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Psychometric Evaluation of the Persian Version of Spiritual Self-Care Practice Scale in Iranian Patients with Cancer

Asma Najmadini[1] · Alireza Malakoutikhah[1] · Xu Tian[2] · Mansooreh Azizzadeh Forouzi[3] · Bander Balkhi[4] · Mahlagha Dehghan[5]

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Abstract

Spiritual self-care is defined as a set of patient-centered or family-centered spiritual activities aimed at promoting health and well-being. In chronic diseases such as cancer, the responsibility for care typically falls on the patient or their family, necessitating an accurate assessment of the patient's self-care practices to achieve this goal. The objective of this study was to translate, culturally adapt, and examine the psychometrics of the Persian version of the spiritual self-care practice scale (SSCPS) in cancer patients. This scale is designed to be administered directly to patients to assess their spiritual self-care practices. This cross-sectional study was conducted at the oncology ward in Afzalipoor Hospital, Javad Al-Aemeh Clinic, and Physicians Clinics affiliated with Kerman University of Medical Sciences in Kerman, southeast Iran. The study included qualitative and quantitative assessments of face validity, content validity, item analysis, exploratory and confirmatory factor analysis (construct validity), and reliability. Data collection took place between March 20, 2023, and December 30, 2023. The scale's content validity index was calculated to be 0.948, with mostly minor revision comments for most items. The item-content validity indices ranged from 0.7 to 1. Exploratory factor analysis revealed a five-factor solution with 23 items, explaining 61.251% of the total variance. The identified factors were labeled as 'personal and interpersonal spiritual practices,' 'shaping and strengthening relationship practices,' 'religious practices,' 'physical spiritual practices,' and 'reshaping relationship practices.' Most of the confirmatory factor analysis indices were satisfactory ($\chi^2/df = 1.665$, CFI = 0.934, IFI = 0.935, RMSEA = 0.058). The Cronbach's α coefficient for the total scale was 0.89, while it ranged from 0.596 to 0.882 for the subscales. The Persian version of SSCPS with 23 items demonstrates reliability and effectiveness in assessing the spiritual practice performance of Iranian cancer patients. Compared to the original version, the Persian adaptation of SSCPS is concise, making it a suitable instrument for future research and practice on spiritual self-care among Iranian cancer patients.

Extended author information available on the last page of the article

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Keywords Psychometrics · Spiritual therapies · Self-care · Scale · Cancer

Introduction

In chronic diseases, patients and their families primarily administer self-care. Understanding their self-care needs requires a comprehensive perspective from the patient and/or family (Valizadeh et al., 2020). Recognizing the efficacy of spirituality in self-care assists in managing and adapting to new conditions (Salimi et al., 2017). Spirituality profoundly impacts human health and contributes to its enhancement (Haidar et al., 2023). White defines spirituality as an individual's mental beliefs, encompassing reflections on relationships, affirmation of a higher power, and recognition of one's place in the world, leading to engagement in spiritual activities (White, 2016). Spiritual practices positively influence health and quality of life (Asadi et al., 2019; White, 2016). Spiritual self-care involves patient- or family-centered activities aimed at promoting health and well-being, including listening to music, meditation, participating in religious ceremonies, reading religious texts, walking, and enjoying nature (Hekmati Pour et al., 2020).

In palliative care, spiritual self-care complements conventional approaches, addressing physical, mental, and emotional dimensions (Gijsberts et al., 2019; Salimi et al., 2017). The interconnection between mind, spirit, and body, alongside upbringing, beliefs, and life experiences, forms the foundation of spiritual self-care (Ramazani & Bakhtiari, 2019). It aids in finding meaning in life, connecting with a higher power, adapting to stress, and personal growth (Hojjati et al., 2015). Spiritual care fosters positive emotions and optimal nervous system functioning, aiding recovery in illness and enhancing well-being (Rahnama et al., 2021).

Self-care practices in patients with cancer improve quality of life, symptom management, and life satisfaction (Goudarzian et al., 2019). Cancer triggers fear, anxiety, disruptions in quality of life, and emotional disturbances affecting patients and families (Taets & Fernandes, 2020). Globally, cancer poses a significant health challenge, with Iran experiencing an increasing burden of the disease (Farahani et al., 2018). Iran ranks cancer as the third leading cause of death, with an estimated annual incidence of 98–110 cases per 100,000 people (Danaei et al., 2019).

Due to spirituality's significance in chronic illness, there is a need for a comprehensive tool to evaluate spiritual self-care efficacy. Existing assessment tools often blend religious and spiritual beliefs with practices and may not isolate spiritual self-care evaluation from beliefs. Some instruments primarily focus on religious aspects, limiting their applicability (White & Schim, 2013). Additionally, several tools have predominantly focused on the religious facets of spirituality. For instance, the spiritual well-being scale (SWBS), a widely used tool for assessing spirituality, predominantly reflects the metaphysical and religious dimensions of this construct. Furthermore, a key limitation of other instruments in this domain, such as the spirituality scale (SS) and the spiritual experience index (SEI), is their exclusive emphasis on religious beliefs and experiences (Delaney, 2005; Kass et al., 1991).

Recognizing the distinction between beliefs and practices, White and colleagues developed the spiritual self-care practice scale (SSCPS) to measure specific spiritual

practices independently from beliefs (White & Schim, 2013). The SSCPS assesses participants' performance across four domains: personal self-care, spiritual practices, physical spiritual practices, and interpersonal spiritual practices. Given the importance of spirituality in cancer care and the availability of a reliable tool, this study aims to investigate the psychometric properties of the Persian version of SSCPS (P-SSCPS) among cancer patients.

Materials and Methods

Study Design and Setting

This study employed a cross-sectional design with two phases, encompassing translation and cultural adaptation, as well as the evaluation of the validity and reliability of the P-SSCPS. The research was carried out at the oncology ward in Afzalipoor Hospital, Javad Al-Aemeh Clinic, and Physicians Clinics affiliated with Kerman University of Medical Sciences in Kerman, a city situated in southeast Iran.

Participants, Sampling, and Sample Size

The study targeted all cancer patients receiving care at medical facilities associated with Kerman University of Medical Sciences. Inclusion criteria included individuals who were at least 18 years old, demonstrated a clear understanding of the questionnaire, had a confirmed cancer diagnosis, and did not exhibit physical and/or mental illnesses or active suicidal thoughts. Exclusion criteria involved incomplete responses to more than 10% of the questions on each tool. The sampling strategy encompassed cancer patients across various disease stages. If a patient was deemed unfit to complete the tool independently, they were either asked to do so at a more suitable time or assisted through an interview with the researcher. Convenience sampling was utilized for the construct and convergent validity phases, while a combination of convenience and purposive sampling methods was employed for other phases. The sample sizes for each section were as follows: (1) qualitative and quantitative face validity: 10 and 20 samples of cancer patients, respectively; (2) qualitative and quantitative content validity: 10 samples of experts for each; (3) pilot study (to assess internal consistency before conducting exploratory factor analysis): 50 cancer patient samples; (4) exploratory factor analysis (EFA): 320 samples; (5) confirmatory factor analysis (CFA): 200 samples. The sampling period spanned from March 20, 2023, to December 30, 2023.

Measurements

Demographic Characteristics Form

This form comprises fields for collecting information on age, sex, marital status, occupation, income, educational level, and clinical features such as cancer type,

disease duration, diagnosis duration, illness severity, treatment type, past medical conditions, and hospitalization history.

The Spiritual Self-Care Practice Scale (SSCPS)

Developed by Mary L. White in 2013, this scale aims to explore the role of spiritual self-care as a mediator between quality of life and depression. The SSCPS consists of 35 items that evaluate participants' engagement in spiritual self-care across four domains: personal care methods, spiritual practices, physical spiritual practices, and interpersonal spiritual practices. Respondents are required to rate each item on a 5-point Likert scale ranging from 1 (never) to 5 (always), with higher total scores indicating a greater level of spiritual self-care. White's study reported that the scale demonstrated appropriate content and structural validity, with a reliability estimate of Cronbach's alpha coefficient at 0.92, signifying good internal consistency (White & Schim, 2013).

Procedure, Data Collection, and Data Analysis

Translation and Cultural Adaptation of SSCPS

Initially, two proficient Farsi-language translators, one with expertise in psychological concepts, independently translated the original SSCPS into two Persian versions. Subsequently, a third Farsi-language translator synthesized the initial two Persian translations to create a more coherent Persian version. To ensure semantic, idiomatic, experiential, and conceptual equivalence with the original scale—a critical criterion for cross-cultural adaptation—two skilled English-language translators conducted the back-translation of the Persian version into English. Throughout this process, the research team collaborated closely with the translators and obtained explicit permission from Dr. Mary L. White to review and finalize the Persian version, making necessary adjustments to ensure precise alignment with the intended meaning of the original scale. Additionally, we followed the scale translation and validation procedure outlined by Koenig and Al Zaben for religious and spiritual measures (Koenig & Al Zaben, 2021).

Face Validity

The face validity of the scale was evaluated using both qualitative and quantitative approaches. Qualitative face validity assessment involved conducting face-to-face interviews with ten participants to assess the difficulty, relativity, and ambiguity of the preliminary Persian version of the SSCPS. For quantitative face validity assessment, the Item Impact Method was employed to determine the importance of each item and subsequently reduce items deemed less significant. This method involved calculating the product of the proportion of participants who rated an item as important on a 5-point Likert scale (ranging from 1 for not at all important to 5 for

completely important) and the mean score representing the item's importance. The Item Impact Score was computed using the formula:

$$\text{Item impact score} = \text{Importance (Mean)} * \text{Frequency (\%)}.$$

Frequency (%) represents the percentage of participants who rated the item with a score of 4 or 5. Items with an impact score of ≥ 1.5 were deemed appropriate for further analysis. Following this, the scale was assessed by a minimum of 20 participants to evaluate fluency, simplicity, and comprehensibility, ensuring the tool's efficacy for a diverse range of users (Heravi-Karimooi et al., 2010; Tinsley & Brown, 2000).

Content Validity

The scale's content validity was assessed through a combination of qualitative and quantitative methods. Experts, including nursing faculty members, psychologists, and methodologists, played a vital role in evaluating the qualitative content validity of the scale. Their expertise guided the assessment process, offering valuable feedback on various aspects such as content coverage, grammar adherence, use of appropriate language, and item placement. Quantitatively, the content validity index (CVI) was employed. Experts rated each item on a 4-point scale (1 = not relevant, 2 = requires major revision, 3 = relevant but needs minor revision, 4 = completely relevant). The item-content validity index (I-CVI) was calculated by determining the proportion of experts who rated an item as 3 or 4. An I-CVI value of 0.8 indicated agreement. The scale-content validity index (S-CVI) was computed as the mean score of I-CVI for all items. An S-CVI of 0.9 or higher indicated satisfactory content validity. This dual qualitative and quantitative approach ensured a thorough evaluation of content validity (Heravi-Karimooi et al., 2010).

Item Analysis

The scale items underwent analysis and refinement to create the final test version using correlation coefficients and Cronbach's α coefficient. Pearson's correlation coefficient was utilized to examine the relationship between each item and the total score of the scale. Items with correlation coefficients ≥ 0.2 with the total score were retained. Cronbach's α coefficient was employed to evaluate the internal reliability of the scale. If removing an item from the total scale results in an increase in Cronbach's α coefficient, it suggests that the item may impact the scale's internal reliability and should be removed from the scale.

Construct Validity

The scale's structural validity was evaluated through both exploratory and confirmatory factor analyses. In the exploratory factor analysis (EFA), principal component analysis (PCA), principal axis factoring (PAF), and maximum likelihood (ML) methods were employed, along with varimax and promax rotation techniques. Criteria for determining the number of factors included eigenvalues greater than 1, scree

plots, and item loadings of 0.4 or higher. Confirmatory factor analysis (CFA) was then conducted to assess the derived structure using indices such as χ^2/df, GFI, CFI, IFI, and RMSEA. Acceptable fit criteria consisted of χ^2/df less than 3.0 and RMSEA less than 0.08, with GFI, CFI, and IFI values considered acceptable if they were greater than or equal to 0.9. These analyses ensured a comprehensive evaluation of the scale's structural validity (Harrington, 2009).

Reliability

The reliability of the scale was assessed twice. Initially, internal consistency was examined using a sample of 50 individuals from the target population. Subsequently, after factor analysis, the obtained coefficients were interpreted, with values exceeding 0.7 deemed indicative of acceptable reliability (Chehrei et al., 2016).

Data Analysis

Statistical analyses were performed using IBM® SPSS 18.0 and AMOS package. Descriptive statistics such as means and standard deviations were utilized for continuous variables following a normal distribution, while frequencies and percentages were used for dichotomous variables. Face and content validities were assessed based on expert ratings of the items. Item analysis involved correlation coefficients and Cronbach's α coefficient to screen items for inclusion in the final test version. Construct validity was evaluated through exploratory factor analysis for item screening and confirmatory factor analysis to validate the factorial structure of the scale. The reliability of the scale was determined using Cronbach's α coefficient.

Ethical Considerations

The project obtained approval from the Ethics Committee of Kerman University of Medical Sciences. Furthermore, permission was sought from Professor Mary L. White for the translation of SSCPS into Persian. Subsequent to ethical approval, participants were presented with a consent form. The researcher elucidated the research objectives, guaranteed confidentiality, reassured participants that their involvement would not impact their treatment process, and then distributed tools to patients. The consent form outlined the study's purpose, objectives, data confidentiality, participant anonymity, and the option to withdraw at any point. Participants formally signed informed consent forms.

Results

Face and Content Validity

Initially, face validity testing was conducted with ten cancer patients, revealing that only items 8, 10, 15, 16, 18, 26, 28, 32, and 35 had an item impact score of

< 1.5. Although these items were considered for removal during this preliminary phase, they were ultimately retained in the scale. Subsequently, content validity was assessed with a panel of experts consisting of ten faculty members: two with a Ph.D. in clinical psychology, five with a Ph.D. in nursing and experience in spiritual care, one social medicine specialist and methodologist, and two psychiatrists. The scale-content validity index (S-CVI) was calculated to be 0.948, with mostly minor revision comments provided for most items. The item-content validity index (I-CVI) ranged from 0.7 to 1 (refer to Table 1).

Item Analysis

In a pilot study for item analysis, the scale was administered to 50 cancer patients. The item-total correlations were found to be greater than 0.2 for all items except for items 12, 16, and 35 (as indicated in Table 1). The Cronbach's α coefficient for the total scale was determined to be 0.892, with values of 0.792, 0.743, 0.767, and 0.691 for personal spiritual practices, spiritual practices, physical spiritual practices, and interpersonal spiritual practices, respectively. The Cronbach's α coefficient did not significantly change after deleting each item (refer to Table 1).

Construct Validity

Structural validity was evaluated in a sample of 550 participants, with a mean age of 34.37 ± 10.80 years. The majority of participants were female, married, employed, and had academic education (refer to Table 2).

In our sample, there were no missing data, and the mean scores of the items ranged between 1.82 and 4.35, as detailed in Table 3. To evaluate the factorial structure of the scale, Bartlett's test of sphericity was initially conducted to determine if the sample size was suitable for factor analysis. The test yielded statistical significance ($\chi^2 = 6127.345$, $df = 595$, $P < 0.001$), indicating that the data exhibited spherical distribution. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy produced a coefficient of 0.865, indicating the factorability of the correlation matrix of the spiritual self-care practice scale (SSCPS). Principal component analysis (PCA), parallel analysis factor (PAF), and maximum likelihood (ML) with varimax and promax rotation methods were utilized, with the results from PCA with varimax rotation being ultimately presented. A five-factor solution with an eigenvalue > 1 was derived (refer to Table 3). This five-factor solution accounted for 61.251% of the total variance, leading to the exclusion of 12 items at this stage. Scree plots supported a five-factor solution as appropriate. Based on item categorization within each factor, we designated the first factor as 'Personal and Interpersonal Spiritual Practices,' the second factor as 'Shaping and Strengthening Relationship Practices,' the third factor as 'Religious Practices,' the fourth factor as 'Physical Spiritual Practices,' and the fifth factor as 'Reshaping Relationship Practices.'

Following the identification of a five-factor structure through exploratory factor analysis (EFA), confirmatory factor analysis (CFA) was conducted to validate

Table 1 Face and content validities and internal consistency of the spiritual self-care practice scale in patients with cancer

Item*	Face validity (Item impact) ($n=10$)	Content validity index ($n=10$)	Corrected Item-total correlation ($n=50$)	Cronbach's α if item deleted ($n=50$)
1. Making time for self	3.2	0.8	0.542	0.886
2. Eating healthy foods	3.52	0.7	0.526	0.887
3. Feeling at peace and/or in harmony	2.66	0.9	0.490	0.888
4. Resting to regain health and energy	4.4	0.8	0.441	0.889
5. Giving love to others	3.52	1	0.296	0.891
6. Following medical orders	4.9	0.8	0.246	0.891
7. Maintaining a sense of hope for the future	3.68	1	0.460	0.888
8. Laughing	1.28	1	0.568	0.886
9. Forgiving yourself	3.42	1	0.426	0.889
10. Finding meaning in both good or bad situations	0.9	1	0.376	0.890
11. Maintaining positive relationships	2.8	1	0.287	0.891
12. Asking questions about medical orders	4.8	0.7	0.094	0.893
13. Forgiving others	3.12	1	0.368	0.890
14. Helping others	3.51	1	0.556	0.888
15. Attending religious services	1.16	1	0.332	0.891
16. Contributing to a religious group	0.46	1	0.162	0.894
17. Praying	4.8	1	0.449	0.888
18. Consulting a spiritual advisor	0.9	1	0.424	0.889
19. Living a moral life	4.23	1	0.442	0.889
20. Meditating, contemplating, or reflecting	2.8	1	0.371	0.890
21. Reading for inspiration	2.52	1	0.507	0.887
22. Mending broken relationships	2.45	1	0.442	0.888
23. Resolving conflicts	1.8	0.9	0.389	0.889

Table 1 (continued)

Item*	Face validity (Item impact) ($n=10$)	Content validity index ($n=10$)	Corrected Item-total correlation ($n=50$)	Cronbach's α if item deleted ($n=50$)
24. Engaging in physical activity	3.12	1	0.487	0.888
25.Giving alms to the poor or doing other acts of charity	3.96	1	0.589	0.886
26. Volunteering	0.27	1	0.577	0.886
27. Hiking or walking	3.51	1	0.433	0.889
28. Practicing yoga or tai-chi	0.28	1	0.454	0.889
29. Following a special diet	1.55	0.8	0.469	0.888
30. Maintaining friendships	3.12	1	0.509	0.888
31. Being with family	4.23	1	0.513	0.888
32. Having a meaningful conversation with others	1.24	0.9	0.459	0.888
33. Receiving love from others	3.28	0.9	0.450	0.888
34. Being with friends	2.28	1	0.504	0.887
35. Wearing special clothing or jewelry	0.22	1	−0.076	0.898

*Each item is rated on a 5-point Likert scale ranging from 1 = never to 5 = always

Table 2 Socio-demographic characteristics of the participants ($n=550$)

Variables	For EFA ($n=350$) Mean (SD)	For CFA ($n=200$) Mean (SD)
Age (year)	47.54 (12.92)	45.92 (12.44)
	N (%)	*N* (%)
Gender		
Male	164 (46.9)	97 (48.5)
Female	186 (53.1)	103 (51.5)
Marital status		
Married	263 (75.1)	152 (76.0)
Unmarried	87 (24.9)	48 (24.0)
Educational level		
< Diploma	72 (20.6)	32 (16.0)
Diploma	90 (25.7)	52 (26.0)
BSc	135 (38.6)	83 (41.5)
> BSc	53 (15.1)	33 (16.5)
Employment status		
Employed	188 (50.6)	118 (59.0)
Unemployed	85 (24.3)	45 (22.5)
Retired	88 (25.1)	37 (18.5)
Income (million Toman)		
< 3	73 (20.9)	41 (20.5)
3–5	26 (7.4)	12 (6.0)
5.01–10	95 (27.1)	63 (31.5)
> 10	156 (44.6)	84 (42.0)
Type of cancer		
Leukemia	32 (9.1)	12 (6.0)
Lung	37 (10.6)	16 (8.0)
Gastrointestinal	78 (22.3)	39 (19.5)
Breast	78 (22.3)	34 (17.0)
Ovary/uterus	25 (7.1)	11 (5.5)
Others	100 (28.6)	88 (44.0)
Cancer stage		
Not advanced	184 (52.6)	103 (51.5)
Advanced	166 (47.4)	97 (48.5)
Treatment		
Chemotherapy	127 (36.3)	70 (35.0)
Surgery	8 (2.3)	1 (0.5)
Hormone therapy	2 (0.6)	10 (5.0)
Mixed	213 (60.9)	119 (59.5)

EFA exploratory factor analysis, *CFA* confirmatory factor analysis, *SD* standard deviation, *BSc* bachelor of science

Table 3 Data description and rotated factor matrix of the Persian version of the spiritual self-care practice scale in patients with cancer ($n=350$)

Item*	Mean (SD)	Principal component analysis (varimax rotation)				
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1. Making time for self	3.18 (1.28)	0.579				
2. Eating healthy foods	3.48 (1.37)	0.697				
3. Feeling at peace and/or in harmony	3.03 (1.47)	0.622				
4. Resting to regain health and energy	3.16 (1.33)	0.659				
7. Maintaining a sense of hope for the future	3.78 (1.37)	0.561				
30. Maintaining friendships	3.85 (1.40)	0.554				
31. Being with family	3.99 (1.32)	0.684				
32. Having a meaningful conversation with others	3.51 (1.40)	0.745				
33. Receiving love from others	3.85 (1.40)	0.765				
34. Being with friends	3.68 (1.51)	0.697				
11. Maintaining positive relationships	3.83 (1.40)		0.641			
12. Asking questions about medical orders	4.17 (1.25)		0.647			
13. Forgiving others	3.67 (1.40)		0.796			
14. Helping others	3.76 (1.31)		0.694			
15. Attending religious services	3.06 (1.46)			0.769		
16. Contributing to a religious group	2.89 (1.45)			0.896		
18. Consulting a spiritual advisor	2.79 (1.50)			0.816		
27. Hiking or walking	2.59 (1.53)				0.784	
28. Practicing yoga or tai-chi	1.87 (1.32)				0.835	
29. Following a special diet	2.15 (1.42)				0.678	
22. Mending broken relationships	3.16 (1.30)					0.873
23. Resolving conflicts	3.12 (1.35)					0.849
25. Giving alms to the poor or doing other acts of charity	3.37 (1.45)					0.420
5. Giving love to others	4.12 (1.22)	–	–	–	–	–

Table 3 (continued)

Item*	Mean (SD)	Principal component analysis (varimax rotation)				
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
6. Following medical orders	4.35 (1.17)	–	–	–	–	–
8. Laughing	3.22 (1.39)	–	–	–	–	–
9. Forgiving yourself	3.48 (1.35)	–	–	–	–	–
10. Finding meaning in both good or bad situations	3.45 (1.36)	–	–	–	–	–
17. Praying	3.68 (1.48)	–	–	–	–	–
19. Living a moral life	3.87 (1.33)	–	–	–	–	–
20. Meditating, contemplating, or reflecting	3.29 (1.44)	–	–	–	–	–
21. Reading for inspiration	2.53 (1.49)	–	–	–	–	–
24. Engaging in physical activity	2.65 (1.52)	–	–	–	–	–
26. Volunteering	3.13 (1.54)	–	–	–	–	–
35. Wearing special clothing or jewelry	1.82 (1.16)	–	–	–	–	–
Eigen value		7.084	2.250	1.933	1.441	1.380
Percentage of explained variance		30.801	9.784	8.402	6.266	5.999
Cumulative percentage of explained variance		61.251				

SD standard deviation

*The original scale had 35 items, 12 items excluded during principal component analysis, therefore, the Persian version had 23 items

the factor structure derived from EFA. A first-order CFA model was utilized, and all factor loadings were found to be statistically significant. Although the goodness of fit index (GFI) slightly fell below the criterion (GFI = 0.867), other fit indices demonstrated satisfactory results ($\chi^2/df = 1.665$, comparative fit index (CFI) = 0.934, incremental fit index (IFI) = 0.935, root mean square error of approximation (RMSEA) = 0.058 [95% confidence interval 0.047–0.068]). Consequently, we were able to confirm the factor structure identified through EFA using the CFA model.

Reliability

The Cronbach's α coefficient for the total scale was 0.89, with individual coefficients of 0.882 for 'Personal and Interpersonal Spiritual Practices,' 0.596 for 'Shaping and Strengthening Relationship Practices,' 0.802 for 'Religious Practices,' 0.763 for 'Physical Spiritual Practices,' and 0.788 for 'Reshaping Relationship Practices' (Table 4).

Discussion

In the present study, we meticulously conducted translation and cultural adaptation following a double translation strategy and expert opinions to develop the Persian version of the spiritual self-care practice scale (SSCPS). The findings indicate that the Persian SSCPS exhibits strong reliability and validity, rendering it suitable for assessing the spiritual self-care practices of Iranian cancer patients.

The qualitative assessment of face validity confirmed the fluency, simplicity, and comprehensibility of the Persian SSCPS, leading us to retain all items despite some having item impact scores below 1.5. Moreover, the item-content validity index (I-CVI) for the Persian SSCPS ranged from 0.70 to 1.00, with a scale-content validity index (S-CVI) of 0.948, surpassing or closely aligning with standard reference values for content validity (Rodrigues et al., 2021). This indicates that the items in the Persian SSCPS effectively capture the intended domain for Iranian cancer patients. Furthermore, while most items exhibited significant correlations with the overall scale, with correlation coefficients exceeding 0.2, removing individual items did not notably alter the Cronbach's α coefficient for the overall scale. Consequently, no items were eliminated based on item-total scale correlation results. Collectively, these outcomes support the inclusion of all items in factor analysis and underscore the robustness of the Persian SSCPS for evaluating spiritual self-care practices among Iranian cancer patients.

In the present study, all items from the original scale were retained, prompting the utilization of exploratory factor analysis (EFA) to elucidate the factor structure of the Persian version of the spiritual self-care practice scale (SSCPS). Prior research suggests that EFA is appropriate when the Kaiser–Meyer–Olkin (KMO) value exceeds 0.60 and Bartlett's sphericity test yields statistical significance (DeVellis & Thorpe, 2021; Johnson & Christensen, 2019). In our study, the KMO value

Table 4 The internal consistency of the Persian version of the spiritual self-care practice scale in patients with cancer ($n=550$)

Item	Corrected item-total correlation ($n=550$)	Cronbach's α if item deleted ($n=550$)
1. Making time for self	0.579	0.884
2. Eating healthy foods	0.664	0.882
3. Feeling at peace and/or in harmony	0.652	0.881
4. Resting to regain health and energy	0.602	0.883
7. Maintaining a sense of hope for the future	0.524	0.885
30. Maintaining friendships	0.449	0.888
31. Being with family	0.588	0.883
32. Having a meaningful conversation with others	0.629	0.882
33. Receiving love from others	0.556	0.884
34. Being with friends	0.605	0.883
Factor 1: Personal and interpersonal spiritual practices	0.882	
11. Maintaining positive relationships	0.523	0.885
12. Asking questions about medical orders	0.245	0.899
13. Forgiving others	0.447	0.887
14. Helping others	0.487	0.886
Factor 2: Shaping and strengthen relationship practices	0.596	
15. Attending religious services	0.415	0.888
16. Contributing to a religious group	0.317	0.890
18. Consulting a spiritual advisor	0.299	0.891
Factor 3: Religious practices	0.802	
27. Hiking or walking	0.452	0.887
28. Practicing yoga or tai-chi	0.388	0.888
29. Following a special diet	0.370	0.889
Factor 4: Physical spiritual practices	0.763	
22. Mending broken relationships	0.584	0.884
23. Resolving conflicts	0.579	0.884
25. Giving alms to the poor or doing other acts of charity	0.518	0.885
Factor 5: Reshaping relationship practices	0.788	

was 0.865, and the Bartlett's sphericity test was statistically significant, justifying the conduct of factor analysis on the dataset. To determine the number of factors in EFA, eigenvalues equal to or greater than 1 are typically considered. Additionally, a minimum factor loading above 0.30 is recommended for item placement within factors (Hu et al., 2019). In our analysis, EFA identified five factors with factor loadings for all items exceeding 0.30 and a minimum loading of 0.42, leading to no item deletions at this stage. These five factors collectively explained 61.251% of the total variance, surpassing the variance explained by the original scale (47%), indicating a robust factor structure for the Persian SSCPS. Furthermore, confirmatory factor analysis (CFA) was employed to assess the construct validity of the five-factor

structure. The results demonstrated that the model fit met statistical significance criteria with $\chi^2/df < 3$, comparative fit index (CFI) and incremental fit index (IFI) values exceeding 0.9, and root mean square error of approximation (RMSEA) below 0.08 (Gefen et al., 2000). These findings underscored sufficient structural validity for the Persian version of SSCPS.

Internal reliability of a scale is considered quite reliable if the Cronbach's α coefficient falls between 0.60 and 0.80 and highly reliable if it ranges from 0.80 to 1.00 (Nunnally & Bernstein, 1994; Rattray & Jones, 2007). The Persian version of the spiritual self-care practice scale (SSCPS) exhibited a Cronbach's α coefficient exceeding 0.80 for the overall scale, consistent with the original scale (0.91), indicating good reliability of the translated and culturally adapted version (Waltz et al., 2010). While factor 2 had a Cronbach's α coefficient of 0.596, the other three factors achieved coefficients above 0.75. These findings suggest that the Persian SSCPS is relatively stable, with most indicators meeting satisfactory or acceptable levels, rendering it a reliable and valid instrument for assessing spiritual self-care practices among Iranian cancer patients.

Limitations

However, this study is not without limitations. Firstly, although the sample size met the criteria for conducting factor analyses, all participants were recruited through convenience sampling, potentially limiting the generalizability of findings to all Iranian cancer patients. Therefore, future research should involve multi-center studies with larger and more diverse samples to further assess the applicability of the Persian SSCPS. Secondly, as the scale was self-administered, response bias may have influenced results. Despite acceptable fit indices in confirmatory factor analysis (CFA), future studies should explore discriminative and convergent validity between information structures to enhance understanding of scale performance. Lastly, while internal consistency was evaluated using Cronbach's α coefficient in this study, other reliability measures such as criterion reliability and test–retest reliability were not assessed. Thus, future research should include these metrics to comprehensively evaluate the reliability of the Persian SSCPS.

Conclusion

This study successfully developed a Persian version of the spiritual self-care practice scale (SSCPS) with a five-factor structure tailored for Iranian cancer patients, demonstrating acceptable construct validity and internal reliability. In conclusion, the Persian SSCPS emerges as a reliable and effective tool for assessing spiritual self-care practices among Iranian individuals battling cancer. Notably, the Persian version of SSCPS is concise, comprising 23 items, allowing for quick completion of the scale and rendering it a convenient instrument for future research and clinical applications focused on spiritual self-care practices in Iranian cancer patients.

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Author Contributions MD designed the study. AN, AM, XT, MAF, and BB conducted the search and data collection. MD analyzed data collection. MD, AN, AM and XT drafted the manuscript. MD, MAF, and BB revised the manuscript. All the authors read and approved the final manuscript.

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Availability of Data and Materials All data can be accessed by contacting the corresponding authors upon reasonable request.

Declarations

Conflict of interest The authors declare no conflict of interest.

Consent for Publication Not applicable.

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Authors and Affiliations

Asma Najmadini[1] · Alireza Malakoutikhah[1] · Xu Tian[2] · Mansooreh Azizzadeh Forouzi[3] · Bander Balkhi[4] · Mahlagha Dehghan[5]

✉ Mahlagha Dehghan
m_dehghan@kmu.ac.ir; m_dehghan86@yahoo.com

Asma Najmadini
a.najmaddini1998@gmail.com

Alireza Malakoutikhah
alireza.malakoutikhah@gmail.com

Xu Tian
yxtx880919@hotmail.com; xu.tian@alumni.urv.cat

Mansooreh Azizzadeh Forouzi
forozy@gmail.com

Bander Balkhi
bbalkhi@ksu.edu.sa

1 Nursing Research Center, Kerman University of Medical Sciences, Kerman, Iran

2 Division of Science & Technology and Foreign Affairs, Chongqing Traditional Chinese Medicine Hospital, Chongqing, China

3 Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran

4 Department of Clinical Pharmacy, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

5 Reproductive Health, Family and Population Research Center, Kerman University of Medical Sciences, Kerman, Iran