

Validation of the Duke Religion Index: DUREL (Portuguese Version)

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Abstract The purpose of the current study was to examine the psychometric properties of the Portuguese version of the Duke Religion Index (PDUREL) in a community setting. PDUREL was translated and adapted for administration to 383 individuals from a population-based study of low-income community-dwelling adults. The PDUREL intrinsic subscale and total scores demonstrated high internal consistency (alphas ranging from 0.733 for the total scale score to 0.758 for the intrinsic subscale). Correlations among the DUREL subscales were also examined for evidence of discriminant validity. Correlations were ranging from 0.36 to 0.46, indicating significant overlap between the scales without marked redundancy. PDUREL is a reliable and valid scale. The availability of a comprehensive, but brief measure of religiousness can help to study the role of religiousness in health by researchers from countries that speak the Portuguese language.

Keywords Religion and medicine · Epidemiology · Psychometrics · Spirituality

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Introduction

The relationship between religiousness and health has been extensively examined in recent decades (Koenig 2009; Sulmasy 2009). Studies have shown that religiousness and spirituality are related to less depression (H. G. Koenig 2007), better scores on quality-of-life instruments (Tarakeshwar et al. 2006), lower mortality, (Gillum et al. 2008) and greater psychological well-being (Lawler-Row and Elliott 2009).

In Brazil, there is a growing interest in the relationship between religion and both mental (Floriano and Dalgalarrondo 2007; Moreira-Almeida et al. 2006) and physical health (Leão and Lotufo Neto 2007; Lucchetti et al. 2010). However, few instruments for religious studies are translated and validated in Portuguese. The Portuguese version of Spiritual/religious Coping Scale (RCOPE) was validated in 2005 (Panzini and Bandeira 2005), and the Portuguese version of the Spirituality Self Rating Scale in 2008 (Gonçalves and Pillon 2009).

The Duke Religion Index (Koenig et al. 1997) is an easy and brief scale. It has been widely used in international studies (Cotton et al. 2006; Yohannes et al. 2008), but lacks a psychometric evaluation of its Portuguese version, which was translated by Moreira-Almeida et al., (Moreira-Almeida et al. 2008).

The purpose of the current study was to examine the psychometric properties of the Portuguese version of DUREL.

Methods

Subjects

Data were collected as part of a study concerning assessment of headache prevalence on a very low-income community in São Paulo, Brazil. The study was approved by the Human Subjects Review Committee at Albert Einstein Hospital (São Paulo, Brazil). Participants were interviewed in their homes. A representative population-based sample of 439 subjects was interviewed from the Paraisópolis Community (a low-income community located in southeast Brazil, in the city of São Paulo, which has approximately 150,000 residents). Exclusion criteria included severe cognitive impairment, inability to read and write Portuguese, and not being at home at the time of the visit.

Procedure

Potential participants were contacted by a trained interviewer, who explained the study and obtained informed consent.

Religious Measure

The following measure was included in the questionnaire:

The Duke Religious Index

The Duke Religious Index (DUREL) (H. Koenig et al. 1997) is a five-item measure of religious involvement, which yields three subscales: (1) Organizational religious behavior (1 item), (2) Nonorganizational religious behavior (1 item), and (3) Intrinsic religious

motivation (3 items drawn from the Hoge's 10-item intrinsic religiosity scale [12,19]). Response options are on a 5- or 6-point Likert scale.

DUREL's reliability estimates (alphas) from other studies have been shown to range from 0.75 to 0.91 (Koenig et al. 1997; Storch, Roberti et al. 2004).

The Portuguese version of the DUREL was developed in 2008 (Moreira-Almeida et al. 2008). One of the authors did the first translation that was revised by others. This version was translated back for English by another researcher who did not know the original English version. This back translated English version was evaluated and approved by the senior author of Portuguese Duke Religion Index (Box 1).

Box 1 Duke Religion Index: Portuguese version previously adapted by Moreira-Almeida et al.¹⁶

(1) Com que freqüência você vai a uma igreja, templo ou outro encontro religioso?

1. Mais do que uma vez por semana
2. Uma vez por semana
3. Duas a três vezes por mês
4. Algumas vezes por ano
5. Uma vez por ano ou menos
6. Nunca

(2) Com que freqüência você dedica o seu tempo a atividades religiosas individuais, como preces, rezas, meditações, leitura da bíblia ou de outros textos religiosos?

1. Mais do que uma vez ao dia
2. Diariamente
3. Duas ou mais vezes por semana
4. Uma vez por semana
5. Poucas vezes por mês
6. Raramente ou nunca

A seção seguinte contém três frases a respeito de crenças ou experiências religiosas. Por favor, anote o quanto cada frase se aplica a você.

(3) Em minha vida, eu sinto a presença de Deus (ou do Espírito Santo).

1. Totalmente verdade para mim
2. Em geral é verdade
3. Não estou certo
4. Em geral não é verdade
5. Não é verdade

(4) As minhas crenças religiosas estão realmente por trás de toda a minha maneira de viver.

1. Totalmente verdade para mim
2. Em geral é verdade
3. Não estou certo
4. Em geral não é verdade
5. Não é verdade

(5) Eu me esforço muito para viver a minha religião em todos os aspectos da vida.

1. Totalmente verdade para mim
2. Em geral é verdade
3. Não estou certo
4. Em geral não é verdade
5. Não é verdade

Demographic Variables

Demographic variables included age, sex, marital status, education, race, family income, and employment.

Statistical Analysis (reliability and construct validity)

Internal consistency involves the extent to which different items on a questionnaire measure the same characteristic (e.g., religious involvement). The construct validity of a questionnaire refers to how accurately it measures the aspect it was designed to measure. Construct validity is established in part through convergent and discriminant validity. An instrument that correlates well with other measures of the same construct demonstrates convergent validity. Discriminant validity indicates that a questionnaire does not measure characteristics other than the one it was developed to measure. Estimation of discriminant validity was determined by the Spearman correlation test (data not normally distributed), and the internal consistency was examined by the Cronbach's alpha. We also presented the scale means and variance, and the correlations between different items and subscale scores and the total score.

Results

Demographics

The final sample consisted of 383 subjects, with 56 (12.7%) removed based on exclusion criteria. Seventy-four percent of the participants were women. The mean age was 41.7 (SD 8.5) years.

Most participants were white (51.2%) followed by mixed race (black and white) and 32.6% were single. Forty-four percent reported monthly income between R\$500 and 999.00 (US\$ 280–550.00), and 30.8% had 1 year of education.

The religious aspects of the sample are presented in Table 1.

Reliability

For the sample, means, standard deviations, and reliability coefficients of the DUREL scales are displayed in Table 2. The DUREL Intrinsic scale and DUREL Total scores demonstrated high internal consistency in this setting (coefficient alphas ranging from 0.733 for the total scale to 0.758 for the intrinsic subscale).

Discriminant Validity

Correlations among the DUREL subscales were also examined for evidence of discriminant validity. The different dimensions of religiosity assessed by the instruments were expected to overlap without demonstrating marked redundancy. Correlations were ranging from 0.36 to 0.46 (Table 3), indicating significant overlap among the scales.

Association with Demographic and Medical Variables

Several of the DUREL items or subscale scores were correlated with sociodemographic characteristics. There was a significant positive correlation between sex (female) and intrinsic

Table 1 Religious aspects of the sample

		N	%
Religion	Catholic	278	72.6%
	Evangelical protestants	51	13.3%
	No religious affiliation	34	8.9%
	Spiritists	2	0.5%
	Others	18	4.7%
How often do you attend church or other religious meetings?	Never	35	9.1%
	Once a year or less	62	16.2%
	A few times a year	73	19.1%
	A few times a month	77	20.1%
	Once a week	69	18.0%
	More than once/wk	67	17.5%
How often do you spend time in private religious activities, such as prayer, meditation or Bible study?	Rarely or never	55	14.4%
	A few times a month	32	8.4%
	Once a week	22	5.7%
	Two or more times/week	51	13.3%
	Daily	198	51.7%
	More than once a day	25	6.5%
In my life, I experience the presence of the Divine (i.e., God).	Definitely <i>not</i> true	13	3.4%
	Tends <i>not</i> to be true	6	1.6%
	Unsure	7	1.8%
	Tends to be true	37	9.7%
	Definitely true of me	320	83.6%
My religious beliefs are what really lie behind my whole approach to life.	Definitely <i>not</i> true	23	6.0%
	Tends <i>not</i> to be true	19	5.0%
	Unsure	10	2.6%
	Tends to be true	53	13.8%
	Definitely true of me	278	72.6%
I try hard to carry my religion over into all other dealings in life.	Definitely <i>not</i> true	30	7.8%
	Tends <i>not</i> to be true	45	11.7%
	Unsure	19	50.0%
	Tends to be true	35	9.1%
	Definitely true of me	254	66.3%

(rho = 0.218, $P < 0.001$, eta = 0.265), OR (rho = 0.116, $P < 0.05$, eta = 0.148), NOR (rho = 0.177, $P < 0.01$, eta = 0.221) and total DUREL score (rho = 0.252, $P < 0.001$, eta = 0.348). In addition to that, there was a positive correlation between marital status (married) and intrinsic (rho = 0.161, $P < 0.01$, eta = 0.193), NOR (rho = 0.107, $P < 0.036$, eta = 0.126) and total DUREL score (rho = 0.143, $P < 0.01$, eta = 0.253), and between lower income and intrinsic DUREL scale (rho = -0.144, $P < 0.01$, eta = 0.185). The same was found for lower education and intrinsic (rho = -0.153, $P < 0.01$,

Table 2 Means, SD, and coefficient alphas for Duke Religious Index scales (OR Organizational religiosity, NOR Nonorganizational religiosity)

Scale	Mean	SD	Alpha
OR	3.74	1.575	—
NOR	3.99	1.571	—
Intrinsic	13.24	2.824	0.758
Total	20.98	4.636	0.733

Table 3 Spearman correlations and effect size between Duke Religious Index scales

Scale	OR	P	eta	NOR	P	eta
NOR	0.461*	<0.001	0.484	—	—	—
Intrinsic	0.369*	<0.001	0.410	0.364*	<0.001	0.397

* $P < 0.05$

eta = 0.195), NOR (rho = -0.112, $P < 0.05$, eta = 0.145) and total score (rho = -0.116, $P < 0.05$, eta = 0.267).

Discussion

If the relationships between religion and health among Brazilian population are to be better understood, it is important for investigators and clinicians to use well-defined conceptual models and appropriate validated measures. This study examined the psychometric properties of the DUREL in a low-income population-based Brazilian community.

The transcultural adaptation of the DUREL developed by Moreira-Almeida et al. (Moreira-Almeida et al. 2008) (PDUREL) was well accepted and easily completed by the subjects in this study.

The PDUREL as a whole, and the intrinsic subscale, showed good internal consistency. The intrinsic scale had a Cronbach's alpha of 0.75, the same found by Koenig et al. in 1997 (H. Koenig et al. 1997) while evaluating a US sample of 458 medical patients. Another study carried out by Storch et al. in 2004 evaluates two samples: first 635 undergraduate students and second 244 undergraduate students. Their results showed a Cronbach's alpha of 0.91 and 0.78, respectively. And, in 2000 while evaluating patients with cancer (most with multiple myeloma) and a gynecological sample, Sherman et al. (2000) found Cronbach's alpha of 0.90 and 0.87, respectively.

Correlations among the DUREL scales were also examined for evidence of discriminant validity. There was moderate overlap among the three DUREL scales (i.e., Organizational Religiosity, Nonorganizational Religiosity, Intrinsic Religiosity), the same found by Koenig et al. in 1997 (Koenig et al. 1997). This justifies examining them separately, rather than looking only at the total score.

Several of the DUREL scales were significantly correlated with sex, education, and income. These findings are consistent with previous studies that have reported relationships between stronger religious involvement and female sex, lower education, and lower income (Gallup 1990; Koenig et al. 2001; Pargament 2001).

While the current study shows psychometric properties of the Portuguese version of DUREL, further aspects need to be considered in future studies. First, the temporal stability of the Portuguese version of DUREL over short- and long-term intervals has yet to be determined. The English version of the DUREL showed an intra-class correlation coefficient of 0.91 for the 2-week test–retest reliability Storch, Strawser, et al. (2004).

Second, the reliability and validity of the DUREL need to be explored in alternative samples such as clinical samples. Third, the Portuguese version of DUREL should be explored in order to see its convergent validity when compared with other religious measures.

Within these limitations, PDUREL is a valid and reliable scale. The availability of a comprehensive, but brief measure of religiosity can help to study the role of religiousness in health by researchers from countries that speak the Portuguese language.

Conflict of Interest None.

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