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Development of a Scale to Identify Spiritual Care Needs of Oncology Patients

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ABSTRACT

Aim: *The research was conducted to develop and analyze the validity and reliability of spiritual care need scale identifying the spiritual care needs of oncology patients living in Turkey.* ***Method:*** *The research was conducted at Oncology Training and Research Hospital with 290 patients who applied to the hospital for chemotherapy at the Day Treatment Centers. Content and construct validity tests were applied to evaluate the validity of the scale, and internal validity and time invariance tests are applied to evaluate the reliability of the test. Expert opinion was solicited to evaluate the content validity of the scale. Exploratory factor analysis was applied to test the construct validity.* ***Results:*** *As a result of factor analysis, 4 sub-dimensions consisting of 24 items were obtained. Sub-dimensions were named as "faith and spiritual practices", "to be peaceful and secure until the end of life", "love and support of relatives" and "informing about health". Cronbach's alpha value for the spiritual care needs scale was 0.867. According to test-retest results, there is no time-dependent change in the spiritual care needs scale and its sub-dimensions.* ***Conclusion:*** *The analysis sets spiritual care need scale as a valid and reliable measurement tool.*

Keywords: Spirituality, Spiritual care, Spiritual care need, Cancer patients, Development of a scale, Holistic nursing care

INTRODUCTION

Cancer which includes physical deficiencies, psychological and spiritual issues, has improvement and intensification stages, forms, short and long-term adaptation difficulty, causes mortality and morbidity, is the second most common cause of death among cardiovascular diseases in Turkey and in all over the World [1-3]. The World Health Organization (WHO) reported that 14 million people were diagnosed with cancer each year and 8.2 million of them were dead. According to this data, the number of cancer-diagnosed ones increased from 19 million by 2025, to 22 million by 2030 and to 24 million by 2035 and cancer-related deaths would reach 13 million per year [4].

Cancer patients face a diagnosis which is a life-threatening, long-lasting, usually not self-resolving, in which complete healing is not achieved, has symptoms that lead to unpredictable outcomes, a worsening condition, a permanent disability, and even results in death. This leads them to begin to appreciate their lives from a new point of view and to bring their spiritual aspects to the forefront [5]. Initially, individuals who have been diagnosed with cancer ask the questions "Why me?", "God punish me?" and go through the search for spiritual support by questioning the meaning of life [6]. Because people are not biological organisms, are multi-dimensional beings that have emotions, minds, souls, and spirituality and if an individual undergoes a change in any aspect of his or her life, the change in all aspects of his/her realized [7]. For this reason, it is very important that the holistic view is the basis of the health care services offered to the patient. The holistic care approach in the presentation of health services encompasses the assessment and treatment of the individual's psychological, sociological and mental aspects and needs as a whole. In this case, spiritual care or spiritual support is one of the most important parts of holistic care [8,9].

Spirituality is explained by the concepts of the meaning given to life, individual belief, self-superior power, loyalty and existential reality [10-14]. According to another definition, spirituality is the questioning of the individual's

relations with himself and other people, his place in the world, the meaning, and purposes of his experiences in life are the whole integration of awareness and values [15,16]. Throughout their lives, people try to adapt to the forces beyond their own existence and to connect with other beings. In this process, people understand the essence of life and try to make sense of death through reaching beyond itself [17]. Spirituality can also help individuals to understand the times of crisis such as sickness, loss, and death [18].

In the instance of life-changing events, such as cancer, that make people hopeless and desperate, they often incline to spirituality to provide comfort, meet their needs for hope, and get rid of the stress [19,20]. The practice of spirituality, considered as one of the elements of complementary medicine, can be useful in coping with the illnesses of cancer patients [21,22]. The high spiritual orientation of the individual has positive effects on physical and mental health. It was reported that individuals with high spirituality have subjective well-being, low pain level, low anxiety level, hope and positive emotional state, high self-esteem, increased social communication, and feel better [23-31]. In literature, it was indicated that participation in faith-related activities increases the average life expectancy of patients and patients with cancer and other serious illnesses that are strong in spiritual aspects and participate in faith-related worship are less likely to suffer from physical aggression and are more at peace with their illnesses [32-34].

Florence Nightingale, the leader of modern nursing, supported the concept of holistic care by recognizing "the importance of the patient's environment, light, smell, music, touch (therapeutic touch) and in-depth thinking during the treatment" and according to Florence Nightingale, "spiritual care should be part of nursing practice". Nightingale stated, "The spiritual requirements for health are as important as the physical organs that make up the body, the physical condition that we all observe may affect our mind and our soul" and emphasized the importance of spiritual care of patients as a part of nursing care with the expressions of "physical illness may occur if an individual is injured and harmed mentally and emotionally" [35]. According to Berggren-Thomas and Griggs, spiritual care is defined as an important part of the health service that supports the individual's personal integrity, interpersonal relationships and the search for meaning. Wright described spiritual care as a health care service that is based on empathic and unjustified love, includes accepting that every human being is valuable, responding to religious and non-religious needs, working with a humanistic will and listening to others, accepting the importance and honor of life, respecting every human being up to the dead.

In times of crisis, such as cancer, that is life-threatening and difficult to manage or difficult to cope with, the physical, emotional, spiritual and social needs of the individual as well as the need for spiritual support increase. For this reason, one of the issues that should be taken into consideration in the health care of cancer patients is the need for "spiritual care" or "spiritual support".

Cancer patients participating in a study in Iran showed God as the spiritual truth (to be associated with God and trust in God), ethical rules as spiritual signs (personal and social moral codes) and spiritual resources as hope resources, (beliefs, personal and social resources). In another study conducted with advanced cancer patients, spiritual needs were identified as being together with family members (80.2%) and regularly praying (50%) [36]. In the same study, 26% of the patients stated that at least one of their spiritual needs was not met and that the most unfulfilled spiritual need was to participate in religious ceremonies (21.1%) [37]. A study in Turkey on the spiritual care needs of patients carried out by Dedeli, et al., the patients ranked their spiritual care needs as "clarifying the issues about the moment of death and after (100%)", "feeling peaceful and pleasing (94.8%)", "being accompanied by someone in the process of illness and treatment (93.5%)", "getting compassion and kindness (54,3%)" and "being prayed by someone else (52.2%)".

The essence of spirituality in Turkey is composed of belief systems before the Islamic religion as well as Islamic religion, Turkish society's traditions, and social rules and lifestyles. For this reason, in Turkey, in the traditional approach, spirituality is used in a similar way to religion, mysticism, and morality. Also, in Turkey, life experiences such as "spiritual development, spiritual life" are considered as synonyms of spirituality. For example, according to Sufism one of Islamic Sects, it is thought that both being fully worshiped to Allah (God) and enriching the moral and social rules will enrich the spiritual life of the individual [38-40]. In the philosophy of the Mawlana Jalaluddin Rumi (1207-1273), who is one of the most adopted figures of the Islam civilization, there is spirituality, peace, friendship, love, the human being is a conscious being, understanding human being by considering its own existence. In the same way, people are in the center of the philosophies of Hodja Ahmed Yesevi's (1093-1166) Yesevilik and Hadji Bektash-i Veli's (1209-1271) Bektashism. In Yesevilik, "the love of human beings is held with the love of Allah", in Bektashism the spirituality shows the truth to man and enables him to realize what he can do with his own will [41,42].

Determination of spiritual care needs, which are considered to be the first step in holistic care and provision of care to meet those needs, is important for the physical and mental well-being of patients with cancer, satisfaction with health care [43]. One of the methods of assessing patients' spiritual care needs is the use of appropriately validated and reliable scales suitable for the existed sociocultural structure. Patients mark their responses to the closed-ended questions on the scales and thus the patient's spiritual care needs can easily be determined in a short time [6,44-47].

Since the concept of spirituality is seen as abstract and complex by patients and health professionals, studies on the measurement of spiritual needs are limited [43]. In Turkey, there is only a scale for evaluating health workers' perception of moral support [48]. However, in Turkey, there is no scale to determine the need for the spiritual care of country-specific patients in accordance with the spiritual understanding adopted. In addition, Turkish validity and reliability studies of two scales in other countries and cultures evaluating patients' spiritual support needs are available [28,49,50]. In every geography, culture, and religion spiritual values are different. Therefore, evaluating the spiritual care needs of the patients in Turkey with scales established on the concepts deduced from the studies conducted in other regions or countries may not lead us to the correct results. In Turkey, there is a study in the field of social sciences suggesting that the meaning of spirituality appropriate for sociocultural structure may be different [43]. Thus, it is believed that the scales created based on the moral values in religion models could not fully analyze the Turkish society. Therefore, it is thought that this scale, which is designed to determine the spiritual care needs of cancer patients, will contribute to the improvement of life quality and satisfaction of the individuals with a holistic approach to health care.

Aim of the Study

The research was conducted to develop spiritual care needs a scale to determine the spiritual care needs of oncology patients.

MATERIALS AND METHODS

Design, Sample, and Setting

This research was conducted as a methodological study to develop a measurement tool to be used to assess the spiritual care needs of oncology patients.

The research was conducted at Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital Surgical Oncology Hospital, in Ankara Turkey, between November 2016 and May 2017 with the patients who applied to the hospital for chemotherapy at the day treatment centers.

Research data were collected with the face-to-face interview method by the first author. The scale was first applied to 15 persons for the preliminary evaluation. The average length of interviews with patients was 30-35 minutes. According to the preliminary evaluation, 275 patients were applied as a result of the changes made to the scale and the average interview duration was determined as 25-30 minutes.

In order to be able to calculate item score correlation in scale studies, it is expected that sample size will be at least 5 times, at most 10 times the number of items in the scale [51]. Since the number of items in the trial scale was higher in this study, the sample size was calculated through multiplying each item with 5 (58 items X5=290). The criteria for inclusion in the sample of the study are: (a) agree to participate in the study, (b) being literate, (c) there is no communication barrier, (d) not having any psychological or mental illness or problem, and (e) the patient is 18 years of age or older. In addition, the sample of the study was included in the sample group of 290 patients who were proportional to the cancer types of the patients in the daytime treatment center and accordingly 155 breast cancers, 56 gastrointestinal system cancers, 31 lung cancers, 26 gynecologic oncology cancers, 7 soft tissue cancers and 15 other cancers.

Instrument and Data Collection Procedure

The data of the study were collected by the "patient presentation form" and "spiritual care needs scale" developed by the researchers through literature review.

Patient Presentation Form

In order to determine the questions that may influence the spiritual care needs of patients, a total of 25 questions were asked to identify the socio-demographic characteristics of the patients (age, gender, marital status, educational status, working status, family structure, income status, care support etc.) and to identify medical characteristics (disease diagnosis, treatment applied, family history of cancer, symptoms, etc.)

With the test-retest method, the trial scale was administered to 75 patients with the time interval of 1-week. Patients were coping with the symptoms that occur during the first few days of chemotherapy treatment. For this reason, the re-evaluation period was determined to be 1-week later. The first author applied the trial scale with the face-to-face interview method and received permission and phone numbers from the patients for the second interview to be performed by telephone after 1-week. The secondary interview was conducted in the form of re-application of the trial scale via telephone 1-week after the first interview.

Spiritual Care Needs Scale Development Process

Content validity: In order to determine the scope of the characteristics to be measured, a comprehensive literature review on spiritual needs was first conducted [6,9,44-47,52]. In addition, a semi-structured questionnaire consisting of 21 questions was prepared by the researcher after a review of the literature about the spirituality of Turkish society [38-42,53]. The semi-structured questionnaire was administered by face-to-face interviewing to a total of 30 patients who received different cancer diagnoses until the participants' responses repeated. As a result of analyzing the literature review and interview records, a pool of 70 items was created from the most repetitive expressions (Figure 1).

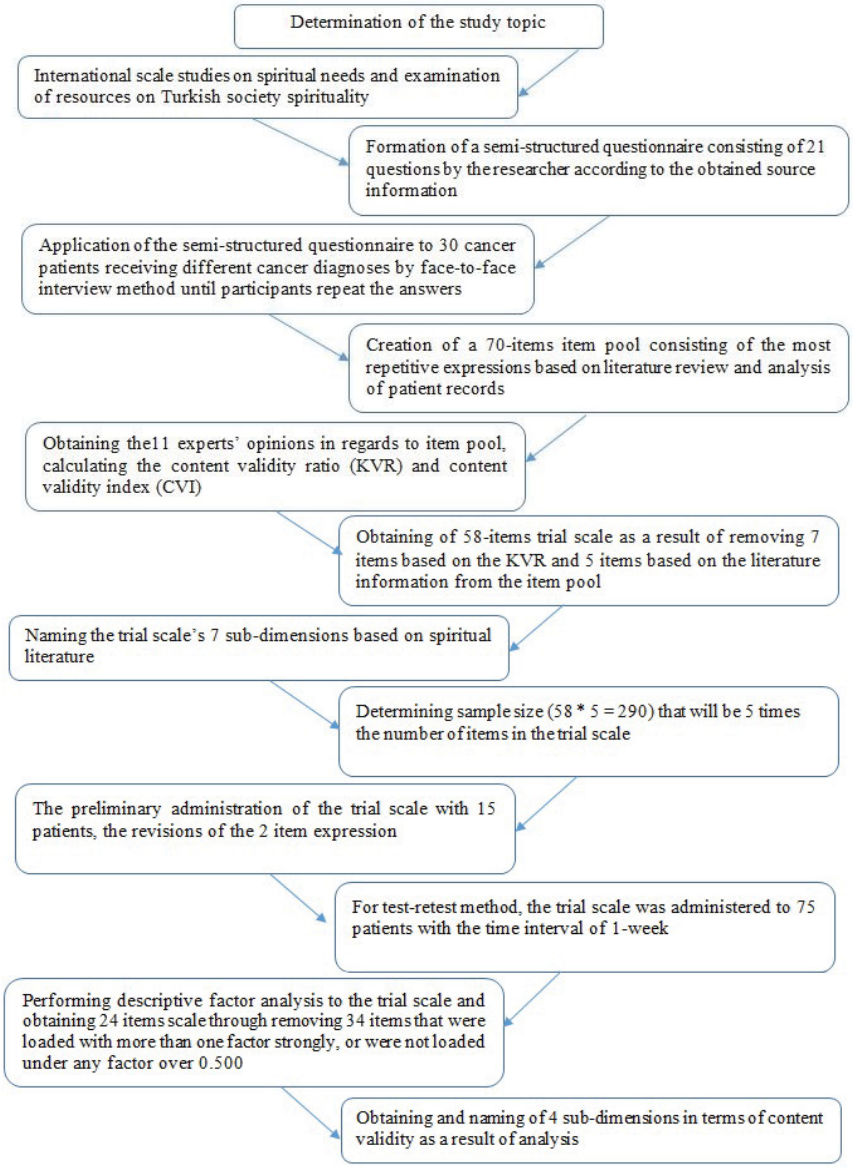

Figure 1 Flowchart of the study

Expressions in the pool of items were checked for language and meaning by the researchers, the experts in the field, and students receiving post-graduate education in the field of psychology of religion. A total of 11 experts' opinion, 2 specialist surgeons, 1 medical oncologist, 1 radiation oncology specialist, 2 psychologists, 2 surgical diseases nursing and 1 internal disease nursing faculty member, 1 psychology of religion specialist, 1 scale development and evaluation specialist were obtained. To obtain these opinions, an expert opinion form was used and e-mailed to experts. It was desirable for the experts to grade each item as "appropriate" (the item is measuring targeted structure), "appropriate but needs to be revised" (item is related to the structure but needs revision) and "not appropriate" (item is not measuring the targeted structure). If the expert found the item as not appropriate or appropriate but needs to be revised, it was requested to explain why he/she wanted it.

After receiving expert opinions, the content validity ratio (CVR) and content validity index (CVI) for each item was calculated. The formula of content validity ratio is CVR=(Ne-N/2)/(N/2). Here; Ne indicates the number of experts who choose the "appropriate" expression for the item, and N the total number of experts who specify the item [54]. If the content validity ratio contains a negative or zero value, these are the items that are eliminated in the first place. No item has been found to have 0 or negative values in the item pool. Veneziano and Hooper (1997) transformed the minimum values of CVCs (content validity coefficients) into a table at alpha=0.05 significance level. Accordingly, the minimum CVR value was calculated to be 0.62, and the 7 items, which are lower than the KGO 0.62, were eliminated from the scale. The content validity index (CVI) was then calculated. The scale can be said to be statistically significant when CVI ≥ CVR or CVI / CVR ≥ 0. The content validity index formula is CVI=ΣCVR/number of items, which is calculated as 0.80 for 64 items. Thus, the content validity of the scale was found to be statistically significant when 0.80 (CVI) ≥ 0.62 (CVR) or 0.80 (CVI)/0.62 (CVR) ≥ 0 (Figure 1).

The items that included the phrases such as "to pray", "go to Hajj" and "praying" which refer to religious concepts and forms of worshipping adopted in Turkey in the item pool, were revised based on the experts' opinions and universal principals. These phrases were revised into general form as: "to fulfill your prayers (prayer, Hajj, etc.). The items of "Item 4: health personnel are friendly", "Item 13: to visit the city or countries you have not seen", and "Item 43: to be rewarded in the hereafter for fighting your disease in this world" was removed from the pool in terms of their conformity with the literature and due to the inclusion of general expressions similar to the meaning of these items in the trial scale (Figure 1).

As a result of the evaluations, 12 items were removed from the 70 items pool and a 58-items test scale was obtained. The trial scale was evaluated by the Turkish language and literary specialist in terms of clarity and correct expression. According to the spiritual literature, 58 items of the trial scale were divided into 7 sub-dimensions as follows: faith and spiritual practices, to be peaceful and secure until the end of life, love, and support of relatives, informing them about the health, searching for the meaning and purpose of your life, finding inner peace, be able to demonstrate a hopeful and positive perspective [6,9,44-47,55] (Figure 1).

In this study, 5 Likert-type was used in the scoring of the items on the scale. With the 5-point Likert-type scale, patients were asked to choose the appropriate expression for themselves from the "None, very little, medium, many, and too many" expressions and these answers were marked on the form by the researcher (Figure 1).

Face validity: The 58-item trial scale, which was finalized, was pre-administered to 15 patients. The patients were asked to comment on the clarity of the items and whether they experienced difficulty in giving a response to the items. Some expressions were re-evaluated and some revisions were made based on these comments. For example, the item "to live the moment without thinking of the future" (item 6) was changed to "to live the moment without thinking about the good or the bad consequences that may arise in the future" and the item of "to understand and make sense of what you have lived with the people that hurt you" (Article 25) was changed to "forgive the people who hurt you". The trial scale was applied to 275 patients; thus, the study was conducted with 290 patients in total (Figure 1). As a result of the analyzes, a guide was prepared about which group of patients to be used for the scale, how to calculate and interpret the item scores (Figure 1).

Construct validity: One of the methods used to prove the construct validity is factor analysis [56]. Explanatory factor analysis was applied to the trial scale. When the exploratory factor analysis was applied, the items which were removed in the case of more than one factor was strongly loaded or no factors were loaded above 0.500 (Figure 1).

Reliability of the scale: Internal consistency and test-retest methods were used for reliability of the scale. For internal consistency, Cronbach's alpha (α) coefficient was calculated. With the test-retest method, the scale was administered to 75 patients with the time interval of 1-week. Patients were re-evaluated after one week because they were dealing with the symptoms that occurred during the first few days after chemotherapy (Figure 1).

Statistical Analysis

The results obtained in the study were transferred to the IBM SPSS statistics version 23.0 program and the analyses were completed. Explanatory factor analysis was carried out on the items constituting the scale and the factor structures were examined. When exploratory factor analysis was applied, "principal component analysis" and "varimax" rotations were used. Cronbach's Alpha reliability coefficients were calculated for these structures and the structures were found to be reliable.

For the categorical variables, frequency distributions, frequency, percentage, and descriptive statistics (arithmetic mean, standard deviation) were used for numerical variables. The correlation coefficient for the test re-test method was examined. CVR and CVI values were calculated for the content validity of the scale. The p-values below 0.05 were considered as statistically significant.

Ethical Considerations

For the research, permission was obtained from the General Secretariat of the 3rd Regional Public Hospitals Association of Ankara, where the hospital was affiliated and the research was conducted (E.6017 numbered later dated 13.05.2016). Then with this permission, Dr. Abdurrahman Yurtaslan Education Planning Board Approval was obtained from Ankara Oncology Training and Research Hospital (letter dated 16.06.2017). In addition, the informed consent form prepared in accordance with the Declaration of Helsinki was obtained from patients for that the participants were allowed to participate in the study and to use medical data related to the disease process.

RESULTS

Socio-Demographic and Medical Characteristics

The mean age of the patients in the sample is 53.83 ± 12.653, 75.1% is in the group over 46 years old. About 75.5% of the participants were female, 37.6% were high school graduates and 37.2% were primary school graduates, 52.4% were housewives, 94.8% have children and 56.6% have less income than expenses.

About 53.4% of the participants had breast cancer, 10.8% had lung cancer, and 10.3% had metastasis. About 52.4% of the patients were diagnosed with cancer 6-12 months ago. Of the patients, 9.3% only received radiotherapy, and all received chemotherapy. Around 69.7% of those participating in the study had symptoms during the last 2-weeks due to cancer and treatment (Table 1).

Table 1 Distribution of sociodemographic characteristics of participants (n=290)

Characteristics	Number	%
Socio-demographic		
Age=Min-Max=21-81, Mean ± SD=53.83 ± 12.653		
Age Group (Years)		
≤ 45	72	24.8%
46-55	87	30.0%
56-65	79	27.2%
≥ 65	52	17.9%
Gender		
Female	219	75.5%
Male	71	24.5%
Education Status		
Primary education	108	37.2%
High school	109	37.6%
Associate/Bachelor/Graduate	43	14.8%
Literate+illiterate	30	10.4%

Marital Status		
Married	237	81.7%
Single/Widow/Divorced	53	18.3%
Having Children		
No	15	5.2%
Yes	275	94.8%
Working Status		
Active working	64	22.1%
Housewife	152	52.4%
Retired	74	25.5%
Income Status		
Income is equal to and over the expenses	126	43.4%
Income is less than expenses	164	56.6%

Around 74.1% of participants needed support for disease treatment and 94.4% of the participants needed support in the shopping, 92% needed in house works and 87.9% needed assistance in hospital works. About 9.3% of the patients reported that they receive support for disease treatment and care, 69% of them received support from their spouses, 64% of them from their children and 21.9% of them from their neighbors. Of the patients, 96.2% answered that they received the most support for physical care, 46.6% found that their support was fully adequate and 34.5% found moderate enough (Table 2).

Table 2 Distribution of patients according to their cancer, the patient's a need for support in the treatment process (n=290)

Characteristics	Number	%
Cancer disease		
Cancer Type		
Lung	31	10.8%
Breast	155	53.4%
Stomach	11	3.8%
Liver	7	2.4%
Colon+rectum	38	13.1%
Ovary+uterus+cervical	26	9.0%
Soft tissue sarcoma	7	2.3%
Other (bone, laryngeal, lymphoma)	15	5.2%
Metastasis		
Yes	30	10.3%
No	260	89.7%
Time to get a cancer diagnosis		
≤ 6 months and before	90	31.0%
Between 6-12 months	152	52.4%
≥ 12 months	48	16.6%
Treatment applied due to canser[1]		
Chemotherapy	290	100.0%
Radiotherapy	27	9.3%
Surgical	290	100.0%
Treatment-related symptom presence		
No	88	30.3%
Yes	202	69.7%
Need to get support		
Need for support for disease treatment and care		
Yes	215	74.1%
No	75	25.9%
Support needed issues	N=215[1]	
Hospital works	189	87.9%
Shopping	203	94.4%

House works	198	92.0%
Individual cleaning	50	23.3%
Need for support		
Support for disease treatment and care		
Yes	288	99.3%
No	2	0.7%
Support for disease treatment and care	n=288[2]	
Mother	52	18.0%
Father	31	10.8%
Spouse	199	69.0%
Siblings	72	25.0%
Children	184	64.0%
Relatives	46	16.0%
Neighbors	63	21.9%
Friends	5	1.7%
Other (caretaker)	2	12.8%
Need for support		
Most supported matters	n=288[3]	
Physical care	279	96.9%
Materialistic	188	65.3%
Spiritual	253	87.8%
Sufficiency perception of support		
Fully adequate	135	46.6%
Moderate enough	100	34.5%
Inadequate	55	18.9%

1: times n and the percentages were calculated over n; 2: times n and the percentages were calculated over n; 3: times n and the percentages were calculated over n

Results Toward the Validity of the Spiritual Care Needs Scale

We found that the Kaiser Meyer Olkin (KMO) value of the spiritual care needs scale was 0.774. In this context, it was seen that the results of factor analysis applied to the data are useful and usable and the sample size is sufficient. The results of the Bartlett test for sphericity showed that there were significantly higher correlations between the variables and that the data were appropriate for factor analysis (X^2: 5923.266, SD:276, p=0.000).

When the exploratory factor analysis was applied, 34 items that were loaded with more than one factor strongly, or were not loaded under any factor over 0.500 were removed from the structure. In addition, 24 items were divided into 4 dimensions as a result of content validity. These sub-dimensions were named as "faith and spiritual practices, to be peaceful and secure until the end of life, love, and support of relatives, informing about their health, searching for the meaning and purpose of life, finding inner peace, be able to demonstrate a hopeful and positive perspective (Table 3).

Table 3 Items and sub-dimensions of the spiritual care needs scale

Item No	**Items**	**Factor Loads**	**Eigen Values**	**Variance Explained**
Dimension 1: Faith and spiritual practices				
36	To do your best to fulfill your servant duty to God	0.817	6,629	27,620
37	To fulfill your prayers (Prayer, Hajj, etc.)	0.817		
12	To be more surrendered to God to heal	0.779		
13	To be closer to God to heal	0.779		
11	To get power from God to heal	0.776		
39	Your loved ones and people in your community' prayers for you to find healing	0.775		
35	To pray for the healing to the Creator who commended your life	0.768		
40	To your loved ones' prayers during your diagnosis and treatment	0.709		
41	To thank God for all things	0.689		
38	To read books to strengthen your spirituality	0.624		
43	To be patient for everything you lived	0.590		
26	To seek forgiveness from God for your mistakes in the past	0.556		

Dimension 2: To be peaceful and secure until the end of life				
31	To be peace while departing from this life (to attain God)	0.909	3,363	14,014
32	Respectfully and confidently departing from this life (to attain God)	0.900		
29	To depart from this life (to attain God) without any suffering and pain	0.831		
30	To depart from this life (to attain God) without needing someone else's care	0.818		
Dimension 3: Love and support of relatives				
15	To be treated with respect, love and compassion by your loved ones and people around you in the treatment process	0.857	3,083	12,845
17	To be treated in a friendly manner by your loved ones and people around you in the treatment process.	0.852		
21	To understanding of loved ones when you cannot do the day-to-day work that you did before the diagnosis of the disease	0.725		
19	Your loved ones show more interest in healing process	0.652		
22	To spend more time with your loved ones	0.597		
Dimension 4: Informing about their health				
2	To be informed about your illness by your doctor	0.913	2,459	10,247
1	To be told you about the purpose of diagnosis and treatment by the health staff.	0.869		
3	To be answered your questions about your disease by your doctor	0.851		

Results on the Reliability of the Spiritual Care Needs Scale

Internal consistency: As a result of the Cronbach's alpha reliability analysis applied to the trial scale, spiritual care needs scale and its sub-dimensions were found to be very reliable. Cronbach's alpha value for the "spiritual care needs scale" was 0.867, while it was 0.919 for the "faith and spiritual practices" sub-dimension, 0.929 for the "to be peaceful and secure until the end of life " sub-dimension, 0.805 for the "love and support of relatives" sub-dimension and for the "informing about health" sub-dimension, it was 0.868 (Table 4).

Table 4 Reliability levels of the spiritual care need scale and its sub-dimensions

Scale and Sub-dimensions	Number of Items	Cronbach's Alpha	Reliability Level
Spiritual care needs scale	24	0.867	Good Reliability
Faith and spiritual practices sub-dimension	12	0.919	Excellent Reliability
To be peaceful and secure until the end of life sub-dimension	4	0.921	Excellent Reliability
Love and support of relatives sub-dimension	5	0.805	Good Reliability
Informing about their health sub-dimension	3	0.868	Good Reliability

Test re-test reliability: It is seen that there is a very high agreement between the initial retest and pre-post tests (ICC $\geq$ 0.800). According to this, there was no time-dependent change in the spiritual care needs scale and its sub-dimensions (Table 5).

Table 5 Examination of the relationship between the spiritual care needs scale and sub-dimensions and test-retest

Scale and Sub-dimensions	In-Class Correlation (ICC)	%95 Confidence Interval
Spiritual care needs scale	0.910	(0.860-0.943)
Faith and spiritual practices sub-dimension	0.849	(0.770-0.949)
To be peaceful and secure until the end of life sub-dimension	0.810	(0.714-0.876)
Love and support of relatives sub-dimension	0.827	(0.737-0.887)
Informing about their health sub-dimension	0.871	(0.794-0.919)

Descriptive Results of the Spiritual Care Needs Scale

Participants level of spiritual care needs scale was 3.95 ± 0.564, belief and spiritual practices level was 4.18 ± 0.601, to be peaceful and secure until the end of life level was 3.30 ± 0.737, love and support of relatives level was 3.12 ± 0.854 and informing about health level was 3.64 ± 0.413.

DISCUSSION

It is expected that a scale will have the characteristics of "reliability" and "validity" in order to standardize and produce information from the results obtained later [57]. As a result of the analyses performed, it was accepted that the

spiritual care needs scale was a valid and reliable measurement tool in evaluating the spiritual care needs of oncology patients.

Validity indicates that the desired measure is measured correctly. In order for a measurement to be valid, its intended property is measured without confusing with other characteristics [58,59]. In this study, "content validity" and "construct validity" methods were used in evaluating the validity of the scale.

When developing a Likert type scale, firstly an appropriate item pool should be established for content validity. Before writing the items, a comprehensive review of the literature should be carried out. A practical way to write an item is to request from a smaller number of people (5-10 people) to write an essay about the subject, this small number of people characteristic will be similar to the group to which the scale is applied. It is expected that the items in the pool will be as many as possible. Because it is easier to choose among many items, in order to ensure that the original scale has the desired reliability and validity [52]. When the scope of the scale is determined in the study, a comprehensive literature review had been conducted on the subject. In addition, opinions were obtained from cancer patients and experts in this field. The semi-structured interviewing technique was preferred instead of the essay writing method because participants had to take remotely chemotherapy treatment and cope with the symptoms together items were written for the scale based on the literature review, expert opinions, and analysis of the records [60].

One of the methods used to determine the degree of representation of the conceptual group of scale items is to obtain opinions from experts in the field. Calculation of content validity in research based on expert opinion is seen to be useful in developing highly valid scales, transforming expert opinions into quantitative findings and ease of operation-time [53].

Construct validity is applied when an examination is made on a specific area of behavior and conceptual structure instead of a concrete measurement. It can be said that if the factor loadings of variables are high on one factor, these variables have construct validity. One of the methods used to prove construct validity is factor analysis [56]. Factor analysis is a method that breaks down a large number of variables into a few numbers, that is, groups' variables according to the dimensions they measure. By looking at the items loading in different factors, it is tried to determine the items entering the dimensions by taking the factor with the highest loading. In a factor, the scale of the items with the highest loadings is assumed to be one dimension. In each factor, the items with the highest loading are determined and the dimensions of the items are determined. Dimensions are also named by examining the contents of the items in each dimension [52]. For good factor analysis, the Kaiser Meyer Olkin (KMO) value should be >60 and the Bartlett Sphericity test should be meaningful [58,61]. In addition, the factor load of material must be at least 300 [58,61-63]. In this context, it is seen that the results of the factor analysis applied according to the results obtained at the end of the study are useful and usable, and the sample size is sufficient. Besides the numerical variables, it is also important to interpret the factors that are formed by collecting together the items in a meaningful way [61]. Numerical variables can be accepted in this study and the items are gathered under factors in a meaningful way. At the beginning of the study, 7 sub-dimensions were determined and named for the 58-item trial scale. However, as a result of factor analysis, 4 sub-dimensions were obtained. "searching for the meaning and purpose of your life", "finding inner peace", "be able to demonstrate a hopeful and positive perspective" are the dimensions removed from the scale as a result of factor analysis. Individuals are supposed to find answers to these 3-dimensions by believing that they think these are a part of Islam and believing that they meet these requirements in the faith and spiritual practices sub-dimension.

The faith and spiritual practices sub-dimension consists of 12 items and is the most commonly seen dimension in spiritual scales [6,9,44-47]. In some studies, it was also named as "sacred or relationship with God" [44,46,47]. There are many forms of spiritual practice, ritual, or worship to facilitate connection with the divine or sacred. In Turkish society, beliefs and spiritual practices are actively practiced in daily life by learning in the family environment from the early ages in the form of customs and traditions. Turkey is a Muslim country where Islam is widespread. In the Islamic religion, the principle of faith lies in the existence and unity of God and is worshiped only in Allah. In Islam, God is one, not like anything, and is the God of all. In other religions, God has human characteristics and is sent to a specific nation. In addition, in Islam, nobody can enter between God and His servant, and in other religions, the clergy is seen as the representatives of God on earth, doing things like confession and excommunication. Considering the spiritual literature in Turkey, in the traditional approach, spirituality is used in a similar way to religion, mysticism, and morality. It is thought that the spiritual life of someone who conforms to moral and community boards will be

enriched while spiritual development is achieved by being fully worshiped to Allah [38-40]. In the Islamic religion, there is a convenience with every difficulty, the belief is that God always do best for the people, patience is salutation, there is a good thing in every enormity understanding is adopted by the Turkish society, and this gives power to people to be patient to difficulties and hope that these difficulties have a good meaning [64]. It is stated that praying in Turkish society is used to worship and to be close to God, and to provide psychological relief to the person in the face of negativity and helplessness [65]. Muslims emphasize a balance between the 2 sides by saying, "work for this world as if you will never die, and work for the hereafter as if you will die tomorrow." Moreover, while Turkish society regards the world as a mortal and an examination place, the afterlife regards the test as the end, target, and immortality. In this respect, the items on the scale reflect the beliefs and cultures of Turkish society, unlike other scales.

"To be peaceful and secure until the end of life" sub-dimension consists of 4 items. It exhibits similar characteristics with the death and death related sub-dimensions of the existed scales in the literature [6,9,44-48]. In many studies, death and death related dimensions include the processes of preparing for death, expressing people's thoughts about death and dying, seeking answers to these questions, and reviewing their own life [6,9,44-48]. In this study, there are items about preparation for death instead of searching for answers about death and post-mortem. According to Islam, death is not an end, but it is seen as the beginning of attaining God. For this reason, instead of death statement in the study, the phrase "depart from this life to attain God" was preferred. The importance of quality of life when one is alive is as important as the desire to die in a respectful, peaceful and painless manner in accordance with human values at the moment death [66]. In this context, the items identified in the study include physical, social and psychological aspects of death.

The love and support of relatives sub-dimension have the lowest mean (x=3.12) and broad variability (SD=0.854) and consists of 5 items. The spiritual scales in the literature, love is seen as a universal human need [44,46,47]. In Maslow's hierarchy of needs, a person wants to be loved and in love with other people after she/he has addressed his/her physiological and security needs [67]. In Turkish society, attachment to roots is important and mutual love is a superior value. In the Turkish family, in addition to respect for the elderly, great help and interest are shown to the deceased, the poor, the females, the passenger. Assistance and solidarity in Turkish family ethics are important. Families and relatives are near each other in their painful and sweet days, and their children usually look after the elderly. Again, in Turkish society, the belief that " One goes to bed full while his neighbor is hungry" is the dominant belief [65].

In this study, a different sub-dimension consisting of 3 items in the form of the necessity of informing about health is required, which is different from the sub-dimensions of the scales in spiritual and spiritual care needs in the international literature. It was also found that informing about health sub-dimension had the second highest mean ($\bar{x}$=3.64) and least variability (SD=0.413) on the statistical evaluation. It is not a common dimension in spiritual studies [47]. In the public hospital of Turkey, the inadequacy of the number of physicians and the fact that physicians are employed in a performance-based system cause the time spent in the treatment of patients to decrease [68]. In addition, due to the high number of patients per nurse in clinics, nurses have limited time to inform patients. According to the Ministry of Health 2016 Annual Health Statistics, the number of patients per physician is 559 and the number of patients per nurse is 389 [55]. In OECD countries, the number of patients per physician is 291, and the number of patients per nurse is 91 according to 2015 data [19,48]. In addition, patients and patients' relatives live anxiety with a range of complex hospital and health insurance procedures, along with unknown diagnostic and treatment procedures. This situation can cause physicians and nurses toto not give their patients sufficient information about diseases and treatment processes. Some studies in Turkey have shown that patients are not adequately informed during the treatment process and that patients and their relatives have difficulty in a significant part of the procedures in the hospital [69]. For this reason, in this study, it is considered that the informing about health sub-dimension is considered to be the foreground, unlike the scales included in the international literature.

CONCLUSION

According to the data obtained from the study, the spiritual care needs scale was determined to be a valid and reliable tool for determining the spiritual care needs of cancer patients. For this reason, researchers believe that the spiritual needs assessment scale can be used by all healthcare professionals in hospitals to determine the spiritual care needs of cancer patients, as well as in all scientific research to determine the need for the spiritual care of all patients with

cancer or other chronic illness. In addition, it is suggested that scale should be used in scientific research by testing the validity and reliability of scale in other countries as part of cultural scale adaptation studies.

Limitations of the Study

This study has a few limitations due to the fact that this study is the first conducted study in Turkey, Turkish society and health system is different from other countries. The first of these is that the vast majority of the sample group consists of female patients due to breast cancer and the analysis of the data may be insufficient. Second, the scale cannot be used to determine the need for spiritual care in pediatric patients, since the sample group was formed from only adult patients in this study. Finally, the number of patients in the sample was not determined by proportioning to the stages of the cancer disease. In addition to these, only 1 in 10 of the patients in the study is in the fourth stage of cancer and that the stages of the cancer disease may cause changes in the spiritual care needs of the patients. For this reason, it is considered appropriate to carry out new verification studies in all studies where this scale is used.

DECLARATIONS

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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