The Spirituality Index of Well-Being: A New Instrument for Health-Related Quality-of-Life Research

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ABSTRACT

PURPOSE Despite considerable interest in examining spirituality in health-related quality-of-life studies, there is a paucity of instruments that measure this construct. The objective of this study was to test a valid and reliable measure of spirituality that would be useful in patient populations.

METHODS We conducted a multisite, cross-sectional survey using systematic sampling of adult outpatients at primary care clinic sites in the Kansas City metropolitan area (N = 523). We determined the instrument reliability (Cronbach's α, test-retest) and validity (confirmatory factor analysis, convergent and discriminant validation) of the Spirituality Index of Well-Being (SIWB).

RESULTS The SIWB contains 12 items: 6 from a self-efficacy domain and 6 from a life scheme domain. Confirmatory factor analysis found the following fit indices: χ^2 (54, n = 508) = 508.35, $P < .001$; Comparative Fit Index = .98; Tucker-Lewis Index = .97; root mean square error of approximation = .13. The index had the following reliability results: for the self-efficacy subscale, α = .86 and test-retest r = 0.77; for the life scheme subscale, α = .89 and test-retest r = 0.86; and for the total scale α = .91 and test-retest r = 0.79, showing very good reliability. The SIWB had significant and expected correlations with other quality-of-life instruments that measure well-being or spirituality: Zung Depression Scale (r = 0-.42, $P < .001$), General Well-Being Scale (r = 0.64, $P < .001$), and Spiritual Well-Being Scale (SWB) (r = 0.62, $P < .001$). There was a modest correlation between the religious well-being subscale of the SWB and the SIWB (r = 0.35, $P < .001$).

CONCLUSIONS The Spirituality Index of Well-Being is a valid and reliable instrument that can be used in health-related quality-of-life studies.

Ann Fam Med 2004;2:499-503. DOI: 10.1370/afm.89.

INTRODUCTION

There is continued interest in examining the association of religion and spirituality with health-related outcomes.[1] Despite this interest, the use of small, nongeneralizable samples, confounding, and the lack of valid and reliable instruments that measure spirituality or religiosity compromise most studies in this field.[2] Although there is no shortage of instruments from the disciplines of sociology, psychology, and pastoral theology and chaplaincy,[3] these measures frequently are not applicable or useful in studies of individual or population health.

The current study describes the development and evaluation of the Spirituality Index of Well-Being (SIWB), which was designed to measure the effect of spirituality on subjective well-being. Two assumptions guided our study design and analysis. First, we recognized that no global, yet parsimonious, instrument captures the complexity and depth of spirituality in any context, health care or otherwise. Next, based on our qualitative

Conflict of interest: none reported

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work,[4] we placed spirituality within a psychological domain and viewed the SIWB as a health-related quality-of-life (HRQOL) measure.

From a cultural and social perspective, spirituality and religion are especially salient in the lives of the elderly minority populations,[5,6] particularly within the settings of serious illness and end-of-life care.[7] From a population health perspective, increased life expectancy in the United States highlights the importance of HRQOL assessment in the areas of chronic illness, aging, and end-of-life care, and Healthy People 2010 has identified quality-of-life improvement as a specific public health objective.[8] The SIWB has the potential to add a unique dimension to HRQOL research from a patient-centered perspective. The SIWB is available online in Appendix 1, which can be found at http://www.annfammed.org/cgi/content/full/2/5/499/DC1.

METHODS

Study Population

Subjects were adult outpatients, aged 18 years and older, who visited 1 of 10 family practices in the greater Kansas City area. To achieve a study sample that would account for a 5% margin of error, a minimum of 384 patients were required for enrollment. The preliminary sample size, which was set at 512 based upon a 75% participation rate, was subsequently rounded up to 550 to standardize the number of study subjects at each site (n = 55). Patients were eligible if they were 18 years of age or older, spoke English, had no discernible cognitive impairment as determined by study personnel, and were willing to participate in the study. The study was approved by the Human Subjects Committee at the University of Kansas Medical Center prior to its initiation.

Measures

A pilot test of the SIWB in a geriatric outpatient population found good reliability and validity, and the preliminary psychometric properties of the scale have been described elsewhere.[9] The Spiritual Well-Being Scale, a 20-item instrument consisting of a religious well-being subscale and an existential well-being subscale, was used as an additional measure of spirituality.[10] Subjective well-being was measured by the General Well-Being Scale, a recognized instrument of feelings of psychological well-being,[11] and the Zung Depression Scale was used as a measure of mental health status.[12] Information about the patient's age, sex, race-ethnicity, education level, marital status, health insurance status, and length of time with their current medical provider was also collected.

Data Collection

Systematic sampling was used to recruit and enroll patients into the study. At every practice site, we reviewed physician schedules before consecutive half-day blocks of patient care so we could select every fourth patient until a total of 55 subjects were enrolled. After the patients registered, they were approached in the waiting area to determine eligibility; if eligible, they were asked to sign a consent form and enroll into the study. Patients who were determined to be ineligible were excluded, and the next patient on the physician's schedule was approached.

Survey instruments at all sites were administered by a single trained research assistant either before or after the patient's appointment. Every 10th patient participating in the survey underwent a 5-minute debriefing session with the research assistant before leaving the site. Every fifth patient who participated in the initial survey was contacted by telephone within a 2 week period after the appointment, when the SIWB instrument was administered a second time.

Data Analysis

All items were coded and scored, and survey instruments that were partially completed were included in the data set; individual items not answered were excluded from analysis. Descriptive and inferential analyses were performed using the Statistical Package for the Social Sciences 10.0 computer software (SPSS, Chicago, Ill, 2001). A confirmatory factor analysis examined how well the factor model from the pilot study[9] accounted for responses in the current study. Structural equation analyses using EQS software[13] were used to determine the following fit indices: chi-square, comparative fit index, Tucker-Lewis index, and root mean square error of approximation. Reliability was calculated by internal consistency and test-retest. To determine convergent and divergent validity, a relationship web or matrix of correlations was examined with similar (eg, Spiritual Well-Being Scale, General Well-Being Scale) and dissimilar (eg, Zung Depression Scale) constructs.

RESULTS

A total of 509 patients participated in the study. The demographic distribution of respondents and nonrespondents is displayed in a table, which can be found online as supplemental data at http://www.annfammed.org/cgi/content/full/2/5/499/DC1). The mean age of respondents was 46.8 years (SD 17.1 years, median = 45.0 years), whereas nonrespondents had a mean age of 50.0 years (SD 18.2 years, median = 50.5 years). Both respondents and nonrespondents were predominantly white and female. Approximately one half of the study

Table 1. Descriptive Statistics for Spirituality Index of Well-Being (SIWB) Scales and Items

Scale or Item	Mean	SD	Skewness	Kurtosis
SIWB - self-efficacy subscale (Items 1-6)	24.56	4.46	-1.05	1.24
SIWB - life scheme subscale (Items 7-12)	24.58	4.97	-1.01	0.68
SIWB - total scale	49.14	8.63	-0.99	0.93
1. There is not much I can do to help myself.	1.63	0.83	1.66	3.33
2. Often, there is no way I can complete what I have started	2.03	1.05	1.01	0.29
3. I can't begin to understand my problems.	1.80	0.92	1.31	1.61
4. I am overwhelmed when I have personal difficulties and problems.	2.34	1.13	0.63	-0.57
5. I don't know how to begin to solve my problems.	1.95	0.97	1.13	1.01
6. There is not much I can do to make a difference in my life.	1.68	0.89	1.47	1.85
7. I haven't yet found my life's purpose.	2.21	1.17	0.79	-0.27
8. I don't know who I am, where I came from or where I am going.	1.63	0.84	1.62	3.08
9. I have a lack of purpose in my life.	1.73	0.94	1.34	1.25
10. In this world, I don't know where I fit in.	1.85	0.97	1.16	0.89
11. I am far from understanding the meaning of life.	1.95	1.02	1.04	0.49
12. There is a great void in my life at this time.	2.02	1.14	0.94	-0.23

Note: Item answer options, 1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree.

Table 2. Variance of 2-Factor Model for Spirituality Index of Well-Being

Study	Self-Efficacy %	Life Scheme %	Total Accounted for by Model, %
Present study	27.24	28.62	55.86
Previous study*	24.04	19.57	43.61

*Daaleman et al.[9]

Table 3. Fit Indices for Spirituality Index of Well-Being

Index	Test Value	*P* Value
χ^2 (N = 508)	508.35	<.001
Comparative Fit Index	0.98	
Tucker-Lewis index	0.97	
Root mean square	0.13	

population was married. Most respondents had completed at least a high school education, had an established relationship with their physician for 7 years or less, and had private health insurance.

Table 1 presents descriptive statistics for SIWB items. The 12-item SIWB produced a coefficient α of 0.91, indicating high internal consistency. The 6-item subscales also showed good reliability: α = .86 for self-efficacy and α = .89 for life scheme. Ninety-three of the 509 respondents completed the SIWB for a second time by telephone within a 2-week period after the initial administration. The test-retest correlation for the total SIWB scale was 0.79, and correlations were also found for the self-efficacy subscale (0.77) and life scheme subscale (0.86).

A confirmatory factor analysis was conducted to determine how well the factor model from the pilot study accounted for responses in the current study. Approximately 56% of the total variance was accounted for by the 2-factor model, which supports the conceptual structure of the SIWB (Table 2). Because various indices using structural equation modeling are based on different assumptions and often produce contradictory results, there is no single, recognized goodness-of-fit index.[14] Consequently, we computed multiple fit indices and display the results in Table 3. The comparative fit index and Tucker-Lewis index indicate very good fit between the 2 independent factors model and the sample data; however, the root mean square error of approximation indicates fit that is less than good.[15]

Table 4 presents a matrix of correlations between the SIWB and similar constructs. The SIWB and its subscales had significant and expected correlations in both direction and magnitude with 2 other measures related to subjective well-being, the Zung Depression Scale and the General Well-Being Scale. In addition, the SIWB had a high, positive correlation with another measure of spirituality, the Spiritual Well-Being Scale and its subscales. The highest correlation was found between the SIWB and existential well-being subscale from the Spiritual Well-Being Scale. A significant, but modest, correlation was also found between the SIWB and a measure of religiosity, the religious well-being subscale from the Spiritual Well-Being Scale.

DISCUSSION

Health-related quality-of-life instruments are evaluated according to several criteria, most notably by the

Table 4. Correlation Coefficients of Spirituality Index of Well-Being and Selected Well-Being Measures N = 500

Measures	SIWB	Self-Efficacy Subscale	Life Scheme Subscale
SIWB	1	0.91	0.92
Self-efficacy		1	0.67
Life scheme			1
ZDS	-0.42	-0.39	-0.39
SWB	0.62	0.49	0.63
RWB	0.35	0.27	0.38
EWB	0.75	0.61	0.75
GWB	0.64	0.61	0.57

Note: All correlations significant at $<.001$.

SIWB = Spirituality Index of Well-Being; ZDS = Zung Depression Scale; SWB = Spiritual Well-Being Scale; RWB = religious well-being subscale of SWB; EWB = existential well-being subscale of SWB; GWB = General Well-Being Scale.

degree of validity and reliability.[16] The SIWB had very good reliability with good internal consistency for the total and subscales as assessed by coefficient α and test-retest in primary care outpatients.

There are several components of subjective well-being: positive affect, low levels of negative affect, satisfaction with work or other domains, and life satisfaction.[17] The SIWB consistently had significant and expected correlations, in both direction and magnitude, with other established study measures theoretically related to subjective well-being. A high correlation was found with the General Well-Being Scale (0.62) and an inverse correlation with the Zung Depression Scale (-0.42), which is supportive of affective and cognitive dimensions of subjective well-being gauged by the SIWB.

The construct "spirituality" has multiple interpretations and connotations in health care settings,[18] which challenge the conceptual framework of any spirituality instrument. A qualitative approach, rather than the use of experts or preexisting measures, grounded the theoretical foundation of the instrument, depicting the relationship of spirituality and subjective well-being.[4] The absence of meaning in one's life, or meaninglessness, is often characterized as a state of alienation from self, world, and others.[19] Item content from the SIWB life scheme subscale is congruent with the concept of alienation and may share characteristics with existing alienation measures, such as the self-alienation subscale of the Minnesota Multiphasic Personality Inventory.[20]

Self-efficacy beliefs are well-recognized constructs within health psychology, and there are several instruments that assess this domain.[21] For example, the Health Self-Efficacy Scale is designed to assess the degree of self-efficacy in health behaviors and health promotional activities.[22] In chronic illness, appraisals of control and adaptation have been used to gauge self-efficacy in specific diseases such as rheumatoid arthritis.[23] Conceptually, the SIWB differs from these measures in that neither is it a disease-specific instrument, nor is it related to health behaviors.

In developing a spirituality measure, distinguishing between religiosity and spirituality is a major consideration.[24] We used convergent and discriminant validity testing to compare the SIWB with the Spiritual Well-Being Scale, and its religious and existential well-being subscales.[10] The SIWB had the highest correlation with the existential subscale from the Spiritual Well-Being Scale (0.75), in addition to a significant correlation with the religious subscale (0.35). Existential well-being, which is inclusive of life purpose, life satisfaction, and positive and negative life experiences, is conceptually similar to the SIWB but lacks a self-efficacy component.

The Spiritual Well-Being Scale expresses religious well-being as the quality of a relationship with God, but a God that is positively viewed as supportive and contributing to a sense of well-being.[10] This theological construct may limit the utility of the Spiritual Well-Being Scale in nonreligious populations. In addition, publications that report the psychometric properties of the Spiritual Well-Being Scale are largely lacking peer review,[25] and instrument ceiling effects, particularly in religious populations, have been documented.[26] Although the SIWB correlated with religious well-being, we did not find on pilot testing a correlation with a recognized 5-item religiosity measure.[9] The SIWB may be a more culturally sensitive instrument in diverse patient populations because a reference to God is absent.

There are other measures of spirituality have been used in both clinical and research settings, but these measures are also hampered by the inclusion of items that gauge religiosity. For example, the Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being scale contains questions that measure the comfort and strength derived from religious faith, in addition to a sense of meaning, purpose, and peace in life.[27] The Systems of Belief Inventory measures religious and spiritual beliefs and practices, in addition to social support, as a gauge of quality-of-life in illness states.[28] The SIWB explicitly does not include items measuring religious practices, beliefs, or support.

There were several limitations to the study. Spirituality is a nebulous construct, and the study purpose was to evaluate the psychometric properties of an instrument gauging something ill-defined. As a result, we did not analyze or report normative data about the SIWB. The cross-sectional design also did not allow any definitive conclusions about the causal relation-

ships of the variables. The study population consisted of primary care patients in the Midwest, and it is uncertain whether the study findings can be generalized to other populations. Although the study population was predominantly white, the racial and ethnic distribution is reflective of the region.[29] Nevertheless, conceptual development and item construction from qualitative research, a high coefficient α, and factor analysis support the validity and reliability of the scale.

In summary, the SIWB appears to be a valid and reliable measure of well-being in primary care outpatients. This instrument may be best situated in studies of chronic illness, aging, and end-of-life care that include health-related quality-of-life. Future validation studies with multiple populations and a longitudinal design are needed to refine, modify, or verify the SIWB as an additional, complementary instrument of well-being.

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Key words: Spirituality; subjective well-being; measurement; questionnaires; data collection; quality of life.

Submitted June 20, 2003; submitted, revised, August 15, 2003; accepted September 7, 2004.

Funding support: This study was supported by grants from the Robert Wood Johnson Foundation Generalist Physician Faculty Scholars Program (TPD), the John A. Hartford Foundation (TPD), the University of Kansas Medical Center Research Institute (TPD), and the National Institute on Aging [1K23 AG01033] (TPD).

A version of this paper was presented at the 30th Annual Meeting of North American Primary Care Research Group, Nov 19, 2002, New Orleans, La.

Acknowledgment: We thank Lynn Maxwell for her dedicated service to this project.

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