RESEARCH ARTICLE

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Psychometric Properties of the Farsi Version of "Spiritual Needs Questionnaire" for Cancer Patients in Iran: A Methodological Study

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Abstract

Background and objectives: Spiritual needs are very important requirements to cancer patients. A valid and reliable instrument is needed for evaluation. This study was conducted to psychometrically evaluate a Spiritual Needs Questionnaire (SpNQ) for cancer patients in Iran. **Methods:** In this study, the methodology and psychometric properties of the Farsi version of the SpNQ (Büssing et al., (2010)) were evaluated, based on the model proposed by Wilde et al., (2005). The study population included cancer patients referred to the largest referral center in Iran. Some 400 subjects were selected. Then, the content, face and construct validity, as well as the internal consistency and reliability of the Farsi version were assessed. **Findings:** In the confirmatory factor analysis, the original four-factor version with 19 phrases was not confirmed. Subsequently, an exploratory factor analysis (EFA) was carried out in which phrases were included in three dimensions (peace and active giving, religion, and existence) that explained 48.1% of the variance. Later, a confirmatory factor analysis (CFA) was conducted, which showed a good fit of the model (CFI=0.94, GFI=0.94, RMSEA=0.071, and AGFI=0.96). Cronbach's alpha was α=0.91 for the whole SpNQ. Cronbach's alpha values ranged from 0.76 to 0.86 for the three factors. The intra-class correlation coefficient was ICC=0.82 between two tests performed with a two-week interval. **Conclusion:** The modified Farsi version of the SpNQ shows good psychometric properties for patients and can be used to investigate the spiritual needs of Iranian cancer patients.

Keywords: Spiritual needs- psychometric- questionnaire- validity- reliability- confirmatory factor analysis

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Introduction

Today, cancer is a known health problem all over the world (Akyuz et al., 2008). According to the World Health Organization in 2012, approximately 1.14 million new cases of cancer have been reported. Cancer is the third-highest cause of death in Iran after heart disease and car accidents. According to the latest estimates, the annual incidence of cancer in Iran is about 107 people per hundred thousand people (more than 80,000 people, as per Iran's population of 75 million). It is predicted that there will be an increasing trend in the coming decades due to the increase in environmental pollution, the increase in the elderly population, and population growth. This will happen to an extent where cancer will become one of the major health problems in Iran (Rassouli and sajjadi, 2016, Sajjadi et al., 2014). Cancer is a life-threatening disease affecting various aspects of life, and creating a wide range of issues and problems (Cebeci et al., 2012). Cancer patients face numerous changes and challenges in various areas of their lives (Zamanzadeh et al., 2014). They have different needs when diagnosed with cancer (Missel and Birkelund, 2011), one of the most important being spiritual needs (Hatamipour et al., 2015).

Spirituality is a global phenomenon in which human beings seek to gain meaning in their lives through their relationships with the self, with others, and with a higher existence (Baldacchino and Draper, 2001). Spirituality is more evident when people face crises and are in need of certain things (McSherry, 2000). In principle, a cancer diagnosis can lead to feelings of panic, anxiety, depression, and despair, as well as create doubts about upcoming performance (Vachon., 2008) and significantly increase the spiritual needs of patients. This is because their confidence and spiritual faith are compromised, individual communication is disrupted because of uncertainty about the future, previous modification mechanisms seem inadequate, and hospitalization may induce feelings of loneliness; thus, it can be said that a patient is faced with a spiritual crisis (Yong, 2008; Wong and You, 2010; Heidarzadeh, 2014). This crisis causes imbalance and disharmony in thought, body, and soul (Lim and Yi, 2009),

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while research has shown that a balance in body, mind, and spirit is essential for maintaining good health. Therefore, in addition to the physical, mental, and social aspects, the spiritual dimension is also important based on a holistic care perspective (Sharma, 2012). Researchers believe that the tendency to embrace religion and spiritual resources can be used as a psycho-social consistent approach after diagnosis of the disease (Lim and Yi, 2009).

Some scales are needed in order to carry out intervention programs to evaluate the spiritual needs of cancer patients and the effectiveness of these programs. Although Iranian society is considered to be both spiritual and religious (Rassouli and sajjadi, 2016), no scale has been designed in the country to assess the spiritual needs of cancer patients. Despite their importance, there are very few instruments in the world to study the spiritual needs of cancer patients. One of these instruments is the SpNQ (Sharma et al., 2012, Bussing et al., 2010, Yong, 2008, Galek et al., 2005). Since the numbers are low, validation of these instruments is recommended (Monod et al., 2011). The SpNQ was designed by Bussing et al. in 2010 in Germany. Based on previous research studies on beliefs and attitudes toward spirituality and religion, as well as on common spiritual terms among patients and healthy people, 21 phrases of the questionnaire were designed as follows: religion from an individual as well as social perspective (including praying, congregational activities, reading spiritual or religious books, and involvement of chaplains); forgiveness; existential issues like reflecting on life, and the meaning of life and suffering; social interactions; attention from others; active compassion for others; inner peace; and the beauty of nature. All phrases were designed in such a way that they can be addressed on the basis of self-report. They were ranked based on a four-point Likert scale, ranging from full disagreement to sheer agreement. This instrument has good reliability and validity (Bussing et al., 2010), and was selected for the translation and evaluation of the psychometric properties of the SpNQ as it could specifically assess the needs of cancer patients. The purpose of this study is to translate and evaluate the psychometric properties of the Farsi version of the SpNQ.

Materials and Methods

Procedures

This is a methodological study (LoBinodo and Haber, 2010) in which the SpNQ (Bussing et al., 2010) was translated and its Farsi version was validated in cancer patients in 2015. Moreover, the translation and validation were carried out using the method suggested by Wilde et al. (Wild et al., 2005).

Scale translation

After obtaining written permission from the developers of the questionnaire, the original was translated into Farsi by two people fluent in both English and Farsi. Then, the two translations were compared and a final version was prepared after making slight changes in the vocabulary. Afterward, in order to be re-translated into English, the final translated version was given to two persons who were fluent in both English and Farsi (one original English language), and who had no connections with the first person. In the next step, the translated version was compared and some editorial modifications were made in the Farsi version by an observer to ensure that the translated content remained the same.

Content and face validity

To verify the content validity, the translated questionnaire was given to 10 experts for their review and feedback. They also reviewed and approved the face validity of the translated questionnaire. The questionnaire was later given to 10 cancer patients for their comments on ease of use, and ability to understand sentences and phrases. The Farsi version was finalized without too many changes in sentences.

Construct validity

The subjects of this study were all cancer patients at the Cancer Institute of Tehran (the capital of Iran), the largest cancer center in the country. To assess the construct validity of the questionnaire and perform the factor analysis, random sampling was done based on certain inclusion criteria. The criteria consisted of willingness to participate in the research, cancer diagnosis by a medical oncologist, the patient's awareness of the illness, six months of diagnosis, minimum age of 21 years, absence of other serious diseases, and having no history of diagnosed mental illness. The type and stage of cancer and treatment were not included in this study. Ultimately, 400 patients were selected based on these criteria.The researcher first introduced self and objectives of the study to each individual participant and assured them that all the information and content would remain confidential. The researcher then proceeded to obtain written consent of the samples for the study. All interviews with study participants agreed were performed in the solitary room. The code of ethics is 116/855.

The questionnaire consisted of demographic characteristics such as age, sex, educational level, marital status, occupation, place of residence, kind of illness, type of treatment, and duration of diagnosis. Later, they were given the SpNQ for completion. The time needed to complete the SpNQ was about 25 to 30 minutes. For those who could not read, the questionnaire was read out by a researcher and the intended answers were checked.

In order to evaluate the construct validity of the SpNQ and the fit of the model, CFA and LISREL software version 8.5 were used, respectively. CFA is a technique to present a structural equations model, which is used to determine the goodness of fit between a theoretical model and the data obtained from research samples (Kline, 2010). A maximum likelihood algorithm was used to evaluate the fit of the model. There are several goodness-of-fit indices for making decisions about the suitability of the model and it is better to use several different indicators (Brown, 2006, Seo et al., 2004). In this study, chi-square goodness-of-fit indices were used including GFI, RMSEA, CFI, AGFI, and SRMR. After identifying the lack of fit, an EFA was conducted. Since EFA and CFI cannot be conducted on one sample group, the samples were randomly divided into

two groups of 200 people. Since the samples intended for EFA should be separate from CFI (Sajjadi et al., 2014), both analyses were conducted separately on two groups of 200 subjects.

Reliability

Internal reliability and consistency were evaluated using SPSS software (version 18). The internal consistency reliability of the questionnaire was obtained by calculating Cronbach's alpha for the whole questionnaire and for each sub-scale separately. Moreover, consistency reliability was calculated using the intra-class correlation coefficient between the two tests performed on 15 patients with a two-week interval.

Results

In general, 400 questionnaires were evaluated and analyzed. The demographic characteristics of the study sample are shown in Table 1. According to 10 experts who commented on the statements of the translated questionnaire, there was no change in the questionnaire statements while content and face validity were evaluated.

Table 1. Demographic Characteristics of Patients

		Mean	SD (Range)
Age(year)		42.4	13.9 (21–79)
		N	%
Sex	Female	232	58
	Male	168	42
Marital status	Single	61	15/25
	Married	288	72
	Widowed or divorced	51	12/75
Education level	Illiterate	67	16/75
	Primary and guidance school and diploma	236	59
	University degree	97	24/25
Occupation	Self-employed	64	16
	Employee	70	17/5
	Housewife	141	35/25
	Unemployed	55	13/75
	Retired	27	6/75
	Working	43	10/75
Time since diagnosis (months)	7–12	197	49/25
	48–24	167	41/75
	>48	25	6/25
Type of cancer	Breast	56	14
	GI	120	30
	Gastric/Esophagus	36	8/6
	Hematologic	93	23/25
	Uterus/ovarian	50	12/5
	Prostate	8	2
	Lung	23	5/75
	Bone	20	5
	Other	30	7/5
Metastasis	Yes	143	36/3
	NO	251	63/7
Kind of treatment	Chemotherapy	105	25
	Chemotherapy and surgery	189	45
	Chemo and radiotherapy	26	6/2
	All the above	90	21/4

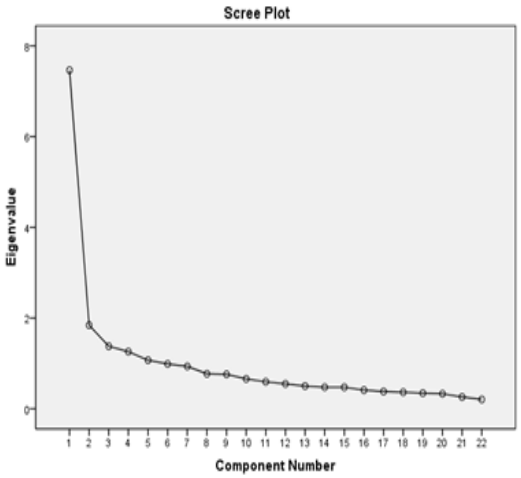

Figure 1. Chart Kitty Litter to Determine the Number of Agents in Tool of Persian Version Spiritual Needs Questionnaire Based on Exploratory Factor Analysis

The CFA results showed that the original model of the questionnaire had no goodness-of-fit indices. The results of the model fit indices are shown in Table 3. In order to adjust the model, EFA was used. The samples were initially divided into two groups of 200 subjects and EFA was performed on the 200 samples. Furthermore, sampling adequacy was evaluated using the Kaiser–Meyer–Olkin measure (0.89). To determine whether the obtained correlation matrix is significantly different from zero and to justify the factor analysis accordingly, the Bartlett test was used from which 1,818.127 was obtained ($P<0.001$). In the next stage, factors were extracted after calculating the correlation matrix between variables. Factors behind the instrument were extracted using the Kitty Litter Chart (Chart 1) and according to the factor loading. A cutoff point of 0.3 was used as the minimum factor loading needed for maintaining the factors extracted from the factor analysis. The four factors had special value above, expressing 54.3% of the variance in total.

After the EFA, four factors were obtained. Moreover, there were three statements with factor loading above 0.3, in addition to their high factor loading in the third factor. Two statements of N1 (higher devotion by others) and N7 (to dwell at a place of quietness and peace) were placed in the first factor (the need for peace and active giving) because of their appropriate factor loading. Moreover, the N5 statement (to resolve open aspects of your life) was also transferred to the fourth factor due its optimum factor loading (existential need). Therefore, the number of factors decreased from four to three.

All statements had factor loading above 0.3. The fourth factor had three statements (N1, N5, and N7), which in addition to their high factor loading in this factor, had factor loading above 0.3 in other factors. The N1 and N7 statements were placed in the first factor due to their appropriate factor loading in this factor. The 5N

Table 2. Rotated Component Matrix of the SpNQ

Row	Do you need during illness:	1 Factor	2 Factor	3 Factor
1	(N15) To get solace from someone?	0.75		
2	(N14) To give away something that belongs to you?	0.744		
3	(N7) To dwell at a place of quietness and peace?	0.701		
4	(N13) To turn to someone with a loving attitude?	0.659		
5	(N1) To receive/give higher devotion from/to others?	0.622		
6	(N6) To plunge into the beauty of nature?	0.579		
7	(N8) To find inner peace?	0.512		
8	(N2) To talk with others about your fears and worries?	0.31		
9	(N21) To participate in a religious ceremony (like a service)?		0.791	
10	(N20) To pray for yourself?		0.749	
11	(N22) To read religious and/or spiritual books?		0.626	
12	(N18) To pray with someone?		0.588	
13	(N19) To have someone praying for you?		0.577	
14	(N23) To turn to a higher presence (God, Allah, Angels, Oneness)?		0.576	
15	(N11) To talk with someone about the meaning of life?			0.74
16	(N4) To reflect on your previous life?			0.565
17	(N12) To talk with someone about the possibility of life after death?			0.541
18	(N5) To resolve open aspects of your life?			0.52
19	(N10) To find meaning in illness and/or suffering?			0.474

Table 3. Fitting Indices of the Structural Model Used in the SpNQ of Büssing et al. (before and after the model modification)

	χ^2 (df), p	RMSEA(90% CI)	CFI	GFI	AGFI	SRMR
SpNQ, 4 factors (original)	1108.95(324), p<0.001	0.057(0.053–0.061)	0.85	0.87	0.88	0.063
SpNQ, 3 factors (modified)	538/52(203), p=0.000	0.071(0.051–0.091)	0.94	0.94	0.96	0.045

statement was also transferred to the third factor due to its optimum factor loading in this factor. These factors were respectively named "need for peace and active giving" (eight statements), "religious needs" (six statements), and "existential needs" (five statements).

Table 2 shows that the first factor includes eight statements (N1, N2, N6, N7, N8, N13, N14, and N15), titled "need for peace and active giving," which alone represents 34% of the variance. The second factor, titled "religious needs," represents 8.4% of the variance and has six statements (N18, N19, N20, N21, N22, and N23). The third factor, titled "existential needs," represents 5.7% of the variance and contains five statements (N4, N5, N10, N11, and N12).

Therefore, an acceptable construct validity was obtained for the SpNQ with 19 statements in three sub-scales-peace and active giving, religious needs, and existential needs. To verify the model, a CFA was performed on 200 samples (on which an EFA has not been conducted). The statements of the SpNQ were evaluated using LISREL software version 8.5 in order to determine whether these statements were valid references for spiritual needs and to confirm the three factors extracted from the EFA. The results of the fitting indices are shown in Table 3.

After evaluating the construct validity and confirming the optimum fit of factors, the internal consistency of all statements as well as each factor was identified separately in the sample of 200 people. Cronbach's alpha was determined (0.91, 0.86, 0.82, and 0.76%, respectively) for the whole questionnaire including the need for inner peace, the religious dimension, and the existential dimension. The intra-class correlation coefficient was obtained as ICC=0.82 between the two tests that were performed.

Discussion

Paying attention to the spiritual needs of patients can have a wide effect on the quality of life of cancer patients; therefore, measuring these needs is particularly important (Hillenet al., 2013). Despite this, the issue has been studied less in Iran. Perhaps one of the reasons is the lack of proper instruments in the country. Thus, the purpose of this study was to translate and validate the Farsi version of the SpNQ questionnaire. In this study, the questionnaire was translated into Farsi, and its psychological characteristics and factor structure were studied. When an instrument is translated for use in a different culture or society, it is essential for it to be validated because its use may not be appropriate in the new society (Michaeli Manee., 2011).

According to expert opinions, the Farsi version of the SpNQ has appropriate content validity in this study.

One of the best methods to evaluate content validity is to use the opinions of experts (Polit and Beck, 2013). CFA was performed as an index of investigating the spiritual needs of cancer patients in Iran. This analysis was done to determine the suitability of statements in the questionnaire as well as to know whether the four factors which are included in the questionnaire are confirmed by the population of Iranian cancer patients. The fit indices of the model showed that the original version (containing 19 items and four factors) or the Farsi version of the SpNQ is not confirmed in cancer patients, and these factors cannot properly assess the spiritual needs of cancer patients in Iran. If the fit indices show a lack of goodness of the model, researchers can modify the model. Model modification involves removing or changing any factor in order to enable it to fit more with real data (Kline, 2010). If the model does not fit well, a new structure can be presented (http://webcache.googleusercontent.com). For this purpose, both the EFA and the model test were performed (CFA). EFA was used to modify the mode. After the EFA, four factors were obtained. All the statements had a high factor loading above 0.3; therefore, no statement was removed. The fourth factor had three statements (N1, N5, and N7), which in addition to their high factor loading in this factor, had factor loading above 0.3 in the other factors. The questionnaire statements can be transferred from one factor to another (Mishel, 1997). Other studies have also been conducted to validate similar questionnaires, the results of which indicate that the position of some statements in the instrument can be changed. Moreover, there is no problem in repositioning them both theoretically and logically (Helsen et al., 2013; Hillenet al., 2013).

Two statements-N1 (higher devotion by others) and N7 (to dwell at a place of quietness and peace)-were placed in the first factor (the need for peace and active giving) because of their appropriate factor loading. Moreover, the N5 statement (to resolve open aspects of your life) was also transferred to the fourth factor due to its optimum factor loading (existential need). Therefore, the number of factors decreased from four to three. These factors were named as follows: "the need for peace and active giving," "religious needs," and "existential needs."

After performing an EFA and determining the dimensions of the questionnaire, a CFA was performed on the sample with 200 subjects to verify the model. The CFA indicated a good fit for the 3D pattern of the questionnaire. This means that indicators including RMSEA, SRMR, AGFI, GFI, and CFI, and the chi-square proportion to the degree of freedom indicated a good fit for the model (Helsen et al., 2013, Kline, 2010, Brown, 2006). Therefore, it can be said that three factors of the questionnaire have been confirmed and these statements can measure the spiritual needs of the community of Iranian cancer patients.

The results of the present study show that the Farsi version of the SpNQ has very good internal consistency with Cronbach's alpha of 0.91 for the whole questionnaire. A reliable tool increases the power of a study to detect differences and meaningful connections that actually occur in the study (Burns and Grove, 2009). The best questionnaire used to evaluate internal consistency is Cronbach's alpha. A Cronbach's alpha value of 0.7 is enough, and an alpha value of 0.80% or more reflects the high internal consistency of the instrument (Polit and Beck, 2013). In the present study, Cronbach's alpha of the whole questionnaire (along with its dimensions) is close to the values obtained in the original questionnaire designed for cancer patients. In addition to the intra-class correlation coefficient, the test-retest results showed that the Iranian version of the questionnaire has good stability (ICC = 0.82; P <0.001).

Although the number of dimensions was reduced from four to three, no change was seen in the number of statements after comparing the dimensions of the modified version with those of the original instrument. The religious and existential dimensions remained unchanged; only four statements in the fourth factor were transferred to other aspects related to the concept due to a mismatch of meanings. The third dimension was named peace and active giving. In the original and Farsi versions, the highest variance was related to peace and active giving. In multiple studies, the need for peace is considered essential for patients (Yong et al., 2008, Galek et al., 2005, Grant et al., 2004, Monod et al., 2012). Regardless of their religion, patients prefer physical and mental peace, prior to every other need. Those who see themselves in an impasse in life are searching for a window of hope at any moment in order to gain peace. In the original version, the active giving dimension had three statements which were placed in the inner peace dimension of the Farsi version. These statements formed the peace and active giving dimension. Religious needs formed the second category for cancer patients and there was no change in statements in the Farsi version. Paying attention to religious needs of patients plays a major role in adapting them to conditions of the disease. Religious orders have a key role in improving and empowering patients, and making them more capable of adapting to their disease. Turning to religious practices creates peace and hope, and promotes individual and social communication and expectancy in patients. The existential dimension is another common dimension in both versions. Sometimes, patients express their spiritual needs in the form of existential needs. Although theoretically there are differences between psychological, spiritual, and existential needs, these are clearly interconnected (Bussing and Koenig, 2010). The existential dimension of life consists in finding meaning and purpose. Finding meaning can be considered an essential and central component of spirituality (Koslander et al., 2009). Every person has incentives that give meaning and purpose to their life, and helps them enjoy their existence. If, for any reason, the incentives are removed, life will become empty and meaningless for them. They may even question what they are living for. These factors are entirely personal and unique, and depend on personal identities and life experiences.

Yung et al., (2008) aimed to design and study the psychometric properties of the spiritual needs of patients. The results of the factor analysis revealed six subscales including love and belonging, hope and peace, meaning and purpose, religious practices, relationship with God,

and acceptance of death. After comparing the size of both questionnaires, it seems that the dimensions of love and belonging, and hope and peace in this study (by Yung et al., (2008)) were combined in the Farsi version of the SpNQ. Religious practices, relationship with God, meaning and purpose, and acceptance of death were placed in the religious and existential dimensions of the present study's questionnaire. It seems that the culture of a society in which instrument statements are constructed, and also researchers' tastes, are involved in specifying the names of items. Another instrument was designed by Galek et al. in a study titled "Spiritual needs of cancer patients." This instrument has 29 items with seven subscales including love, belonging, respect, religion, gratitude, hope, peace, meaning, purpose, morality, attention to beauty, will, and death (Galek et al., 2005). Moreover, in the instrument designed by Galek et al., the subscales of love, belonging, respect and gratitude, hope, peace, ethics, and attention to beauty are counterparts of the peace and active giving dimension in the Farsi version of the SpNQ. The subscale of religion was available in both instruments. The subscales of meaning, purpose and will, and death in the instrument designed by Galek et al. corresponded with the existential needs dimension in the Farsi version of the SpNQ. Therefore, the results of comparing both instruments in this study show that researchers' tastes play a decisive role in determining subscales.

The present study had some limitations. First, although the sample size was sufficient for analysis and referral hospitals were sampled, these samples were taken from specific areas of Iran. This kind of generalization of society creates certain problems. It is better to repeat the study with a new population from other regions and with new ethnic groups in Iran. Second, about 16.7% of the subjects were illiterate, due to which questionnaires had to be filled in for them through interviews. This was a significant limitation of this study.

In conclusion, the results of the present study show that the modified Farsi SpNQ (Büssing et al.) has good validity and reliability. Therefore, it can be used as an instrument to evaluate the spiritual needs of cancer patients in Iran. This questionnaire can be used by nurses and researchers to promote holistic care and nursing knowledge, and ultimately help improve patient care. This study is a cornerstone for future research in the field of spiritual needs among other patient groups in Iran. Considering the cognitive nature of spiritual needs during illness, there is a need for qualitative research in this field in order to identify other possible dimensions of this subject in Iran.

Conflict of interest

The authors declare no conflict of interest.

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