



Original Article

Turkish validity and reliability study of the quality of care through the patient's eyes^{chemo} scale: Methodological study

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Abstract

Objectives: This study aimed to assess the Turkish validity and reliability of the Quality of Care Through the Patient's Eyes^{chemo} Scale.

Methods: Conducted at a university hospital in Türkiye, the study utilized a methodological design and involved 335 chemotherapy patients in the Outpatient Unit. Data collection employed a simple random sampling method along with a "Patient Information Form" and the "Quality of Care Through the Patient's Eyes^{chemo} Scale." Steps were taken to determine the language, content, construct validity, and reliability of the scale.

Results: Patients had a mean age of 54.48 years, with the majority being female (53.1%) and married (75.8%). Breast cancer (22.1%), lung cancer (17.3%), and colon cancer (10.7%) were the most common diagnoses among patients. Content validity analysis resulted in the removal of 9 items from the 67-item scale, with a content validity index of 0.92. The suitability of the data for factor analysis was confirmed with a Kaiser-Meyer-Olkin (KMO) value of 0.936 and Bartlett's test (6042.307, $p < 0.000$). However, in construct validity, Confirmatory Factor Analysis (CFA) fit indices, including χ^2/SS (3.963), GFI (0.674), IFI (0.690), CFI (0.788), and RMSEA (0.124), fell below acceptable limits, suggesting incompatibility of the original structure of the scale in the country. Exploratory Factor Analysis (EFA) revealed a 3-factor structure with 27 items, explaining 59.648% of the total variance. The scale demonstrated a Spearman-Brown correlation coefficient of 0.871, a Guttman equivalent halves coefficient of 0.867, and a total Cronbach's alpha value of 0.950.

Conclusion: The scale is a valid and reliable tool for measuring the information and communication needs of chemotherapy patients. It is expected to serve as a guide for chemotherapy nurses in effectively assessing these needs.

Keywords: Chemotherapy; needs assessment; oncology service; reliability; validity

Chemotherapy, which is an important part of cancer treatment, increases survival in many cases but seriously compromises patients' quality of life and causes difficult-to-manage symptoms.^[1,2] For patients and their families, adaptation can be a challenging experience.^[3] The physical, sexual, and psychosocial problems caused by cancer and chemotherapy, as well as the management of these problems, can be influenced by many variables. One of these variables is the active role that patients and their families take in the process, as well as their ability to manage it.^[1] Education and informa-

tion about cancer and the treatment process are crucial in supporting patients and their families.^[4]

Nurses play a key role in patient and family education.^[5-7] Their constant and close interaction with patients, their position as implementers of treatment and managers of care, and their possession of the knowledge, skills, and competence required by their educational role place significant responsibilities on nurses at this point.^[8] The chemotherapy process is one of the most challenging stages in which patients experience the fastest and most radical changes. Therefore, it is crucial for

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chemotherapy nurses to provide care based on individualized and holistic approaches, supported by evidence-based and up-to-date knowledge, and to deliver the necessary information and education to patients and their families, as these efforts play a vital role in both the patients' and families' quality of life and the success of treatment.^[9,10]

The nurse's effective communication makes it possible for the patient to access the required information and internalize it, turning it into practical knowledge.^[11,12] However, the literature includes studies indicating that in many healthcare systems, patients' needs for information and communication are not effectively met.^[13–15] This can lead to psychological symptoms in patients and their families, which affect their quality of life and may even impact the patient's survival.^[16–18]

The information and communication needs of patients and their families have been emphasized in studies addressing unmet needs and have been reported in the literature as a dimension of these unmet needs.^[19–22] However, due to the lack of tangible indicators, the need for information and communication may be overlooked, and it is known that these needs are not adequately addressed.^[22–24] In the literature, the importance of information and communication needs has been recognized, and many studies have reported data related to them; however, the primary focus of these studies has been on quality of care and patient satisfaction rather than on the need for information and communication itself.^[25,26] In many studies primarily aiming to evaluate nurse–patient communication, the findings are presented based on nurses' subjective self-assessments of their own communication.^[27,28] The challenging, acute, and specific nature of chemotherapy, along with the subjective character of the need for information and communication and the absence of observable tangible outcomes, create difficulties in identifying these needs. Therefore, there is a need for a reliable and easily applicable measurement tool to accurately identify the information and communication needs of patients and their relatives.^[29]

A review of the literature revealed no other scale developed to specifically focus on information and communication needs and to measure these closely interrelated needs together.^[19,23,30] The QUOTE^{chemo} (Quality Of care Through the patients' Eyes), developed by Van Weert et al.,^[19] is a highly advantageous measurement tool as it was specifically designed for patients undergoing chemotherapy and identifies patients' needs from their own perspective. The aim of this study is to adapt the QUOTE^{chemo} into the Turkish language and culture.

Research Questions

1. Is the Turkish version of the QUOTE^{chemo} scale valid?
2. Is the Turkish version of the QUOTE^{chemo} scale reliable?

What is presently known on this subject?

- A personalized and holistic approach for patients with cancer and their families, based on evidence and up-to-date information, providing them with the knowledge and education they need, is crucial for the patient's and family's adaptation to the disease and treatment process, quality of life, and treatment success. There is currently no scale available to measure the information and communication needs of patients with cancer undergoing chemotherapy, which are closely interrelated.

What does this article add to the existing knowledge?

- There is a need for a measurement form in Turkish society that focuses on the information and communication needs of patients with cancer undergoing chemotherapy and identifies these closely interrelated needs. Therefore, it is recommended that the Turkish-adapted form be used as a guide by chemotherapy nurses to identify patients' information and communication needs.

What are the implications for practice?

- Determining the information and communication needs of chemotherapy patients, identifying individual needs, planning nursing interventions accordingly, and providing person-centered care are essential. It is recommended that the QUOTE^{chemo}-TR, consisting of 27 items, be used as a guide by chemotherapy nurses in determining patients' information and communication needs.

Materials and Method

Design

This study is a methodological research conducted to evaluate the validity and reliability of the QUOTE^{chemo} scale in Turkish.

Study Setting, Population, and Sample

The study was conducted in the Outpatient Medical Oncology Unit of a university hospital in Türkiye between December 2020 and December 2021, using a self-report method by two nurses working in the unit. Completion of the questionnaire took approximately 20–25 minutes. In the unit, the average number of patients visiting the outpatient clinic daily is 200, of whom 30 receive chemotherapy and 55 receive radiotherapy. The annual number of new patients visiting the unit ranges between 1,400 and 1,600. The population of the study consisted of cancer patients receiving chemotherapy. The sample size was determined as 335, based on five times the number of items in the scale.^[31,32]

Inclusion criteria for the study were: being able to speak and understand Turkish, knowing the cancer diagnosis, and being literate. Exclusion criteria included any functional loss that would hinder communication.

Limitations of the Study

The fact that the majority (50.4%) of the sample consisted of literate individuals and primary school graduates was considered a limiting factor for understanding the two-step statements included in the scale.

Data Collection Tools

The "Informed Consent Form" was delivered face-to-face and by hand to the patients within the determined sample who

met the inclusion criteria, and questions regarding the study were answered. After the information was provided, data were collected from the participants who voluntarily agreed to take part in the study by using the "Patient Information Form" and the "QUOTE^{chemo} Scale (Quality Of care Through the patients' Eyes)." There were no missing data or incomplete forms during the data collection process.

Patient Information Form: The form consists of 9 questions, including patients' socio-demographic characteristics, disease information, and variables related to the treatment they are receiving (age, gender, marital status, educational status, income level, place and people they live with, duration of diagnosis, disease diagnosis, and treatment received).^[30,33]

Quality of care Through the patients' Eyes (QUOTE^{chemo}): Developed by Van Weert et al.^[19] in 2009, it is a 67-item measurement tool designed to assess the information and communication needs and experiences of patients receiving chemotherapy. The scale consists of two dimensions: QUOTE^{chemo} – Importance and QUOTE^{chemo} – Performance. The QUOTE^{chemo} – Importance dimension evaluates, through a 4-point Likert scale, the importance patients attach to information and communication during the chemotherapy process. In the QUOTE^{chemo} – Performance dimension, patients are asked to rate, again on a 4-point Likert scale, the extent to which the needs questioned in the scale items were addressed during their care. The scale consists of two categories: (a) Cancer-specific issues and (b) Generic issues, with a total of seven subdimensions. The cancer-specific issues category comprises three subdimensions: (1) Treatment-related information, (2) Prognosis information, and (3) Rehabilitation information. The generic issues category comprises four subdimensions: (4) Coping information, (5) Interpersonal communication, (6) Tailored communication, and (7) Affective communication. In the original study, Cronbach's alpha values ranged from 0.71 to 0.92.^[19,24,30] In this study, the Cronbach's alpha coefficients of the subdimensions of the scale were found to range between 0.911 and 0.919, and the total Cronbach's alpha value of the scale was 0.950.

Validity and Reliability Stages of the 'Hasta Gözüyle Bakım Kalitesi QUOTE^{chemo}-TR' (Turkish Version) Scale

Language Validity

The language validity of the scale was carried out using the translation-back translation technique. Accordingly, the scale was initially translated from English, its original language, into Turkish by three academic nurses. The translated version was then evaluated in terms of meaning and grammar by a Turkish language expert. Subsequently, the Turkish version of the scale was back-translated into English by three academic nurses who were proficient in both languages. The back-translat-

ed version was reviewed by an English language expert with regard to meaning and grammar. Finally, the back-translated form was examined by the researchers, necessary corrections were made, and the Turkish version of the scale was finalized.

Content Validity

The content validity of the scale was evaluated using the Davis technique, with the opinions of 10 experts (7 psychiatric nurses, 1 oncology nurse, and 2 internal medicine nurses) obtained. The experts assessed each item of the scale on a four-point rating scale prepared as "not appropriate" (1), "needs to be modified" (2), "appropriate but requires changes" (3), and "appropriate" (4). The number of experts who selected "appropriate" or "appropriate but requires changes" for each item was divided by the total number of consulted experts, and the content validity ratio (CVR) and content validity index (CVI) for each item were calculated. According to the Davis technique, a CVI above 0.80 is interpreted as indicating adequate content validity.^[34]

Face Validity

In order to assess the comprehensibility of the QUOTE^{chemo}-TR, it was administered to 10 patients receiving outpatient chemotherapy.^[35] The patients participating in the application found the scale appropriate in terms of meaning, structure, and format, and no suggestions for changes were made. Since no modifications were made to the scale, the participants involved in this stage of the study were included in the sample.

Construct Validity

Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA) were used to evaluate the construct validity of the scale. The suitability of the data for factor analysis was analyzed using the Kaiser-Meyer-Olkin (KMO) test (>0.80) and Bartlett's test of sphericity ($p<0.05$) to assess whether relationships existed among the variables.

In the evaluation of CFA, the Maximum Likelihood (ML) estimation method and fit indices such as χ^2/df (<2 , <5), GFI (>0.90), IFI (>0.90), CFI (>0.95), and RMSEA (<0.08) were used. In the evaluation of EFA, the varimax rotation technique and the principal axis factoring method were employed. A factor loading above 0.30 was considered acceptable for each item.

^[36] To determine the number of factors in the scale, factors with eigenvalues >1 were considered, and the total variance was expected to be between 40% and 60%. Items loading on more than one factor with differences in loadings of <0.10 were considered double-barreled items.^[31] These items were removed, and the analysis was repeated until no double-barreled items remained. Considering that the scale has two main dimensions, each consisting of seven subdimensions, a second-order CFA was conducted to test the construct validity. The ML estimator was used for the analyses. Fit indices such

as the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) were examined to evaluate model fit.

Reliability

In the evaluation of the reliability of the scale, internal consistency analysis (Cronbach's alpha coefficient), the split-half method, and item analysis were used. A Cronbach's alpha coefficient of ≥ 0.70 was considered sufficient for both the subscales and the overall scale.^[37] In the split-half method, the items of the scale were divided into odd and even halves, and the correlation between the two halves was examined. In the evaluation of split halves, the Spearman-Brown correlation coefficient (>0.70) and the Guttman split-half correlation coefficient (>0.70) were used.

Within the scope of item analysis, item-total correlation coefficients and the item discrimination index were used. For the item-total correlation coefficients, a positive value and $>+0.25$ were taken into account.^[36]

Ethical Considerations

Written permission for the evaluation of the validity and reliability of the QUOTE^{chemo}-TR was obtained via e-mail from the author of the original scale. Ethical approval for the study was obtained from the Non-interventional Ethics Committee of a university (16/03/2021; GO 21/369). The study procedures adhered to the guidelines of the Declaration of Helsinki. Verbal and written consent was obtained from all participants who took part in the study.

Data Analysis

SPSS (Statistical Package for Social Sciences) Version 23.0 and IBM AMOS (Analysis of Moment Structures) Version 23.0 were used for data analysis and factor analysis, respectively. Skewness-Kurtosis and Kolmogorov-Smirnov tests were used to determine the normality of the data, and it was found that the sample showed a normal distribution.

Descriptive characteristics of the participants, as recorded in the Patient Information Form, were analyzed using frequency, percentage, minimum–maximum values, standard deviation, and mean statistics. Construct validity of the scale was evaluated using EFA and CFA, while reliability was assessed through item-total correlations, Cronbach's alpha coefficients for all items and subdimensions, and the split-half method.

Results

Descriptive Characteristics

The mean age of the patients receiving chemotherapy and included in the sample was 54.48 years, and 53.1% were female.

The majority of the patients (40.2%) were primary school graduates, 60.9% lived with their spouse, and 48.1% reported that their income equaled their expenses. The largest proportion of the sample (22.1%) was diagnosed with breast cancer, and the mean time since diagnosis was 18 months (Table 1).

Validity

The language validity of the scale was conducted using the translation–back translation technique, and the scale was finalized based on revisions made according to the experts' recommendations. After the completion of language validity, the scale was submitted to expert review for content validity.

Regarding content validity, the experts indicated that 9 items should be removed from the original 67-item scale due to the presence of multiple items referring to the same meaning and the limited comprehensiveness of some items. Accordingly, the CVR of the remaining 58 items ranged from 0.60 to 1.00, and the CVI was calculated as 0.92. In the literature, a CVI ≥ 0.90 is generally accepted as indicating “excellent” content validity. This result demonstrates that the scale has a strong foundation in terms of overall content validity.

The construct validity of the scale was evaluated using EFA and CFA. To assess the suitability of the data for factor analysis, the KMO test (0.936) and Bartlett's test (6042.307, $p < 0.001$) were applied. These results indicated that the dataset was suitable for factor analysis. Therefore, EFA was conducted to identify the factor structure of the scale appropriate for our language and culture.

In determining the factor structure, the principal axis factoring method was used for factor extraction, and varimax rotation was applied as the rotation technique. Items that loaded on more than one factor simultaneously with a difference in loadings of <0.10 were considered double-barreled items and were removed from the scale. Factor analysis was repeated three times until no double-barreled items remained. As a result, 31 items were removed from the scale.

For the remaining 27 items, three factors with eigenvalues >1 were identified. The three-factor structure explained 59.648% of the total variance, which was considered acceptable. Unlike the original scale, the factor loadings of the 27 items in the three-factor structure ranged between 0.525 and 0.793 (Table 2).

As a result of the EFA, since two main dimensions—Importance and Performance—and seven subdimensions for each were identified, a second-order CFA was conducted. In the second-order CFA, the chi-square test indicated a significant result ($\chi^2(2137)=9431.212$, $p < 0.001$). However, the fit indices suggested that the model did not achieve perfect fit (CFI=0.631, TLI=0.618, RMSEA=0.101, SRMR=0.067). The RMSEA value exceeding 0.10 indicates that the model needs to be revised

Table 1. Sociodemographic and clinical characteristics of the participants

Variables	Min-max	Mean (SD)	Variables	n	%
Age	20–91	54.48 (14.13)	Income level		
	n	%	Income exceeds expenditure	39	11.6
Gender			Cancer diagnosis		
Female	178	53.1	Pancreas	9	2.7
Male	157	46.9	Kidney	5	1.5
Marital status			Bile duct	2	0.6
Married	254	75.8	Bladder	3	0.9
Single	45	13.4	Liver	1	0.3
Widowed/divorced	36	10.7	Head and neck	16	4.8
Living situation			Endometrium	8	2.4
Alone	28	8.4	Over	15	4.5
With spouse	204	60.9	Colon	36	10.7
With child/relative	102	30.4	Rectum	18	5.4
Institution	1	0.3	Stomach	26	7.8
Education level			Breast	74	22.1
Literacy only	35	10.4	Testis	7	2.1
Primary	169	50.4	Prostate	5	1.5
Secondary	71	21.2	Lung	58	17.3
University	52	15.5	Lymphoma	2	0.6
Postgraduate	8	2.4	Ewing sarcoma	3	0.9
Income level			Melanoma	3	0.9
Expenditure exceeds income	135	40.3	Reported as "Tumor"	13	3.9
Income equals expenditure	161	48.1	Reported as "Metastasis"	19	5.4
			Reported as "Cancer"	12	3.6

SD: Standard deviation

for better fit. Additionally, the Parsimony Normed Fit Index (PNFI=0.552) and Bollen's Incremental Fit Index (IFI=0.632) suggested that the model demonstrated marginal fit.

Reliability

The reliability of the scale was evaluated using Cronbach's alpha coefficient, the split-half method, and item-total correlation coefficients. The Cronbach's alpha coefficient of the overall scale was 0.950. The Cronbach's alpha coefficients for the sub-dimensions were as follows: F1 – Psychosocial Support (0.919), F2 – Treatment-Related Information (0.916), and F3 – Tailored/Effective Communication (0.911). These findings indicate that the internal consistency of the scale was at a high level.

As another method to determine reliability, the split-half method was applied. The rationale for using this method was the consideration that participants' evaluations regarding healthcare professionals' communication could be influenced after completing the scale, and the perspective shaped by the scale items could lead to different responses in a retest. For this reason, test-retest reliability was not preferred, and the split-half method was used instead. The scale items were divided into odd and even halves, and the

equivalence between the halves was analyzed. The Spearman-Brown correlation coefficient was 0.871, and the Guttman split-half coefficient was 0.867. Accordingly, the reliability of the scale was considered acceptable.

The item-total correlation coefficients ranged from +0.47 to +0.72. These results demonstrated that all items in the scale had acceptable discriminative power and sufficient correlation with the overall scale (Table 3).

Discussion

In this study, the aim was to adapt the scale developed by Van Weert et al.^[19] to measure patients' information and communication needs and experiences regarding chemotherapy into Turkish. As a result of the study, it was determined that the 27-item, three-subscale form of the QUOTE^{chemo}-TR is a valid and reliable measurement tool that can be used to identify the information and communication needs of cancer patients receiving chemotherapy in the Turkish language and culture.

In scale adaptation studies, the translation-back translation technique is commonly used, and at least three expert opinions are required for language validity.^[38] In this study, the language validity of the QUOTE^{chemo}-TR was also carried out

Table 2. QUOTE^{chemo}-TR scale factor structure

QUOTE ^{chemo} -TR scale questions	F1 – psychosocial support	F2 – treatment-related information	F3 – tailored/ effective communication
Q58 Explanation of how to receive emotional support/help from other people	0.744		
Q67 Discussion with significant others in your life about how they can provide emotional support	0.730		
Q47 Addressing your psychological and social needs by healthcare personnel	0.680		
Q53 Identifying the support needs of significant others in your life	0.654		
Q48 Asking about and noticing your worries and anxieties	0.629		
Q62 Providing services that meet the requests and needs of significant others in your life	0.593		
Q38 Receiving support from other patients or support groups	0.587		
Q37 Checking what you know about chemotherapy	0.575		
Q66 Explaining the opportunities to continue working, spend leisure time, and maintain recreational activities during treatment	0.563		
Q56 Explaining the effects of your medications on sexuality	0.561		
Q31 Asking if you still want to start chemotherapy after education	0.525		
Q9 Explanation of your risk of infection during treatment		0.671	
Q19 Explanation of how often you need to come to the hospital		0.655	
Q11 Explanation that your white blood cell (WBC) count may decrease during treatment		0.653	
Q12 Explanation of which blood tests you need and how often they will be performed		0.640	
Q10 Explanation of how treatment may affect your daily activities (shopping, using the toilet, bathing, cooking, cleaning, etc.)		0.635	
Q20 Explanation of when you should visit the hospital		0.608	
Q6 Asking how much information you want about your process		0.558	
Q1 Explanation of the purpose of the treatment		0.540	
Q13 Providing information about hospital procedures, operations, and other services		0.523	
Q21 Being attentive regarding your condition			0.793
Q36 The healthcare professional's attention to you			0.658
Q41 Information provided according to your needs and in a way you can understand			0.617
Q7 Listening carefully to your questions			0.591
Q32 Dietary advice during treatment			0.580
Q68 Being given sufficient time			0.575
Q52 Information about the duration of chemotherapy treatment			0.541
Total variance explained %	46.326	7.653	5.669

QUOTE^{chemo}: Quality of care through the patient's eyes^{chemo} scale

using the translation–back translation technique, and the final version of the scale items was determined by obtaining the opinions of 8 experts (3 experts for English–Turkish translation, 1 expert for Turkish language evaluation, 3 experts for Turkish–English translation, and 1 expert for English language evaluation). The functionality of the scale structure is tested by interpretive validity, namely face and content validity.^[39]

In the process of content validity, which examines to what extent the whole scale and each item in the scale serve the intended purpose, the Davis technique is a recommended

method.^[39] According to this method, 9 items were removed from the scale on the grounds that some of the items rated by the experts were repetitive or inappropriate. In addition, experts criticized the applicability of the scale to individuals due to the excessive number of items (67 items). At this stage, the scale was reduced to 58 items, and the CVI was calculated as 0.92. According to the Davis technique, a CVI >0.80 is interpreted as indicating appropriate content validity.^[34] Therefore, the content validity findings of the 58-item form of the QUOTE^{chemo}-TR are considered acceptable.

Table 3. Item-total correlation coefficient and cronbach's alpha coefficients

QUOTE ^{chemo} -TR questions	Mean	SD	Item-total correlation coefficient	Cronbach's alpha if item deleted
Q1	3.86	0.448	0.409	0.950
Q6	3.73	0.638	0.624	0.948
Q7	3.85	0.453	0.580	0.949
Q9	3.82	0.509	0.586	0.948
Q10	3.79	0.545	0.629	0.948
Q11	3.73	0.642	0.640	0.948
Q12	3.72	0.638	0.670	0.947
Q13	3.73	0.590	0.678	0.947
Q19	3.85	0.466	0.635	0.948
Q20	3.80	0.546	0.629	0.948
Q21	3.81	0.503	0.725	0.947
Q31	3.70	0.719	0.650	0.948
Q32	3.83	0.487	0.599	0.948
Q36	3.84	0.453	0.714	0.948
Q37	3.65	0.714	0.731	0.947
Q38	3.54	0.795	0.580	0.949
Q41	3.79	0.515	0.730	0.947
Q47	3.68	0.625	0.689	0.947
Q48	3.76	0.539	0.691	0.947
Q52	3.84	0.485	0.536	0.949
Q53	3.67	0.661	0.674	0.947
Q56	3.27	1.081	0.472	0.953
Q58	3.61	0.721	0.725	0.947
Q62	3.72	0.592	0.680	0.947
Q66	3.66	0.659	0.730	0.947
Q67	3.69	0.650	0.667	0.948
Q68	3.81	0.497	0.696	0.947

QUOTE^{chemo}: Quality of care through the patient's eyes^{chemo} scale; SD: Standard deviation

Construct validity, which demonstrates that the items of a scale are interrelated and form a whole, can be tested through different evaluation methods. CFA and EFA are among the most widely used methods.^[39] In the adaptation of scales developed in one language and culture to another, CFA is often used in the initial stage.^[40] In this study, CFA was also applied in the first stage of construct validity, and the results indicated that the fit index values were not within acceptable limits. This finding demonstrated that the original structure of the scale was not compatible with the Turkish language and culture. Therefore, EFA was conducted. EFA is used when the relationships among the scale items are unknown.^[40]

In the EFA analysis, 31 items showing cross-loading values were removed from the scale, and the remaining 27 items were distributed under 3 factors: "Psychosocial Support," "Treatment-Related Information," and "Tailored/Effective

Communication." In the original scale, there were 7 factors: (1) Treatment-related information, (2) Prognosis information, (3) Rehabilitation information/dealing with treatment at home, (4) Coping information, (5) Interpersonal communication, (6) Tailored communication, and (7) Affective communication.^[19]

In the Turkish version of the QUOTE^{chemo}-TR scale, for which validity and reliability analyses were conducted, the factors "Prognosis information" and "Rehabilitation information/dealing with treatment at home" from the original scale were not included. The "Treatment-Related Information" factor of the QUOTE^{chemo}-TR consisted of items corresponding to the "Treatment-related information" category of the original scale. Furthermore, the factors "Coping information," "Interpersonal communication," and "Tailored communication" in the original scale were merged and represented under the "Psychosocial Support" factor in the Turkish version.

These results are considered highly informative as they provide an opportunity to investigate similarities and differences across societies.^[41] The findings of this study indicate that, in the Turkish language and culture, the items retained were those addressing concrete and basic needs such as managing the acute treatment process, blood values, control dates, and how to access sources of help. When the subdimensions of the original scale are examined, it is seen that communication processes were highly detailed and that three subfactors were formed related to the form and process of communication.^[19] In this study, however, communication was gathered under a single dimension, encompassing items that reflected the protection of the participant's value as an individual and the perception that they were being cared for. This situation is thought to stem from a healthcare system in which the focus is more on treatment and physical processes, where the paternalistic approach still exerts a strong influence, and where psychosocial services and a holistic approach are only beginning to be structured.^[42]

The items removed from the original scale also support this interpretation. In particular, items that addressed the details of chemotherapy administration, complex medical procedures, needs for information on prognosis and end-of-life, and issues related to the patient's projection of the future were not retained in the adaptation study. In addition, when the educational level of the patients was examined, it was found that more than half of them (50.4%) were literate or primary school graduates. It is known that as the level of education increases, expectations and awareness increase, whereas when the education level decreases, awareness of identifying and requesting individual needs decreases.^[17,43] The importance given by cancer patients in the sample group to information and communication is shaped by individual characteristics such as age and education level, as well as health service delivery and cultural features. There

are studies in the literature supporting this perspective.^[17,18,44] Therefore, the differences between the original structure of the scale and its adaptation to Turkish language and culture are considered an expected outcome.

One of the recommended methods for assessing internal consistency, which is the criterion for determining how homogeneous the items in a scale are and whether they measure the intended concepts, is Cronbach's alpha reliability coefficient.^[45] Developed by Cronbach in 1951, this method calculates the ratio of the sum of the variances of each item in the scale to the total variance, and the acceptable value of the coefficient is at least 0.70.^[39] In the literature, if the Cronbach's alpha value is $0.81 < \alpha < 1.00$, the scale is interpreted as highly reliable; if $0.61 < \alpha < 0.80$, as moderately reliable; if $0.41 < \alpha < 0.60$, as low reliability; and if $0.00 < \alpha < 0.40$, as not reliable. The Cronbach's alpha coefficient of the QUOTE^{chemo}-TR scale was measured as 0.950. The Cronbach's alpha coefficients of the subdimensions were between 0.919 and 0.911. In this context, the scale is interpreted as highly reliable.^[45]

Conclusion

In conclusion, the QUOTE^{chemo}-TR scale, consisting of 27 items and three factors, is a valid and reliable instrument that can be used to measure patients' information and communication needs regarding chemotherapy. Identifying these needs enables the determination of individual requirements, the planning of nursing interventions to address them, and the provision of individualized care. It is recommended that the QUOTE^{chemo}-TR scale be used as a guide for chemotherapy nurses in identifying patients' information and communication needs.

The results of the second-order CFA provided important insights into the evaluation of the overall structure of the scale. However, the fit indices indicated that certain improvements are required. In future studies, to increase the generalizability and validity of the QUOTE^{chemo}-TR scale, it is important to employ different sample groups and larger sample sizes. Conducting confirmatory factor analysis with larger samples may be a crucial step in testing the applicability of the scale to a broader population. In this way, the impact of the scale on individuals with different demographic characteristics can be analyzed more comprehensively.

For the purpose of guiding future research, it should be considered that the sample group in the validity and reliability studies of the scale should resemble the original scale's sample in terms of age and education level, as well as in cancer diagnoses and disease stages. In addition, the number of nurses and other healthcare professionals providing cancer care services should be taken into account, as these are factors that directly affect the extent to which patients' expectations are met and the quality of care delivered.

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