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Article

# Exploratory Psychometric Properties of the Farsi and English Versions of the Spiritual Needs Questionnaire (SpNQ)

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**Abstract:** The aim of this study was to translate and test the psychometric properties of a Farsi and an English version of the spiritual needs questionnaire (SpNQ) a measure originally developed in German. The World Health Organization guideline for translating and validating questionnaires was used. Participants were recruited from hospitals in Iran and New Zealand during an outpatient follow-up appointment after cancer treatment. People diagnosed with cancer in Iran (68) and New Zealand (54) completed and returned the SpNQ (at time 1) and within the two week time period (time 2). Cronbach's alpha ranged from 0.79 to 0.92, except for the existentialistic domain of the SpNQ (0.53–0.54). The coefficient of variation (CV) indicated minimal random variation between the assessments; the measures were generally stable, except for the item "existentialistic". The translated versions of the SpNQ have the potential to support a comprehensive assessment of cancer patients' spiritual needs.

**Keywords:** cancer; spiritual care; needs

## 1. Background

The provision of holistic care is recognised and promoted as best practice in caring for people with cancer [1], and involves assessing and treating physical, emotional and spiritual needs [2]. Spirituality has been defined as "an inherent quality of all humans that drives the search for meaning and purpose in life" and "involves relationships with oneself, others and a transcendent dimension" ([3], p. 324). Taylor [4] states spirituality reveals itself as spiritual needs in three levels: intrapersonal, interpersonal and transpersonal. The need to have purpose, hope and transcend challenges is an example of intrapersonal spiritual needs. The desire to forgive and be forgiven and to love and be loved by others illustrates an interpersonal level of need. Examples of transpersonal spiritual needs include the desire to relate to and worship an ultimate other (often God).

In recent years, an increasing number of studies have shown that spirituality and/or religiosity can be a source of comfort for cancer patients [5,6] and is linked to self-esteem, sense of hope, a sense of meaning and purpose, and the provision of emotional comfort [6]. Spirituality is a much broader concept than religion, although it may be expressed through religion [7]. Koenig [2] believes that spirituality and religion can be used interchangeably, because most research linking spirituality to health has measured religious beliefs or practices.

There is a growth in the evidence of a positive association between spirituality and other health outcomes [8], which suggests the importance of considering spiritual needs in health care [9]. There is

also interest in the relationship between spiritual needs and mental and physical health [10], and the role and importance of religion and spirituality in health care practice [6]. Spiritual needs have been defined by the Institute of Medicine as “the needs and expectations that humans have to find meaning, purpose and value in their life” ([11], p. 40). Health care professionals, through better understanding of patients’ spiritual needs, will develop effective spiritual interventions [10] and provide spiritual care to promote spiritual health through addressing patients’ spiritual needs [4]. Therefore it is important that ongoing assessment of spiritual needs continues throughout the course of treatment and beyond for patients [1].

It is well documented that living with cancer often increases an individual’s awareness of the spiritual dimension of the self and intensifies their spiritual needs [12]. They frequently and increasingly use spiritual and/or religious resources, and spiritual healing to improve their health and cope with cancer [13,14]. Moreover, the literature supports the benefits of spiritual care, including improvement in quality of life [15], and increased overall patient satisfaction [16].

However, there are few measures for assessing spiritual needs in patients with chronic illnesses [17] such as cancer, especially in non-English language and among different religions [18]. Therefore, there is a need to explore the psychometric properties of measures for different languages, cultures and religions. The Spiritual Needs Questionnaire (SpNQ) was originally developed in German [19], and this paper reports on the psychometric properties of the English version and Farsi version of the SpNQ respectively.

Islam is the main religion in Iran, followed by 99% of the population [20]. The other religions include Christianity, Zoroastrianism and Judaism [21]. Religion and spirituality play an important role in the Iranian life. As Fasihi Harandy et al. ([22], p. 94) state “Islamic teaching and ideology in Iran heavily emphasizes the ‘will of God’ by indicating that the birth, life and death of all creatures are in” God’s hand, and with many quotations in the Holy Qur’an indicating this belief. Muslims believe that dying is a passage from this world to resurrection, and the spirit continues to live after death [23]. From a Muslims’ point of view, there are no differences between spirituality and religion (thought and activities) [23], while in Western society, spirituality is seen as a more comprehensive concept than religion and incorporates finding purpose and meaning of life [24,25].

New Zealand is a highly secular country [26,27], but there is evidence that spirituality is important for patients with cancer [1]. The 2013 census showed that four out of ten New Zealanders (35.3%) declare themselves to be non-religious. The most common religion was Christianity (48.9%) [28]. Māori (indigenous people of New Zealand) have had an important role in promoting spirituality in the health agenda in New Zealand [26], because spirituality has special meaning for Māori. They believe that everything has a type of soul and “when considering health and wellbeing, mind, body and spirit are inseparable” ([29], p. 5).

The study was conducted in two countries, Iran (researcher’s home country) and New Zealand (location of PhD study) because of the contrasts in terms of religion, culture and delivery of health care services. This allowed for the exploration of differences and similarities in psychometric properties of the SpNQ across two very different cultures and countries where little research in this area has been conducted.

## 2. Materials and Methods

### 2.1. Translation and Validation of the Questionnaires

The translation and validation of the questionnaires were performed using the World Health Organization process for the translation and adaptation of instruments [30]. After receiving written permission from the original authors of the instruments, the original scales in German were translated into Farsi and English by a person fluent in German and Farsi or German and English. Then three bilingual experts (German and English or German and Farsi) identified and resolved inadequate expressions and concepts resulting from the translation of the scales. In the next step, the two experts

fluent in both languages translated the questionnaires back into the language. The discrepancies in both translations (forward and backward) were discussed with an emphasis on conceptual and cultural equivalence, and some minor revisions were made in the Farsi and English versions of the questionnaires. Pre-testing of the instruments was then performed.

## 2.2. Participants

The study was conducted within New Zealand and Iran. Participants were recruited from a large tertiary hospital in New Zealand and a large cancer hospital in Iran. Participants were recruited (convenience sampling) from hospitals during their hospital visit and were identified by nurses. The researcher described the study to patients as part of a wider study where the first step was validation of the questionnaires (SpNQ). Participants were further fluent in either Farsi or English and clinical staff ensured that study information was not given to those exhibiting high levels of distress during their outpatient visit.

The researcher asked all participants, (who accepted to participate in the research) people diagnosed with cancer in Iran (89 patients) and New Zealand (85 patients) to complete a demographic and clinical characteristics questionnaire and the SpNQ, either at the clinic or at home and to return these to the researcher or the nurse manager in the hospital as soon as they were able. Participants were asked to complete the same questionnaires two weeks later. In Iran, 68 patients completed and returned both questionnaires within the two week time period. In New Zealand, 61 patients completed the questionnaire (SpNQ) at time 1 and 54 patients completed it at time 2.

Eligibility to participate was restricted to people diagnosed with cancer; aged between 18 and 80 years; aware of their diagnosis; and physically and mentally capable of participating in the study. The study was approved by the Upper South A Regional Ethics Committee in New Zealand, and the Ethics Committee of Arak Medical Sciences University in Iran.

## 2.3. Measures

The Spiritual Needs Questionnaire (SpNQ) was designed to explore people's spiritual needs and can be used in both secular and religious societies by avoiding exclusive religious terminology. Respondents indicate whether a need exists or not in relation to four domains and the strength of the need on a four point Likert scale.

The (SpNQ) was originally developed with 210 adults living with chronic pain (67%), cancer (28%), and other chronic conditions (5%). Factor analysis supported four factors which explained 67% of the variance: Religious needs, i.e., praying for and with others, and by themselves, participating in religious ceremonies (six items), Need for inner peace i.e., spending time in a place of peace and tranquility, (five items), Existentialistic needs i.e., reflecting on life and finding meaning in illness or suffering, (five items); and Actively giving i.e., passing on your life experiences to others; (three items).

The questionnaire has been translated into a number of languages with publications on the Polish [31], and Chinese versions [32]. The internal consistency estimates for the SpNQ range from 0.82 to 0.90 [5] for the German version, 0.74 to 0.92 for the Polish version and 0.51 to 0.81 for the Chinese version. The first paper [19] indicated that for people with chronic pain conditions and cancer, the need for Inner Peace was of strongest relevance, followed by Actively Giving. In Poland, 275 people with chronic diseases who identified as Catholic completed the questionnaire and needs in all four areas were found to be relatively high and people living with chronic pain expressing higher levels of need related to Existential Needs and Inner Peace Needs compared with those living with other chronic conditions. In China, 168 people living with chronic conditions completed the Chinese version of the SpNQ. The 17 item SpNQ-Ch had a similar factorial structure as the original version, with two main and three minor factors which accounted for 64% of the variance. In this study people with cancer (63%), chronic pain (10%) and other chronic conditions, needs relating to Giving/Generosity and Inner Peace were rated highly and Religious Needs and Reflection/Release needs lower.

The Duke University Religion index (DUREL) is a five-item measure of religious involvement, was developed in English by Koenig (1997–1998) [33], and “was designed to measure religiosity in Western religions (e.g., Christianity, Judaism and Islam)” ([34], p. 84).

The questionnaire assesses three major dimensions of religious involvement that consists of three parts including organizational religiosity (one-item) that assesses frequency of attendance at religious meetings. The second part assesses non-organizational or private religiosity (one-item). The third part includes assessing intrinsic religiosity that assesses religious beliefs and experiences (three-items) [34]. The DUREL has an overall score range from 5 to 27. However, since it consists of three subscales and measures three dimensions of religiosity, computing a total score is not recommended by authors [34].

This scale is widely used as a religiosity scale with strong psychometric properties across medical and community setting [35]. Validated Farsi [36] and English [34] version of Duke University Religion Index (DUREL) were used in this study.

#### 2.4. Statistical Analysis

The internal consistency was assessed using Cronbach’s alpha for each subscale within the questionnaire with the coefficient criteria set at 0.7. The best method to evaluate the internal consistency is Cronbach’s alpha and reliability coefficients higher than 0.7 are deemed adequate, but coefficients >0.8 are preferable [37]. The reliability of the scales was measured by Pearson or Spearman correlation coefficients by a test re test approach with a two-week interval as recommended [37].

The correlation coefficients of the scales (stability of the tests over time) were evaluated by paired sample *t*-test and Wilcoxon signed ranks test (for some measures that were not-normally distributed, including DUREL in Iran, and SpNQ at time 2 and DUREL at both time points in New Zealand) as appropriate.

The convergent validity of the Farsi and English version of the SpNQ 2.1 were assessed with validated Farsi [36] and English [34] version of Duke University Religion Index (DUREL) respectively.

The relationship between spiritual needs of participants in Iran (as measured by the SpNQ) and religiosity (as measured by the DUREL scale) were evaluated using Pearson correlation and Spearman’s rho (for some measures that did not have normal distribution, including DUREL) as appropriate. The relationship between spiritual needs of participants in New Zealand (as measured by the SpNQ) and religiosity (as measured by the DUREL scale) was assessed using Pearson correlation and Spearman rho (for some measures that were ‘non-normal’ including SpNQ at time 2 and DUREL at both time points) as appropriate.

### 3. Results

#### 3.1. Participants in Iran

In Iran, a convenience sample of 89 patients agreed to participate in the study, and 68 patients completed and returned the questionnaires within the two week time period. The mean age of participants was 53.60 ( $SD = 13.28$ ) years; 51.5% were men and 48.5% women. Most participants were married (91.2%), the majority had a primary school level education (72.1%), 38.2% were employed and 42.6% managed the home. All participants in Iran ( $n = 68, 100%$ ) were Muslim. The most prevalent cancer type was leukaemia (30.9%), and the time since diagnosis was less than six months (30.9%) (Table 1).

**Table 1.** Characteristics of Iranian and New Zealand participants with cancer.

Participant Characteristics	Iran (n)	Iran (%)	NZ (n)	NZ (%)
<b>Age</b>				
Age range	18–77		35–82	
Mean age	53.60 (SD = 13.28)		65.01 (SD = 12.90)	
<b>Gender</b>				
Male	35	51.47	29	53.70
Female	33	48.52	25	46.29
<b>Marital Status</b>				
Married	62	91.17	42	77.77
Never been married	5	7.35	6	11.11
Widowed	1	1.47	4	7.40
Never been married	-	-	2	3.70
<b>Education Level</b>				
No school completed	21	30.88	4	7.40
Primary school completed	28	41.17	18	33.33
High school graduate	18	26.47	29	53.70
University degree	1	1.47	3	5.55
<b>Employment</b>				
Employed	7	10.29	20	37.03
Self employed	19	27.94	5	9.25
Retired	8	11.76	20	37.03
Home duties	29	42.46	3	5.55
Unable to work	2	2.94	6	11.11
Unemployed	3	4.41	-	-
<b>Religion</b>				
Moslem	68	100	-	-
Christian	-	-	51	94.45
No religion	-	-	2	3.70
Prefer not to say	-	-	1	1.85
<b>Type of Cancer</b>				
Lung	6	8.82	6	11.11
Stomach	4	5.88	2	3.70
Colorectal	8	11.76	13	24.07
Breast	8	11.76	13	24.07
Leukaemia	21	30.88	-	-
Ovarian	4	5.88	-	-
Prostate	-	-	6	11.11
Other	17	25.00	14	25.92
<b>Time since Diagnosis</b>				
≤6 months	21	30.88	1	1.85
7–12 months	17	25.00	23	42.59
13–24 months	18	26.47	24	44.44
>24 months	-	-	6	11.11

### 3.2. Participants in New Zealand

In New Zealand, a convenience sample of 85 patients agreed to participate in the study, and 61 patients completed the SpNQ at time 1 and 54 patients completed it at time 2. The mean age was 65.01 (SD = 12.90) years; 53.7% were male and 46.3% female, 46.3% were employed, and 37% retired. The majority were married (77.8%) and had a high school education (53.7%). Fifty one New Zealand participants (94.45%) had a Christian affiliation, two (3.70%) had none, and one (1.85%) preferred not

to say. Colorectal (24.1%) and breast (24.1%) cancers were the most prevalent cancer type. The time since cancer diagnosis was less than six months for 42.6% and between 1 and 2 years for 44.4% of the patients (Table 1).

### 3.3. Results of Translation and Validation of the Questionnaires

Amongst Iranian participants, religious needs were rated highly, followed by Inner Peace. In New Zealand, the highest rating was associated with Inner Peace followed by Religious Needs.

Internal consistency was assessed using Cronbach’s alpha for each subscale within the questionnaire, with the coefficient criteria set at 0.7. Cronbach’s alpha and reliability coefficients higher than 0.7 are deemed adequate, but coefficients >0.8 are preferable [37]. The reliability of all scales was measured by Pearson or Spearman correlation coefficients using a test re-test approach with a two-week interval as recommended [37].

The reliability of SpNQ scales in Iran and New Zealand, showed acceptable to high internal consistency using Coefficient of Cronbach’s alpha ranging from 0.794 to 0.920 (Table 2). The questionnaires subscales achieved acceptable to high internal consistency (0.72–0.94) at both time points in both countries except for the existentialistic domain of SpNQ (0.53–0.54) in Iran (Table 2).

**Table 2.** Cronbach’s alpha for all dimensions of the scales in Iran and New Zealand.

Cronbach’s Alpha	Time 1	Time 2
SpNQ (Iran)	0.797	0.794
Religious Needs	0.877	0.874
Need for inner peace	0.824	0.822
Existentialistic needs	0.543	0.534
Actively giving	0.851	0.875
SPNQ (New Zealand)	0.920	0.916
Religious needs	0.945	0.948
Need for inner peace	0.788	0.809
Existentialistic needs	0.764	0.726
Actively giving	0.772	0.780

The coefficient of variation (CV) measures the level of random variation, with a higher level (expressed as a percentage) indicating increased random variation. Where the measurement has been taken between two time points in close proximity, the systematic change between the two time-points should be minimal, i.e., the CV% small. The accepted level is <15%. This was observed in general across the measures in both countries, indicating minimal random variation between the assessments; the measures are generally stable. The subscales with higher than expected CV were the subscale “existentialistic” in Iran and in New Zealand (Tables 3 and 4).

**Table 3.** Cronbach’s alpha and Coefficient of variation for spiritual needs questionnaire (SpNQ) in Iran.

Subscale	Mean Time 1	α	Mean Time 2	α	Mean Diff.	SD Diff.	Coefficient of Variation %
Religious	15.67	0.877	15.70	0.874	−0.03	0.07	2.50
Inner peace	9.89	0.824	9.94	0.822	−0.05	0.06	7.97
Existentialistic	5.89	0.543	5.67	0.534	0.22	0.10	17.35
Actively giving	6.17	0.851	6.22	0.857	−0.05	−0.006	7.58

**Table 4.** Cronbach's alpha and Coefficient of variation for SpNQ in New Zealand.

Subscale	Mean Time 1	$\alpha$	Mean Time 2	$\alpha$	Mean Diff.	SD Diff.	Coefficient of Variation %
Religious	7.00	0.945	6.25	0.948	0.75	0.03	9.80
Inner peace	8.98	0.788	8.07	0.809	0.91	−0.31	9.92
Existentialistic	5.13	0.764	4.14	0.726	0.99	0.14	19.06
Actively giving	6.03	0.772	5.40	0.780	0.63	−0.15	14.17

The correlation coefficients of the scales (stability of the tests over time) were evaluated by paired sample *t*-test and Wilcoxon signed rank test (for some measures that were not-normally distributed including DUREL in Iran, and SpNQ at time 2 and DUREL at both time points in New Zealand) as appropriate. No statistically significant difference in spiritual needs of participants in New Zealand from time 1 ( $M = 27.92$ ,  $SD = 14.09$ ) to time 2 ( $M = 23.88$ ,  $SD = 13.96$ ),  $t(53) = 1.72$ ,  $p > 0.05$  (two-tailed) were noted. The mean decrease was 4.04 with a 95% confidence interval ranging from  $-0.65$  to  $8.72$ . Additionally, the Wilcoxon signed rank test did not reveal a statistically significant difference between the two time points  $z = -1.58$ ,  $p > 0.05$  with a small effect size ( $r = 0.2$ ).

The relationship between spiritual needs of participants in Iran (as measured by the SpNQ) and religiosity (as measured by the DUREL scale) was evaluated using Pearson correlation and Spearman's rho (for some measures that did not have normal distribution, including DUREL) as appropriate. A weak positive correlation between two scales,  $r = 0.10$ ,  $n = 68$ ,  $p > 0.05$  was noted. The Spearman's rho correlation also revealed a small positive correlation,  $r = 0.17$ ,  $n = 68$ ,  $p > 0.05$ .

The relationship between spiritual needs of participants in New Zealand (as measured by the SpNQ) and religiosity (as measured by the DUREL scale) was assessed using Pearson correlation and Spearman's rho (for some measures that were 'non-normal' including SpNQ time 2 and DUREL at both time points) as appropriate. A strong positive correlation (Pearson) between two scales in time 1,  $r = 0.673$ ,  $n = 61$ ,  $p < 0.005$  and time 2,  $r = 0.559$ ,  $n = 54$ ,  $p < 0.005$  was noted. The Spearman's rho correlation also revealed a strong positive correlation in time 1,  $r = 0.658$ ,  $n = 61$ ,  $p < 0.005$  and time 2,  $r = 0.524$ ,  $n = 54$ ,  $p < 0.005$ .

#### 4. Discussion

There is no universally agreed definition of spirituality, however, there is some agreement that religion and spirituality are different but connected concepts [38]. Spirituality contains two different dimensions: individuals' relationship with the transcendent (God) and the relationship with oneself, others and nature [39]. In the Islamic context, there is no distinction between spirituality and religion, and religion provides the spiritual way of life [40]. The present study assessed the psychometric properties of the Farsi and English version of the SpNQ among cancer patients in Iran and New Zealand. The study suggests initial validity and reliability of the SpNQ in both languages and countries.

The coefficient of Cronbach's alpha was above 0.79 for the total score and above 0.72 for subscales at both time points in both countries except for the existentialistic domain of SpNQ (0.53–0.54) in Iran (Table 2). The low internal consistency of the existentialistic domain resulted from participant responses clustering. For example, for most Iranian participants the future was more important than the past, and people knew the meaning of their illness and did not report any need to talk about the meaning of life. Additionally, all Iranian participants believed in life after death and did not report any need to talk about it.

The coefficient of variation (CV) was higher than expected only for subscale "existentialistic" in Iran (17.35) and in New Zealand (19.06). It is well documented that living with cancer often increases an individual's awareness of the spiritual dimension of the self and intensifies their spiritual needs [12]. Cancer creates an existential crisis, and often initiates spiritual questioning about life and death. This existential domain reflects previous life experiences and involves the need for finding answers to



questions about the meaning of life, illness, and life after death [5]. Cancer patients often report their spiritual needs as finding meaning and hope [41], and drawing meaning from the suffering [42] that are related to existential domain. These needs may develop overtime as a result of increasing space of possibilities and uncertain future regarding to pending death, finality of life [43], and life after death. The differences between two time points are likely to be related to both the subjective nature of this domain and real changes in response over even a short time period during certain stages of cancer. An existential feeling is a space of possibilities and is likely to be a dynamic area, where people's thoughts, feelings and attitudes will change frequently especially around diagnosis, treatment and follow-up appointments and life events. Additionally the cancer experience is a dynamic entity. Thus, it is not surprising that the domain was found to be unstable when people are confronted with life-threatening illnesses and are undergoing major change.

The results of test retest reliability of the questionnaires (SpNQ 2.1) in both countries indicated that the questionnaires were not sensitive to change in two weeks, (except the existential subscale) and test re-test stability was partially confirmed. A weak positive correlation between SpNQ and DUREL in Iran and a strong positive correlation between SpNQ and DUREL in New Zealand were noted.

The results showed that the main subscales of SpNQ were not significantly influenced by cultural or religious differences, except for the existentialistic domain. This may be particularly true for those with specific religious beliefs and attitudes [32]. The Farsi and English version of SpNQ are congruent with its original version.

The findings of this study reflect those of earlier studies with comparable internal consistency. In relation to needs, the New Zealand data reflected the findings of the German study, the Polish study and the Chinese version where needs related to Inner Peace needs were rated highly. Whilst participants in Iran rated Inner Peace as important the importance placed on Religious Needs far exceeded those of all earlier studies.

This study had some limitations. There were no analyses on how many patients did not fill out the SpNQ in both countries, so the sample should be regarded as a convenience sample. Additionally, this study is limited by the small sample size and the level of analysis that could be undertaken.

Additionally the scale was completed only by Muslims in Iran, and mostly by Christians or those with no religion in New Zealand and has not been validated with other religions.

## 5. Conclusions

The psychometric properties of the Farsi version of the SpNQ questionnaires in Iran, and the English version of SpNQ questionnaire in New Zealand were assessed in this study. The study showed that the SpNQ questionnaire is a promising tool to measure spiritual needs of patients with cancer and could be used in Iran, New Zealand and other Muslim countries in addition to Christian countries [5], and nonreligious societies [32].

Since the psychometric properties of the Farsi version of the SpNQ questionnaires in Iran, and the English version of SpNQ in New Zealand were assessed with small sample sizes, future studies in both countries with larger sampling, minority religion and ethnic groups are necessary to enable more thorough statistical evaluation of the translations of the SpNQ.

In the existential domain, low internal consistency appears to be related to a clustering of responses in Iran. Hence, caution should be taken in using the SpNQ to assess spiritual needs in Iran or other cultural or religious contexts, and needs further exploration.

**Author Contributions:** Nazi Nejat, Lisa Whitehead and Marie Crowe conceived designed the study. Nazi Nejat conducted data collection. Nazi Nejat, Lisa Whitehead and Marie Crowe analyzed the data. Nazi Nejat and Lisa Whitehead wrote the paper.

**Conflicts of Interest:** The authors declare no conflict of interest. The founding sponsors had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, and in the decision to publish the results.

## Abbreviations

The following abbreviations are used in this manuscript:

SpNQ Spirituality Needs Questionnaire  
DUREL Duke University Religion Index

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