Original Article

Validity and reliability study of the Turkish Version of the Holistic Well-being Scale in individuals with cancer

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Abstract

Objectives: It is thought that determining the level of holistic well-being levels of cancer patients during the treatment process, checking them at regular intervals, determining problem areas, and designing interventions will be important in terms of primary protection in mental health. This study aimed to determine the validity and reliability of the Turkish version of the Holistic Well-being Scale and to study its validity and reliability.

Methods: A convenience sample of 230 patients being treated with cancer were asked to complete a questionnaire. The data were evaluated using SPSS 21 (SPSS Inc., Chicago IL, USA) statistical software. The translation was performed using a double forward and backward method. An expert panel evaluated the content validity. Verification of the structure obtained with confirmatory factor analysis was provided by AMOS 24.0. Psychometric testing included internal consistency reliability (Cronbach's alpha coefficient and split-half reliability validity).

Results: The Cronbach's alpha value of the scale was 0.73. The split-half reliability results were quite reliable (Cronbach's α=0.77). The model was validated by confirmatory factor analysis (χ^2/SD=2.41, GFI=0.82, IFI=0.81, CFI=0.81, RMSEA=0.07, and RMR=0.674).

Conclusion: The Turkish version of the Holistic Well-being Scale was found to be reliable and valid for Turkish cancer patients after some modifications. The Holistic Well-being Scale can be used in future nursing research and practice as an assessment tool for holistic well-being in patients with cancer.

Keywords: Holistic Well-being Scale; neoplasm; psychometric properties.

What is known on this subject?
- Determination of the holistic well-being level of individuals with cancer during the treatment process and regular check-ups will reveal problem areas. Making appropriate interventions for such will be important in terms of primary protection in mental health.

What is the contribution of this paper?
- The Holistic Well-being Scale is valid and reliable for Turkish culture.

What is its contribution to the practice?
- The Holistic Well-being Scale is the only measure that evaluates the holistic well-being of individuals with cancer in line with Turkish culture.

Cancer is a common health problem both in developed and developing countries.[1] Treatment methods developed for cancer aim to extend the life span of patients and make their lives more qualitative. Significant improvements have been made in this regard;[2] however, according to the literature, from the moment cancer is diagnosed, problems occur in terms of physical,[3] psycho-social,[3–5] and spiritual well-being,[6,7] during treatment, after treatment, and in the terminal phase.[8] Seven et al.[3] (2013) reported in their study of 142 cancer patients that the most common and most severe symptoms were fatigue, insomnia, and depression. Wagland et al.[9] (2015) determined in their study that patients receiving chemotherapy most commonly reported issues such as fatigue/weakness, problems with taste and smell, and difficulties with finishing everyday work. Yamagishi et al.[10] (2012) found in their study of cancer patients that approximately 20% experienced severe pain.

Boonyathee et al.[11] (2018) reported in their systematic review and meta-analysis, in which cancer patients were evaluated in terms of depression, that the frequency of depression in patients was 29%. Ordons et al.[12] (2018) found in their systematic review that the prevalence of mental distress varied between 16% and 63% in inpatients and that 96% of said patients were mentally distressed. In addition, studies have shown that mental problems are linked to worse physical, social, and emotional distress.[7,13] In this context, we can assume that the physical, social, emotional, and psychological well-being of individuals diagnosed with cancer is affected.

The concept of well-being describes the best way of living physically, mentally, and spiritually within the social and natural environment.[14] Well-being is a subjective idea of how individuals perceive their own lives expressed by emotions ranging from joy to depression and general judgments about life satisfaction.[15] The World Health Organization recommends that the needs of cancer patients should be measured systematically and that psycho-oncological treatment and care services should be provided for these patients in hospitals in line with their needs.[16] It is thought that evaluating the holistic well-being of cancer patients during the treatment process and regular check-ups, and determining problem areas and making appropriate interventions, will be important in terms of primary protection of mental health.[17] Based on this information, tools are needed to measure the holistic well-being of cancer patients. According to the literature, well-being is generally measured in specific areas such as psychosocial well-being[18] and spiritual well-being.[19] When the literature was examined, it was found that Chan et al.[20] (2014) developed a Holistic Well-Being Scale (HWS) for healthy individuals in China to evaluate well-being as a whole. Lee et al.[21] (2015) carried out a validity and reliability study of the HWS for individuals diagnosed with cancer in Japan and stated that it can be used to determine the holistic well-being levels of cancer patients. No measurement tool for the holistic well-being of cancer patients in Turkey with regards to Turkish culture or any Turkish adaptation was found and no prior study in this area has been performed. The HWS was found to be appropriate for adaptation into the Turkish language and culture. The scale consists of 30 items composed of short and understandable expressions which measure the well-being of the individual as a whole. Thus, we aimed to carry out a validity and reliability study of the HWS when used to evaluate the holistic well-being of Turkish individuals diagnosed with cancer.

Materials and Method

Research Pattern

The study was carried out with a methodological pattern in the day treatment unit and inpatient services of two hospitals in Ankara, Turkey serving oncology patients.

Study Population and Sample

This methodological study was part of a doctoral thesis that included three stages. This, the first stage of the thesis was called "Validity and reliability study of the Holistic Well-being Scale (HWS)". The data of this first stage of the study was collected from 230 individuals that were treated for cancer in three oncology hospitals between April 2016 and December 2016. The sample size was calculated based on the 'sample number = number of items X number of people' formula used in the calculation of the sample sizes foreseen for scale development studies. According to this calculation, the sample size was estimated at 5–10 people per item in the scale from which the study sample was determined to be 300 people. Of the 320 invited people, 248 agreed to participate, but since 18 failed to fill out the questionnaire completely, they were excluded and the study was completed with 230 individuals.

Study inclusion criteria were: being eighteen years or older, being literate enough to read and answer the scale items on their own, being diagnosed with cancer, and not having any physical illness or psychiatric diagnosis other than cancer that may affect well-being.

Data Collection Tools

The data were collected using the participatory socio-demographic data form created by the researchers in line with the literature and the Turkish version of the HWS.

The participatory socio-demographic data form consisted of questions related to identifying characteristics such as the patients' age, sex, educational status, economic situations, work status, and questions about the disease.

HWS: The scale was developed by Celia H. Y. Chan (2014) et al.[20] for the general population and found to be valid and reliable (Cronbach's alpha= 0.670-0.892). The scale is a 10-point Likert-type scale that measures holistic well-being with 30 items and 7 dimensions evaluated from (1) 'I totally disagree' to (10) 'I totally agree'. Scale sub-dimensions include: Not being connected (18, 12, 24, 5, 25), feelings of sadness (6, 21, 1, 28, 3), perception of sadness (17, 8, 7, 29, 30), spiritual disruption (20, 26, 2, 4), cognitive awareness (22, 13, 19, 11), general mood (15, 10, 14, 23), and spiritual self-care (9, 16, 27). The scale the 4th item is reverse coded. There is no cut-off point on the scale. Cronbach's alpha values for each subscale are 0.892, 0.885, 0.823, 0.880, 0.844, 0.792, 0.670, respectively.

Application of the Study

Data were self-reported. After information related to the study was provided by the researcher in the patient's room and written-verbal consent was obtained, the patient was asked to fill in the relevant forms. Filling in each form took approximately 20 minutes.

Ethical Aspects of the Study

This study was approved by the Hacettepe University Ethics Committee (GO 15/685). Written consent was obtained from the hospitals where the study was conducted.

Data Analyses

Statistical analysis of the data was performed using SPSS version 20.0 software. Mean, frequency, and percentage were calculated as descriptive statistics in evaluating the scores related to descriptive features and scale. Confirmatory factor analysis (CFA) was applied to determine the construct validity using IBM SPSS AMOS 24 software.

HWS Validity Study

Language Validity

To measure the validity in terms of the Turkish language, permission was obtained from the HWS developer. The scale was translated by three experts (one graduate from the Department of English Language and Literature and two graduates from the Department of Psychiatric Nursing) into Turkish. The three translated texts were then evaluated by a specialist in nursing and the Turkish version of the scale was created and sent to a Turkish language and literature graduate to evaluate the Turkish language structure. In line with the suggestions received, the final scale was created. The Turkish scale was translated into English by another graduate from the department of English language and literature and a comparison was carried out. The final version was sent to the author that developed the scale and the scale was deemed appropriate to use as such.

Content Validity

To measure the validity of the scope (content) of the scale, the Turkish version of the scale was sent to 11 experts in the field of Psychiatric Nursing and one expert in the field of Measurement and Evaluation. They were asked to evaluate each expression in terms of comprehensibility, whether they were clear and plain enough, and whether they were compatible with the original scale item. The experts were asked to choose one of the following: 'absolutely compatible', 'compatible' (small changes must be done to the item and/or expression), 'slightly compatible' (changes must be done to the item and/or explanation) or 'not compatible'. In addition, when evaluating the questions, experts were asked to evaluate the capacity of the questions to measure their dimensions and the sufficiency of the measurement.

Structure Validity

CFA was used to determine whether items and sub-dimensions explain the original structure of the scale. At this stage, all scale questions were first included in the analysis and model fit goodness values were calculated. The SPSS AMOS Graphics 23 program was used for CFA.

Reliability

To determine the internal consistency of the scale in terms of reliability, Cronbach's alpha internal consistency coefficient and split-half method were used. In this study the split-half method was applied as 'first half-second half' and the results corrected with the Spearman-Brown formula were taken into consideration. If a scale is completely reliable, the correlation coefficient between the two variables obtained from the sum of the items in both halves will be 1 or very close to 1.[22] The significance level for all statistical tests was accepted as p>05.

Results

The characteristics of the participants are shown in Table 1. The mean age of the participants was 52.6 years, 53.4% were female, 83.0% were married, most (69.1%) lived in Ankara, and 53% were followed-up due to cancer diagnosis for one year or less. The diagnoses of the participants were breast (27.8%), gastrointestinal (35.2%), lung (20.8%), and prostate (16.0%) cancer. Almost half of the participants (46.8%) were treated

Table 1. Descriptive characteristics of the participants (n=230)

Characteristics	n	%
Sex		
Female	123	53.4
Male	107	46.5
Marital status		
Married	191	83.0
Single	39	16.9
Age in years (mean, SD)	52.65(*)	
Education		
< Bachelor's degree	181	78.6
Bachelor's and above	49	21.3
Work status		
Working	53	23.0
Unemployed	76	33.0
Retired	75	32.6
Other	26	11.3
Place of residence		
Ankara	159	69.1
Other	71	30.8
Type of cancer		
Breast	64	27.8
Gastrointestinal	81	35.2
Lung	48	20.8
Prostate	37	16.0
Time since diagnosis		
≤1 year	122	53.0
>1 year	108	46.9
Metastasis		
Yes	94	40.8
No	136	59.1
Psychiatric disease		
Yes	73	31.7
No	230	68.2

with chemotherapy in day treatment units and the remaining patients were treated in inpatient clinics.

Validity Results of the HWS

The items in the Turkish version of the scale were reviewed and evaluated by experts using the 4-Likert Content Validity Index (1983) developed by Waltz and Bausell. A score with a content validity index of 0.80 or higher indicates good content validity. [23] The final form of the scale was created taking into account the opinions of the experts. The content validity index of the Turkish version of the HWS was determined to be 0.84, which shows that sufficient content validity was achieved.

Discriminant function analysis was used in the construct validity study of the scale. At this stage, all scale questions were first included in the analysis and goodness-of-fit model values were calculated.[24] The variables with a factor load of 0.20 or less were excluded from the model and the analyses were then repeated. As a result, item 28 of the sub-dimension 'feelings of sadness' was removed from the model due to a factor load of <0.20. Also, when SPSS AMOS outputs were examined, it was seen that the covariance matrix did not meet the required 'positive definite' criterion. Suggestions for why this problem occurred and its solution are presented in the literature. In cases of non-positive variance-covariance matrix, an investigation as to whether there are multiple correlations or linear dependence between variables should be conducted. To prevent multiple correlations, some of the variables must be excluded from the model.[25,26] In the applied model, all questions related to the spiritual self-care subscale were removed and the analysis was repeated. After removing items 9, 16, and 27 the problem of 'positive definite' was solved in the obtained model. As a result, a scale consisting of a total of 24 items with 6 dimensions was obtained for the Turkish population. When the structural validity of the scale was examined as stated in Table 4 the six-factor model showed acceptable fit (chi-square/df=2.416, p<0.001, RMSEA=0.079, GFI=0.821, CFI=0.811, IFI=0.814, RFI=0.679, RMR=0.674). The results of the current study show that the fit index values of the adapted scale are acceptable.[27] CFA model factor loads of the Turkish version of the HWS are shown in Figure 1.
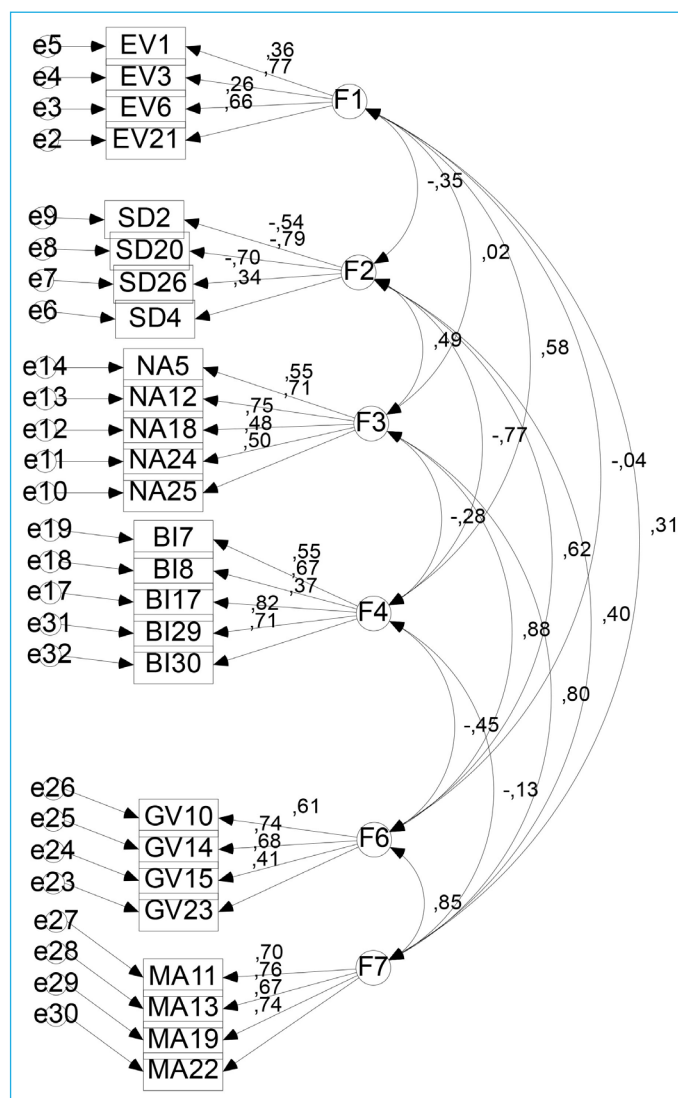

Figure 1. Factor structure of the Holistic Well-Being Scale of individuals with cancer and correlation of each item with total score.

Reliability Results of the HWS

As a result of the statistical analysis, the Cronbach's alpha internal consistency coefficient of the scale was found to be 0.737 and reliable. In addition, the Cronbach's alpha coefficient was examined for each sub-factor and the results de-

Table 2. Reliability analysis results of the holistic well-being scale			
Sub-dimension	Cronbach's alpha values	Spearman-Brown value	Guttman-split half value
Not being connected	0.725	0.572	0.561
Feelings of sadness	0.638	0.629	0.602
Perception of sadness	0.760	0.705	0.695
Spiritual disruption	0.666	0.674	0.672
Cognitive awareness	0.808	0.779	0.768
General mood	0.683	0.640	0.626
Total	0.737	0.774	0.762

Table 3. Item total correlation analysis of the holistic well-being scale

Items	Item-Total Correlation (n=230)
1. I consider people's negative opinions about me.	0.642
2. I feel hopeless.	0.605
3. My feelings are easily hurt.	0.582
4. I am a valuable person.	0.522
5. I am at peace with what life confronts me with.	0.590
6. I find it difficult to forgive people who hurt me and tend to hold a grudge.	0.632
7. When I wake up in the morning, I am in a bad mood.	0.612
8. I feel uneasy and restless.	0.596
9. I usually look for inner peace.	0.378
10. I am willing to live.	0.591
11. I can be aware of the needs of others.	0.324
12. I can easily accept changes in life.	0.583
13. I am aware of both my physical condition and my physical sensations.	0.326
14. I can concentrate on what I do.	0.386
16. I have a strong religious/spiritual life	0.598
17. I feel my head throbbing.	0.629
18. I can accept the ups and downs in life as it is.	0.582
19. I can understand changes in the emotional state of others.	0.347
20. My whole life seems pointless.	0.406
21. I feel sad for a long time when others treat me unfairly.	0.376
22. I can understand the changes in my mood.	0.621
23. I sleep well.	0.618
24. Even if I want something really bad, I am able to let it be.	0.421
25. I can accept the regrets in my life.	0.370
26. I lost control of my life.	0.526
27. I can meet the needs of both my soul and my body.	0.486
28. I can't leave many things in my life to just happen.	0.124
29. I feel restless.	0.597
30. My body is very tense and stressed.	0.417

tailed in Table 2 were obtained. When Cronbach's alpha values of sub-dimensions were examined, these values were above 0.63. The correlation between the two halves of the scale for reliability was 0.77. The Cronbach's alpha value of the first half (13 items) was 0.73, of the second half (13 items) 0.71, the Spearman-Brown coefficient was 0.77, and the Gutmann split-half coefficient was 0.76 (Table 2). Considering these data, it can be said that the scale is reliable. When Table 3 was analyzed, the item-total correlations of the HWS ranged between 0.324 and 0.642. Considering that items with 0.30 and higher in item-total correlations distinguish individuals well in terms of measured properties,[24] the item-total correlations of the scale were sufficient.

Discussion

The main purpose of the current study was to create a valid tool for Turkish culture that measures the holistic well-being of cancer patients. Thus, this study was carried out to provide the Turkish translation and validity of a tool that measures how the holistic well-being of individuals with cancer is affected and emphasize the importance of its use by health professionals working in oncology clinics. Translations and analyses related to ensuring linguistic equivalence of the scale showed that the Turkish version of the HWS was understandable and easily ap-

Table 4. Test statistics used for model compatibility

Fit indices	Goodness-of-Fit index	Model values
CMIN/DF	$4<X^2/d<5$;	2.416
RMSEA	$0.05<RMSEA<0.08$	0.079
GFI	$0.90\leq GFI\leq 0.95$	0.821
CFI	$0.95\leq CFI\leq 0.97$	0.811
IFI	IFI close to 1 good	0.814
RFI	$0.90\leq RFI\leq 1$	0.679
RMR	RMR close to 0 good	0.067

plied to the Turkish population. In addition to linguistic equivalence, the content of the scale was also tested. The content validity index of the Turkish version of the HWS was 0.84, which shows that sufficient content validity was achieved. The structure of the seven factors was verified using CFA. After removing all items of the sub-dimension 'spiritual self-care', which is part of the original scale, a compatible model was obtained. This result may be because, in Japanese culture, for which the scale was originally developed, religious experiences/spirituality are different than in Turkish culture. Similar to this, in the validity and reliability study of the same scale for Chinese culture the items related to the spiritual self-care sub-dimensions were also removed because they would not verify the model.[21] In this case, it was concluded that religious experiences/spirituality may be sensitive to cultural differences. If $X^2/SD \leq 2$ are the fit indices obtained with the CFA performed during the validation phase of the HWS, it shows that it is a good model but if the indices are $X^2/SD \leq 5$ it shows that the model only has an acceptable fit. The obtained ratio in the current study of $X^2/SD=2.41$ showed that the model has good compliance. When the literature is examined, it is seen that the acceptable fit value for CFI, RFI, NFI, and GFI indices is 0.90 and the perfect fit value is 0.95.[25] The CFI, RFI, NFI, and GFI values obtained in the study were <0.90 which can be interpreted as acceptable compliance. An RMSEA value approaching zero shows an excellent fit and a value below 0.08 shows that the model is compatible. The obtained RMSEA value of 0.079 in the current study shows that the model has excellent compatibility. The fit index values for the culture for which the scale was developed were reported as follows: $\chi^2=1806.138$, df=341, CFI=.928, TLI=.920, RMSEA=.060, and 90% CI of RMSEA = .057–.063.[20] While the Cronbach's alpha value for the whole HWS was .73, the values for the sub-dimensions were determined as follows: 'not being connected' .72, 'feelings of sadness' .63, 'perception of sadness' .76, 'spiritual disruption' .66, 'cognitive awareness' .80, and 'general mood' .68. The Cronbach's alpha reliability coefficients indicate that they are acceptable. Lee et al.[21] (2015) reported similar results in their study with cancer patients in Chinese culture, where the Cronbach's alpha values varied between 0.657–0.80. The Cronbach's alpha values for the HWS developed by Chan[20] were as follows: for the whole scale the value was .97 and for the sub-dimensions 'not being connected' .89, 'feelings of sadness' .88, 'perception of sadness' .82, 'spiritual disruption' .66, 'cognitive awareness' .84, and 'general mood' .79.

Limitations of the Study

While determining the sample for the current study, the lack of homogeneity in patient introductory features such as gender, diagnosis, age, and state of metastasis was a limitation of the study.

Conclusion

In the current study, the validity and reliability of the Turkish version of the HWS were tested to evaluate the holistic well-being of cancer patients. According to the results, the Turkish version of the HWS was found to be valid and reliable. The data obtained by using the scale in question are thought to help professionals working in the field of oncology to evaluate the holistic well-being of patients. While determining the sample for the studies that the researchers will carry out using this scale, it is recommended to provide homogeneity in patient introductory features such as gender, diagnosis, age, and state of metastasis. In addition, it is suggested that the patients sampled should be selected according to the characteristics of their disease such as type of cancer and treatment, disease stage, recurrence period, and being in the terminal period, since then the data can be compared more effectively in terms of holistic well-being.

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