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Research Article

Validity and reliability of the breast cancer comfort assessment scale in palliative care

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Abstract: Breast cancer is a disease that requires palliative care and comfort. The current study aimed to adapt the scale used to assess the comfort level of breast cancer patients receiving palliative care, for the Turkish population, and to contribute to the literature. A total of 340 breast cancer patients who were registered at a university hospital's oncology outpatient clinic, received therapy, and returned for follow-up were included in the study. Data were collected using the Introductory Information Form, Comfort Assessment Breast Cancer Instrument, and General Comfort Scale short form. The International Testing Commission Guide's (2018) suggestions were applied during the scale's modification procedure. The scale's Kaiser Meyer Olkin value was 0.78, and 4454.53 was the Barlett's test result. Fit indices for the confirmatory factor analysis were CFI=0.885, GFI=0.927, and χ^2/df=2.612. The scale's Spearman-Brown correlation value is 0.78, and its Cronbach's alpha coefficient is 0.85. The Comfort Assessment Breast Cancer Instrument's Turkish version provides a reliable and valid tool for assessing the comfort of breast cancer patients. The use of it can help determine the comfort level of breast cancer patients receiving palliative care and inform the development of interventions and care practices throughout each stage of the disease.

1. INTRODUCTION

Cancer is a major global health problem impacting individuals' life quality (Sung *et al*., 2021). Although there have been improvements in diagnosing and treating breast cancer, it remains one of the primary factors contributing to cancer-related fatalities in women in approximately 95% of countries (Hailu *et al*., 2020; WHO 2023a). Breast cancer accounts for 11.7% of total cancer cases and 24.5% of cancers in women (Sung *et al*., 2021). Population growth and aging may cause 3 million new breast cancer cases and 1 million deaths by 2040 (Arnold *et al*., 2022). From 1994 to 2020, breast cancer incidence in Turkey increased 2.5-fold to 23.9% among female cancers (Ferlay *et al*., 2020)

Patients and families with life-threatening diseases benefit from multidisciplinary palliative care. Only 14% of those needing palliative care worldwide access the service (WHO, 2023b). Symptomatic patients with breast cancer need early palliative care (Nuraini *et al*., 2018; Malloy *et al*., 2018). Palliative care is crucial as breast cancer rates rise and life expectancy rises (Zimmermann *et al*., 2014; Ferrell, 2019). It complements therapeutic and lifelong breast cancer

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treatment at all ages and stages (WHO, 2023a). Palliative care is improving health indicators, depression, and life expectancy of breast cancer patients (Rugno *et al*., 2014).

Patients with breast cancer and their families lose comfort. Palliative care for all cancers, including breast cancer, includes comfort (Nuraini *et al*., 2018). Comfort is defined by Kolcaba as the absence of discomfort, the resolution of causative conditions, satisfaction, and situations that make life easier and more pleasant. Kolcaba's comfort theory involves determining comfort needs, planning interventions, considering factors, and evaluating (Kolcaba, 1991). Comfort needs are determined holistically and assess the individual's physical, psychospiritual, socio-cultural, and environmental comfort needs (Kolcaba 2003; Kolcaba & Dimarco 2005). An individual's physical comfort is their body perception and affects their disease comfort. Psychospiritual comfort is the combination of spiritual, psychological, and mental health. For instance, surgical intervention causes anxiety and impairs comfort. Environmental comfort is the external factors (noise, heat, etc.) that affect comfort. Socio-cultural comfort is the individual's perception of and relationships with the social and cultural environment. For instance, an individual's traditional approach and social support affect his comfort (Kolcaba, 2003).

Comforted palliative care patients recover faster, rehab better, and handle stress better. Nuraini *et al*. (2018) developed the instrument assessing breast cancer patients' comfort (CABCI) to evaluate their physical, psycho-social, sociocultural, economic, and hospital environment comfort for diagnosis, treatment, and care (Nuraini *et al*., 2018). Previous studies conducted with breast cancer patients in Turkey have frequently used the general comfort scale (Çıtlık *et al*., 2018). There is a need for a specialized tool that holistically assesses the comfort of breast cancer patients. The study aimed to adapt the scale for the Turkish population and contribute to the literature.

2. METHOD

2.1. Study Design and Population

This study was methodological research conducted to validate a Turkish version of the CABCI developed by Nuraini *et al* (2018) to assess the breast cancer patient's comfort. The participants consisted of breast cancer patients who applied to the Oncology and Chemotherapy Clinic of a university hospital for treatment and control purposes. For validity-reliability studies, the sample size should be determined by 5 or 10 times the number of scale items (Grove *et al*., 2013; Erdoğan *et al*., 2017). In this context, the sample of the study consists of 340 breast cancer patients with 10 times the number of scale items. The inclusion criteria: a) Over 18, b) no communication barriers, c) radiotherapy, chemotherapy, or both. Breast cancer patients who met the sampling criteria and volunteered to participate in the study were included in the study.

2.2. Data Collection Methods

Data was collected by researchers via face-to-face survey between September 2019 and March 2020. Data collection time is 10-15 minutes. The introductory Information Form covers age, education, marital status, family structure, employment, residence, income, social security, treatment information, and support. Outpatient clinic records provide diagnosis year, stage, treatment, and hemodynamic status.

Comfort Assessment Breast Cancer Instrument (CABCI); developed by Nuraini *et al*. (2018), aims to assess the breast cancer patient's comfort. The authors' first version has 34 items and five subscales. The sub-dimensions for comfort are physical (1-10), psycho-spiritual (11-22), socio-cultural (23-26), environmental (27-30) and finance (31-34). The scores are based on strongly disagree (1), strongly disagree (2), agree (3), and strongly agree (4), where the highest is 136 and the lowest is 34. Higher scores indicate higher comfort. Cronbach's alpha value is 0.91 (Nuraini *et al*., 2018). In 2019, Nuraini *et al*. (2019) revised the instrument as a single factor and 33 items by combining 5 sub-dimensions. In this study, the first study with permission from the authors was used.

General Comfort Questionnaire- Short form (GCQ-SF); developed by Kolcaba *et al*. (2006), aims to measure the patients' comfort. The instrument has nine items for relief, relaxation, and problem-solving (10 items). The Likert-type scale has 28 items and both positive and negative items (19 items). In the evaluation, negative items are reversed, coded, and summed. To determine the average score, the total score is divided by the number of instrument items. The highest score recorded is 168, while the lowest score recorded is 28. A higher score indicates a higher level of comfort. The scale was adapted to Turkish by Çıtlık *et al*. (2018) and Cronbach's alpha value was 0.82.

2.3. Language Validity of the Scale

The ITC Guidelines for Translating and Adapting Tests (Second Edition) (2018) guided instrument adaptation. It has 18 guidelines in six sections: Pre-condition, Test Development, Confirmation, Administration, Score Scales and Interpretation and Documentation. Each guideline has a description with implementation recommendations (ITC, 2018). The authors received permission from the scale authors in the first section, believing that the scale was necessary for Turkish society and could provide cultural adaptation in assessing the comfort of patients with breast cancer who are in palliative care. Expert translators in the target language and culture were determined (see Table 1). In the second part of the test development, the language adaptation process and examination of the scale's language, forward translation, expert panel utilization, back-translation, and preliminary application of the adapted version, finalization, and documentation recommendations were followed (see Table 2).

Table 1. *Adaptation process of the scale according to the first section of the ITC guideline.*

		ITC guıde 2018	Evidence
First Section Precondition	O1	Obtaining permission from the author to adapt the scale into Turkish.	Scale use permission
	O2	Evaluation of adequacy of scale structure	Researchers
	O3	Choosing the translators selected for the advanced translation of the scale in accordance with the target language and culture	An expert translator and interpreter and an English teacher were determined.

Table 2. *Adaptation process of the scale according to the first section of the ITC guideline.*

		ITC guide 2018	Evidence
Second Section Test Development	T1	Selection of experts with relevant expertise	Creation of the expert panel
	T2	Using appropriate translation design and procedure	Forward translation, expert panel, reverse translation
	T3	Proving that the scale has a similar structure for Turkish society	Expert panel report
	T4	Scale scores, evidence of whether the form of administration was appropriate	Expert panel report
	T5	Pre-application of the adapted test	Pre-application analysis result

Two independent professional native English-speaking translators back-translated the scale. To determine the data collection forms' comprehensibility and applicability, a preliminary application was performed on 20 breast cancer patients. By assessing question comprehensibility, item analysis, and Cronbach's alpha levels, the scale was adapted (Cronbach's alpha: 0.94, spearman-brown correlation coefficient: 0.839, Guttman split-half: 0.829). Forms were not modified because patients understood all expressions and content. Pre-application data were not included. Data analyses were performed in the third section to choose a suitable sample and prove its reliability and validity. The administration section standardized the scale structure and related procedures for the new language and culture. In the last two sections, score scales and interpretation were made, and documentation was created (ITC, 2018; Hernandez *et al*., 2020).

2.4. Content Validity of the Scale

In the ITC (2018) Guidelines, the items' comprehensibility was questioned, and expert opinion was obtained. Content validity was evaluated with the Davis technique. Comparing Turkish and original versions, experts scored each instrument item. The content validity index (CVI) value is expected to be 0.80 and above (Davis, 1992). An expert from the Department of Medical Oncology rejected the original scale's 14th item, "I feel anxious about death," because it mentioned death. With the scale author's permission, this item was changed to "I feel anxious about my future" with expert opinions Expert panel report finalized the scale. In this study, item comprehensibility ranged between 0.88- 1.

2.5. Ethical Considerations

The scale authors permitted for use. The Non-Interventional Clinical Ethics Committee of a university obtained ethical approval (dated 06.08.2019 number 54328). The principles of the Declaration of Helsinki guided the conduct of this study. The data collection institution and study participants gave their consent.

2.6. Statistical Analysis

The validity of the scale was tested using Confirmatory Factor Analysis (CFA). Before starting CFA, whether the data is normally distributed or not determines the estimation method and the type of matrix to be created (Çapık, 2014; Gana & Broc, 2019). Normal distribution was evaluated with skewness and kurtosis coefficients. The Dampened-Weighted Least Squares (DWLS) technique was chosen as it was the preferred technique for estimating Likert-type data in CFA. Analysis was conducted using R-Project (R Core Team, 2020), Lavaan (Rosseel, 2012), and IBM SPSS 26. The margin of error in the study was at 95% confidence level (p<.05).

In validity analysis, the CVI value was calculated for content and scope validity. In construct validity, Barlett's test and Kaiser-Mayer-Olkin (KMO) test assessed sample size and factor analysis suitability. Pearson Product Moment Correlation tested scale construct validity in CFA concurrent validity. In the reliability analysis; item-total score correlation, Cronbach's alpha, spearman-brown coefficient, internal consistency, and two-half reliability were evaluated.

3. RESULTS

The mean age of the patients was 53.08±17.84. Of the patients, 33.2% of them were in the second stage, 55.3% received chemotherapy and 19.4% received radiotherapy (see Table 3).

Table 3. *Descriptive characteristics of breast cancer patients.*

Variables		*n*	%
*Age**	39 and less	92	27.1
	40-64	148	43.5
	65 and over	100	29.4
Educational status	8 years&less	210	61.8
	8 years&over	130	38.2
Marital Status	Single	118	34.7
	Married	222	65.3
Employment Status	Unemployed	206	60.6
	Employed	134	39.4
Getting information about treatment	Yes	244	71.8
	No	96	28.2

Type of treatment	Chemotherapy	188	55.3
	Radiotherapy	66	19.4
	Chemotherapy and radiotherapy	86	25.3
Stage of cancer	Stage I	101	29.7
	Stage II	113	33.2
	Stage III	85	25.0
	Stage IV	41	12.1

*The average age:53.08 ± 17.84

3.1. Validity Findings of CABCI

Construct validity was assessed after language and content validity. The scale's KMO was 0.78 and Bartlett's test of Sphericity was 4454.53 (p<0.001). Since the data were Likert-type, DWLS was preferred for CFA estimation. The CFA statistics revealed that all sub-items of CABCI were statistically significant (p<0.05) (see Table 4).

Table 4. *CFA statistics of the scale.*

Category	Items	Beta	SE	z value	*p*
Physical	S1	1			
	S2	0.79	0.051	15.54	<0.001
	S3	0.66	0.050	13.50	<0.001
	S4	0.68	0.046	14.92	<0.001
	S5	1.12	0.065	17.49	<0.001
	S6	0.80	0.055	14.76	<0.001
	S7	0.69	0.050	13.89	<0.001
	S8	0.46	0.047	9.82	<0.001
	S9	0.46	0.036	12.98	<0.001
	S10	0.26	0.031	8.55	<0.001
Psycho-spiritual	S11	1			
	S12	0.90	0.051	17.96	<0.001
	S13	0.84	0.047	17.91	<0.001
	S14	0.68	0.043	16.15	<0.001
	S15	0.74	0.046	16.28	<0.001
	S16	0.25	0.032	7.89	<0.001
	S17	0.65	0.043	15.03	<0.001
	S18	0.45	0.040	11.31	<0.001
	S19	0.45	0.030	14.92	<0.001
	S20	0.91	0.050	18.07	<0.001
	S21	0.72	0.047	15.48	<0.001
	S22	0.67	0.039	17.56	<0.001
Socia-cultural	S23	1			
	S24	0.71	0.075	9.51	<0.001
	S25	0.54	0.063	8.67	<0.001
	S26	0.44	0.052	8.50	<0.001
Finance	S27	1			
	S28	1.01	0.067	15.00	<0.001
	S29	1.04	0.070	15.00	<0.001
	S30	0.52	0.047	11.21	<0.001
Environmental	S31	1			
	S32	0.75	0.090	8.37	<0.001
	S33	0.52	0.065	8.15	<0.001
	S34	0.23	0.042	5.53	<0.001

SE: Standart Error

The CFA graphical structure showed all items had standardized loadings above 0.20 (see Figure 1). The goodness of fit index values was $\chi^2/df = 2.612$, GFI = 0.927, AGFI = 0.916, CFI = 0.885, TLI = 0.876, RMSEA = 0.069 and SRMR = 0.083 (see Table 5).

Figure 1. *CFA graphical structure.*

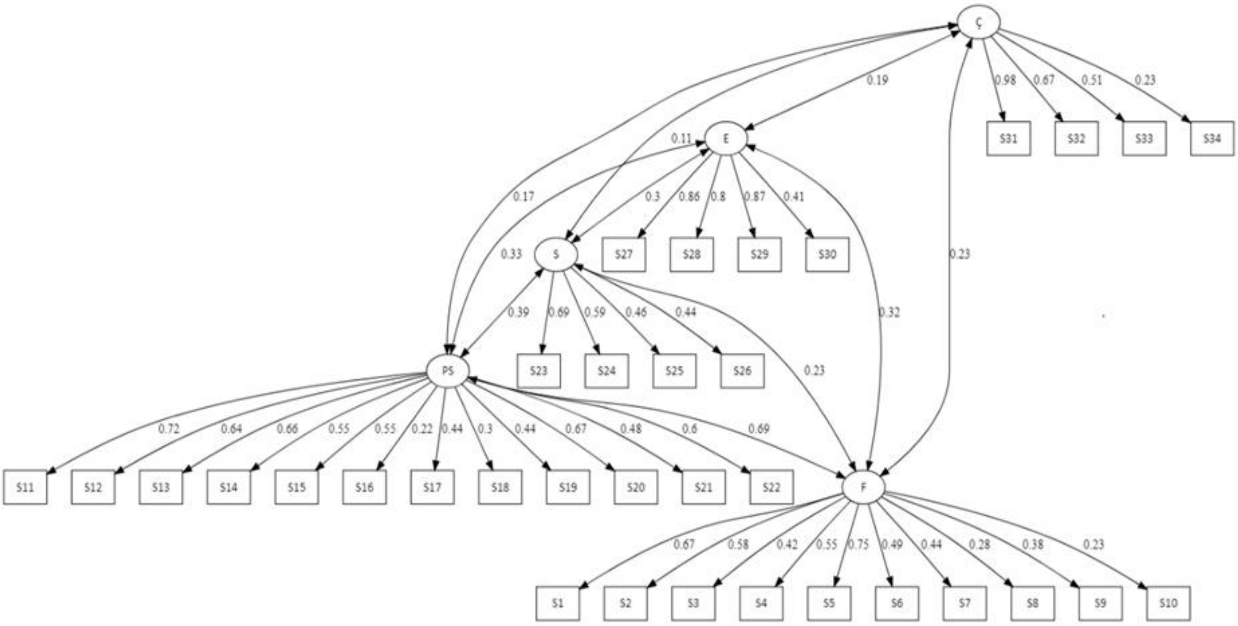

Table 5. *Fit index of CFA findings of the scale.*

Goodness-of-fit indices	
χ^{2*}	1350.516
χ^2/df^{**}	2.612
RMSEA	0.069
TLI	0.876
SRMR	0.083
CFI	0.885
AGFI	0.916
GFI	0.927

RMSEA, root mean square error of approximation; TLI, Tucker-Lewis index; SRMR, standardized root mean square residual; CFI, comparative fit index; AGFI, Adjusted goodness of fit index GFI goodness of fit index, *df* (degree of freedom)=517, $^{*}p<.001$, $^{**}p<.05$

3.2. Reliability Findings of CABCI

Table 6 shows the mean scale score and sub-scores. The scale's total score and sub-dimensions' skewness and kurtosis values were normal.

Table 6. *Descriptive statistics and normality tests of total scores of the scale and its sub-dimensions.*

Category	$\bar{X}$±SD	Min-Max	Skewness	Kurtuosis
Physical	22.10±5.61	10.000-35.000	0.115	-0.661
Psycho-spiritual	26.04±6.95	12.000-46.000	0.351	0.024
Socia-cultural	7.95±2.65	4.000-16.000	0.332	-0.554
Finance	9.20±3.60	4.000-16.000	0.227	-1.095
Environmental	10.10±2.79	4.000-16.000	-0.051	-0.887
CABCI	75.40±14.16	36.00-111.00	0.236	-0.304

$\bar{X}$±SD: Mean± Standard Deviation, Min-Max: Minimum-Maximum

The scale's items were examined, and Cronbach's alpha coefficient was determined for internal consistency and homogeneity reliability. The scale's item means, and standard deviation were 1.571±0.782 and 3.083±1.135. The item means showed no zero-standard deviation items. Removing items from subscales did not significantly increase the reliability coefficient. All subscale item corrected correlation values were positive. The Cronbach's alpha coefficients for the subscales were 0.76, 0.82, 0.64, 0.81, and 0.71, respectively (see Table 7).

Table 7. *Reliability analysis results of the scale.*

Category	Items	$\bar{X}$	SD	AC	AID	Alpha
Physical	S1	2.356	1.013	0.442	0.742	0.76
	S2	2.179	0.944	0.501	0.734	
	S3	2.300	1.075	0.415	0.746	
	S4	1.718	0.853	0.470	0.739	
	S5	2.171	1.022	0.578	0.722	
	S6	2.509	1.122	0.447	0.741	
	S7	2.685	1.072	0.488	0.735	
	S8	2.529	1.117	0.373	0.753	
	S9	2.024	0.834	0.370	0.751	
	S10	1.638	0.821	0.186	0.771	
Psycho-spiritual	S11	2.138	1.045	0.601	0.795	0.82
	S12	2.418	1.076	0.581	0.796	
	S13	2.168	0.968	0.642	0.792	
	S14	1.941	0.945	0.598	0.796	
	S15	1.800	1.034	0.562	0.798	
	S16	1.547	0.873	0.184	0.827	
	S17	2.844	1.103	0.417	0.812	
	S18	3.083	1.135	0.299	0.823	
	S19	1.935	0.773	0.438	0.810	
	S20	2.018	1.019	0.538	0.801	
	S21	2.300	1.144	0.398	0.814	
	S22	1.865	0.851	0.452	0.808	
Socia-cultural	S23	2.509	1.138	0.398	0.610	0.64
	S24	1.891	0.942	0.575	0.467	
	S25	1.979	0.913	0.479	0.540	
	S26	1.571	0.782	0.278	0.663	
Finance	S27	2.100	1.068	0.737	0.712	0.81
	S28	2.129	1.160	0.755	0.697	
	S29	2.097	1.099	0.706	0.724	
	S30	2.876	1.183	0.361	0.885	
Environmental	S31	2.335	0.937	0.605	0.582	0.71
	S32	2.818	1.032	0.603	0.577	
	S33	2.447	0.947	0.460	0.670	
	S34	2.500	0.901	0.336	0.737	

$\bar{X}$: Mean, SD: Standard Deviation, AC: Adjusted Correlation, AID: Alpha when ıtem is deleted (Hotelling's T-Squared 223.2 p=0.000)

Regarding internal consistency, CABCI's total mean score was 75.409±14.167, the Spearman-Brown correlation coefficient was 0.78, and Cronbach's alpha coefficient was 0.85, (Table 8).

Table 8. *Internal consistency values of scales (n=340).*

Mean±SS	Cronbach's Alpha	Spearman-Brown Correlation Coefficient	Guttman Split-Half
75.409±14.167*	0.85	0.78	0.78

*Hotelling's T-Squared F=43.41, p<0.001

4. DISCUSSION and CONCLUSION

The final version was created after the ITC Guide (2018) language validity was performed. In instrument adaptation studies, language validity should be supported by content validity (ITC, 2018). 10 academics with diverse expertise provided expert opinions for the study. Expert consensus and scale content validity are indicated by a CVI index above 0.80. Pre-application analysis values are excellent or acceptable, indicating item validity and reliability. If the results are unsatisfactory, adapt by improving the problematic items (Hernandez *et al*., 2020). No issues were found in patient's perception and response to the CABCI during language validity testing. The pre-application analysis' excellent item correlation coefficient and Cronbach's alpha values guided the scale's adaptation study applicability.

In construct validity, the KMO test was conducted to assess the entire model and its variables' adequacy for sampling adequacy and suitability for analysis before CFA. The 0.90-1.00 KMO value is evaluated as excellent, 0.50-0.59 poor, 0.60-0.69 fair, 0.70-0.79 good, 0.80-0.89 very good (Sarmento & Costa 2017; Nia *et al*., 2023). This value was determined at a good level in our study. Barlett's test determined whether the data was normal and whether the correlation matrix was a unit matrix (Caycho -Radriguez *et al*., 2021). Our study's KMO (0.78) and Barlett's value are significant, and the sample size is good for factor analysis.

Construct validity determines how well an instrument measures the concept or event and how well its items relate to each other. Factor analyses evaluate construct validity, and the measurement tool should have high construct validity (Gana & Broc, 2019). Instead of EFA, a factor analysis method, CFA, the most common model verification method, should be used in instrument adaptation (Erdoğan *et al*., 2017; Seçer, 2018). So, CFA was performed in the instrument adaptation process. The results of the fit indexes of the CABCI are well-compatible (CFI = 0.885, GFI = 0.927, AGFI = 0.916, SRMR = 0.083, TLI = 0.846, χ^2/df = 2.42, RMSEA = 0.069). In the first instrument development study, Nuriani *et al*. (2018) did not specify fit index values, but CFA was performed, and instrument validity was confirmed. Some of the fit indexes in the construct validation of the scale in 2019 are given (Nuriani *et al*., 2019). Based on the statistically significant χ^2 value, the fit between the model and the data is not perfect. However, χ^2 is not a reliable and robust model fit indicator. This value is also sensitive to the sample size. It is therefore recommended to look at other fit indices. Examination of these indices (e.g., CFI, RMSEA, SRMR) shows that the model fits the data well (Gana & Broc, 2019). The χ^2/df value, called the initial fit index, shows the difference between the observed and expected covariance matrices (Gunzler & Morris, 2016). Higher values indicate that the model does not fit the data, while lower values indicate a better fit (Costa & Sarmento, 2019). A value of three or less, which is also expressed as a poor fit index, is an indicator of excellent fit (Çokluk *et al*., 2014; Seçer, 2018). Our study's CABCI value (2.42) was within the excellent fit, but Nuriani *et al*. (2019) found a high χ^2/df value in their instrument construct validity (χ^2=283.65, df=10). The theoretical model's adequacy is shown by strict fit indexes. For optimal fit, a few parameters should be estimated. The most recommended index in this category is the RMSEA with a 90% confidence interval (Gana & Broc, 2019). RMSEA tries to correct the chi-square value's tendency to reject instruments with large samples. RMSEA is very good if it is equal to or below 0.05, good between 0.05 and 0.08, moderate between 0.08 and 0.10, and unacceptable if above 0.10 (Costa & Sarmento, 2019). The RMSEA value of the scale (0.069) shows a good fit. Nuriani *et al*. (2019) reported a good fit with RMSEA=0.000. One of the absolute fit indexes, Root Mean Square Residual (RMR) or Standardized RMR measures observed and predicted correlation errors. RMR and SRMR decrease as model element deviations decrease. The SRMR value should be between 0.00 and 1.00. When this value is close to 0.00, the fit is better (Gana & Broc 2019; Costa & Sarmento, 2019). In our study, the CABCI's SRMR value is a good fit. Other absolute fit indexes are the Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI). These index degrees of freedom increase with sample size (Costa & Sarmento, 2019, Gunzler & Morris, 2016). These values of 0.90 and above indicate a perfect fit (Gana & Broc, 2019). In our study, these values were found to be perfectly compatible. Incremental fit indexes (TLI, CFI) analyze model fit by examining the comparing data to the proposed model while assessing the chi-square sample size, and these values between 0 and 1 show excellent fit (Gana & Broc, 2019). According to Costa and Sarmento (2019), CFI and TLI values are very good if they are equal to or above 0.95, good between 0.9-0.95, moderate between 0.8 - 0.9, and poor below 0.8. Brown (2015) states that these indexes being equal to or above 0.80 indicate an acceptable fit. In our study, CFI and TLI were considered moderate fit indices. In Nuriani *et al.*'s study (2019), the CFI value was found to be 1.000 and it was stated to have a good fit index value. Despite a statistically significant χ^2 value, the values of the other fit indices indicate that the model is compatible with the data.

Factor analysis calculates factor loadings by grouping variables that measure the same dimension and calculating their correlation using sample group responses. Factor loading coefficients explain item-factor relationships (Harrington, 2009; Gana & Broc, 2019). The CFA result's graphical structure shows that four scale items (items 8, 10, 16, and 34) have factor loadings above 0.20 and others above 0.30. The factor loading value should be above 0.30 (Çokluk *et al.*, 2014; Seçer, 2018), but it can also be above 0.20 (Grove *et al.*, 2013), and another suggestion is that more samples may reduce factor loadings (Gana & Broc, 2019). The Turkish version's factor structure of the CABCI matches the structure in the original instrument. In the CFA statistics, all CABCI sub-items were significant.

Concurrent validity compares a Turkish-adapted instrument to a validated and reliable scale (Erdoğan *et al.*, 2017). GCQ-SF concurrent validity showed a positive and moderately significant relationship in our study. When the patients' comfort is high in GCQ-SF, an increase is seen in CABCI measurement. This shows the validity of the CABCI scale when applied together with the previously validated scale. This shows the validity of the CABCI scale when applied together with the previously validated scale

4.2. Discussion of the Reliability Findings of the Scale

When the sample size is 300 or more, absolute skewness and kurtosis values are taken into account in evaluating the normality of the data. For a normal distribution, absolute skewness ≤2 and absolute kurtosis ≤4 are reference values (Kim, 2013). In our study, the data showed a normal distribution. It is important to specify that the distribution of the normal constitutes a convenient model serving a technical benchmark (Gana & Broc, 2019). Reliability is a crucial feature of any scale (Streiner *et al.*, 2015), and is typically determined by Cronbach's alpha, which measures the internal consistency of instrument items. A value between 0.00 and 0.40 indicates low reliability, 0.40 to 0.59 suggests moderate reliability, 0.60 to 0.79 reflects good reliability, and 0.80 to 1.00 signifies high reliability (Grove *et al.*, 2013). In this study, the CABCI subdimensions' Cronbach's alpha coefficients ranged from 0.64 to 0.82, and the total alpha value was 0.85, indicating high reliability. Nuriani *et al.* (2018) also found Cronbach's alpha to be highly reliable (α = 0.91), with item mean and standard deviation distributions between 1.57 ± 0.78 and 3.08 ± 1.13.

Item-total correlation is commonly used to test the homogeneity of a scale with several items. Any item with a low correlation value measures a different characteristic than other instrument items. Literature suggests that item-total correlation values above 0.20 are considered acceptable. The item-total score correlation coefficient starts at 0.20, and item scores between 0.30-0.40 are good and above 0.40 are very good (Streiner *et al.*, 2015). Items with a correlation coefficient below 0.20 should be removed from the scale, but only if their removal improves or does not affect the overall Cronbach's alpha (Grove *et al.*, 2013). In our study, all items had good item-total correlation coefficients. The mean CABCI score indicated moderate comfort in breast cancer patients, with moderate scores across all subdimensions, highlighting the need to address patients' comfort in all areas. The applied test was divided into two equal halves to estimate split-half reliability, with the Spearman-Brown coefficient used to assess the correlation between participants' scores on each half (Erdoğan *et al*., 2017). The Spearman-Brown correlation coefficient for the CABCI was 0.78, meeting the recommended reliability threshold of 0.75 or higher (Grove & Cipher, 2019). This suggests that the scale has high internal consistency and stability.

In conclusion, the CABCI is a valid and reliable tool for assessing the comfort of breast cancer patients receiving palliative care within the Turkish context (Appendix A1). Given the critical role of palliative care in breast cancer, this scale can be used clinically to assess patient comfort at any stage of the disease. It evaluates economic, socio-cultural, physical, psycho-spiritual, and environmental dimensions of comfort, supporting holistic care. Nursing interventions to improve breast cancer patients' palliative care comfort should use the scale. This scale will contribute to the individual, family, and society by using it in application areas and future research. In future studies, it is recommended to repeat the scale in patients at different stages. The scale was developed and customized for breast cancer patients. In our study, we validated the scale specifically for breast cancer patients, a group disproportionately affected by the disease both globally and in our country. While general comfort scales have been used for other cancers and chronic diseases, future research could explore disease-specific comfort scales for other chronic conditions.

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Declaration of Conflicting Interests and Ethics

The authors declare no conflict of interest. This research study complies with research publishing ethics. The scientific and legal responsibility for manuscripts published in IJATE belongs to the authors. **Ethics Committee Number**: Pamukkale University, Non-Interventional Clinical Research Ethics Committee, 60116787-020/54328.

Contribution of Authors

Rahime Yöntem Ölmez: Conception, Design, Investigation, Literature review, Methodology, Data collection, Data interpretation, and Writing-original draft. **İlgün Özen Çınar**: Conception, Design, Supervision, Methodology, Formal Analysis, Finding, Critical review, and Writing-original draft.

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APPENDIX

A1. Turkish Form of Comfort Assessment Breast Cancer Instrument

Meme Kanseri Konfor Değerlendirme Ölçeği

Maddeler	Kesinlikle Katılıyorum	Katılıyorum	Katılmıyorum	Kesinlikle Katılmıyorum
1. Güçsüz hissediyorum				
2. Mide bulantısı hissediyorum				
3. Sağlık durumum nedeniyle ailemin ihtiyaçlarını karşılamakta zorlanıyorum (yemek yapmak, çocuklara bakmak gibi)				
4. Tedavinin yan etkileri beni rahatsız etti				
5. Kendimi hasta hissediyorum				
6. İştahım yok				
7. Sık sık başım dönüyor				
8. Cildimin ve ağzımın çok kuru olduğunu hissediyorum				
9. Yatak istirahati için çaba gösteriyorum				
10. Hemen yoruluyorum				
11. Mutsuz hissediyorum				
12. Hastalığımla mücadele etme konusunda ümitsizim				
13. Kendimi huzursuz hissediyorum.				
14. Geleceğim konusunda endişeliyim				
15. Durumum kötüleşir diye korkuyorum				
16. Ailemdeki bireylerinde aynı hastalığa yakalanmasından endişe duyuyorum				
17. Kızgın hissediyorum				
18. Yalnız hissediyorum				
19. Kendimi iyi hissetmediğim bazı değişiklikler yaşıyorum				
20. Tedaviden korkuyorum				
21. Tedaviyi sürdürmekten sıkıldım				
22. Kendimi daha hassas hissediyorum.				
23. Kendimi diğer insanlara bağımlı hissediyorum				
24. Hastalığım başka insanların hayatını etkilediği için üzülüyorum				
25. Başkalarına yük olmaktan korktuğum için hastalığımı konuşmak istemiyorum				
26. Ailemi korkutuyorum				
27. Tedavinin maliyeti beni endişelendiriyor				
28. Hastaneye ulaşım maliyeti konusunda endişeliyim				
29. Tedavim boyunca oluşan maliyet konusunda endişeliyim				
30. Hastalık gelirimi kaybetmeme neden oluyor				
31. Hastane ortamından rahatsız oluyorum				
32. Hastane ortamında kalmaya katlanamıyorum				
33. Hastane ortamının kokusundan hoşlanmıyorum				
34. Hastane ortamında rahat hissedebiliyorum				