21.2%	34.3%	25.1%	23.5%	26.5%
	Highly Religious	75.0%	55.4%	70.3%	67.0%	65.6%
5 factors (CRS-10)	Non-Religious	3.8%	10.9%	6.2%	8.6%	8.0%
	Religious	26.9%	39.6%	30.2%	28.8%	32.2%
	Highly Religious	69.3%	49.5%	63.6%	62.6%	59.8%
	n	52	184	195	243	674

5. Conclusions

The validation process of the centrality of religiosity scale CRS-10BR and CRS-5BR shows adequate overall psychometric qualities for the use in the Brazilian cultural context. Exploratory and Confirmatory Factor Analyses indicated that the CRS-10BR shows better fit indexes than CRS-5BR; therefore, CRS-10BR is recommended. However, as the CRS-5BR has demonstrated acceptable fit indexes as well, it is also considered suitable for use in the Brazilian population when the context demands simpler and faster data collection, for instance, in healthcare settings. As noted by Hair et al. (2009), although a larger number of questions related to the same topic makes the scale more reliable, this would result in a longer scale hindering its applicability. Congruent to this, Huber and Huber (2012) point out that it is also important to look for the reliability of scales, specifically with fewer or one item measures (as "How important religion is for you?" or "How religious do you consider yourself?"). Indeed, this study demonstrated congruent results to Huber and Huber (2012, p. 716) that, the more items the CRS scale has, the more reliable and accurate it should be.

Nevertheless, both versions revealed a categorization convergence of 90.5% of the cases between Non-Religious, Religious and Highly Religious individuals. Thus, although it would be statistically

recommended to use CRS-10BR, depending on the necessity to use shorter questionnaires and for later categorization using CRS-Score, it would be acceptable to use CRS-5BR.

The results indicated that the scales CRS-10BR and CRS-5BR are useful instruments for Brazilian reality, as it will allow researchers to make comparisons between data obtained in different scenarios, including research and the clinical context. Especially in the area of health, that has had a growth in research on spirituality/religiosity in Brazil; and it is useful to have a fast, short, and reliable instrument for data collection. In addition, identifying whether religiosity is central to the individual's life gives consistency to other data (for example, attachment to God, spiritual/religious coping, spiritual struggles, etc.), as pointed out by Huber and Huber (2012), "only if the religious construct-system is situated in a central position, religious beliefs can be powerful enough to influence subjective experience and behavior".

In the use of a self-applied instrument, there is the possibility of error in the self-understanding of the participant. In addition, responses may also be influenced by socially desirable patterns (Olson et al. 2016, p. 87). Therefore, the interpretation of the data should consider these aspects.

As a study limitation, the majority of the sample were women, but it is mostly due to the "prevalence of women in the Brazilian population, convenience sampling and the possibility of women being more prone to cooperate" (Esperandio et al. 2018, p. 6). Also, the majority of the sample had a high instruction degree, a pattern that is not congruent with Brazilian standards. Although it can be explained by the form and means the data was collected with, other studies can try to collect data with differently for example, in public spaces or even using other sampling techniques). For future research, it is necessary to understand the difference for dimension loading results on EFA for Catholic individuals, as for other categorization between religions and, if it could appear in other sociodemographic categories as Educational level, or even regional context form Brazil and Latin America. Moreover, with the validated scales (CRS-10BR and CRS-5BR) could be understood if, or even to what extent, it can be influencing individual lives in their behavior and decisions.

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Appendix A

Attachment: Centrality of Religiosity Scale–Brazilian Portuguese Version

(CRS10-item 03)

1. Com que frequência você costuma participar de serviços religiosos (cultos, missas, sessões, estudos bíblicos, reuniões, grupos de oração, etc.)?
□ Nunca. □ Uma vez por ano. □ Algumas vezes por ano. □ Uma vez por mês.
□ A cada 14 dias. □ Uma vez por semana. □ Várias vezes por semana.

2. Por favor, indique nas questões abaixo, qual o nível de interesse que você tem, ou, de importância que você dá aos seguintes conteúdos:

(CRS10-item 06) 2.1 Quanto você se interessa em aprender mais sobre assuntos religiosos?
① Nem um pouco. ② Um pouco. ③ Mais ou menos. ④ Bastante. ⑤ Muitíssimo
(CRS10-item 09) 2.2 Qual é a importância da oração pessoal para você
① Nem um pouco. ② Um pouco. ③ Mais ou menos. ④ Bastante. ⑤ Muitíssimo

(CRS10-item 02) 2.3 Até que ponto você acredita na existência de Deus ou de algo divino?
① Nem um pouco. ② Um pouco. ③ Mais ou menos. ④ Bastante. ⑤ Muitíssimo
(CRS10-item 08) 2.4 Que importância tem para você a participação em atividades religiosas (cultos, missas, rituais religiosos, sessões; reuniões)
① Nem um pouco. ② Um pouco. ③ Mais ou menos. ④ Bastante. ⑤ Muitíssimo
(CRS10-item 07) 2.5 Até que ponto você acredita em vida após a morte – por exemplo, imortalidade da alma, ressurreição ou reencarnação?
① Nem um pouco. ② Um pouco. ③ Mais ou menos. ④ Bastante. ⑤ Muitíssimo

3. Por favor, indique a frequência com que as situações ou eventos abaixo ocorrem com você.
Com que frequência ...
(CRS10-item 01) 3.1 ... você pensa sobre questões religiosas?
① Nunca. ② Raramente. ③ Ocasionalmente. ④ Muitas vezes. ⑤ Frequentemente
(CRS10-item 10) 3.2 ... você passa por situações nas quais tem o sentimento de que Deus ou alguma coisa divina quer se comunicar ou revelar alguma coisa para você?
① Nunca. ② Raramente. ③ Ocasionalmente. ④ Muitas vezes. ⑤ Frequentemente
(CRS10-item 05) 3.3 ... você passa por situações nas quais tem o sentimento de que Deus ou ser superior intervém em sua vida?
① Nunca. ② Raramente. ③ Ocasionalmente. ④ Muitas vezes. ⑤ Frequentemente

(CRS10-item 04)

4. Com que frequência você normalmente ora/reza?
□ Nunca. □ Uma vez ao ano. □ Algumas vezes ao ano. □ Cerca de uma vez por mês. □ A cada 14 dias. □ Cerca de uma vez por semana. □ Várias vezes por semana. □ Cerca de uma vez por dia. □ Várias vezes ao dia.

Appendix B

Table A1. Model's indexes.

Model Indexes	Shorthand	General Rule For Acceptable Fit	CRS-10 5 Dimensions	CRS-10 1 Dimension	CRS-5 1 Dimension
Absolute/predictive fit					
Chi-square/degrees of freedom	χ^2/df	Ratio of χ^2 to *df* ≤ 3 or 5, useful for nested models/model trimming	3.992	15.253	5.636
Akaike information criterion	AIC	Smaller the better; good for model comparison (non-nested), not a single model	159.779	573.853	58.179
Browne–Cudeck criterion	BCC	Smaller the better; good for model comparison, not a single model	161.734	575.144	58.700
Bayes information criterion	BIC	Smaller the better; good for model comparison (non-nested), not a single model	275.793	651.183	-
Consistent AIC	CAIC	Smaller the better; good for model comparison (non-nested), not a single model	305.793	671.183	-
Comparative FIT		**Comparison to a baseline (independence) or another model**			
Normed fit index	NFI	≥0.95 for acceptance	0.96	0.80	0.96
Incremental fit index	IFI	≥0.95 for acceptance	0.97	0.81	0.97
Tucker–Lewis index	TLI	≥0.95 can be 0 > TLI > 1 for acceptance	0.95	0.75	0.94
Comparative fit index	CFI	≥0.95 for acceptance	0.97	0.80	0.97
Other					
Goodness-of-fit index	GFI	≥0.95	0.95	0.76	-
Adjusted GFI	AGFI	≥0.90	0.90	0.62	-
Root mean square residual	RMR	Smaller, the better; 0 indicates perfect fit	0.06	0.13	-
Standardized RMR	SRMR	≤0.08	0.04	0.08	0.03
Root mean square error of approximation	RMSEA	<0.06 to 0.08 with confidence interval	0.09	0.20	0.115

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