

# Turkish Validity and Reliability of the Quality Nursing Care Scale (QNCS-T)

MOLLAOĞLU, Mukadder<sup>1</sup>, BASİT, Gülден<sup>2</sup>, SU, Serpil<sup>3,2</sup>, BOY, Yasemin<sup>4,3</sup>

## ABSTRACT

### Objective

Nursing care is a unique and indispensable concept for nursing that includes helping to meet the needs of an individual or a group of individuals offered by nurses. This study is aimed to test the validity and reliability of the Turkish version of the Quality Nursing Care Scale (QNCS-T).

### Materials and Methods

The methodological approach employed in this study spanned from April 25, 2021, to May 5, 2021, and enlisted the participation of 347 nurses. Data collection was executed utilizing a “Personal Information Form” and the “Quality Nursing Care Scale (QNCS).” The research comprised two phases: Phase 1 involved the adaptation of the scale, while Phase 2 focused on determining construct validity through confirmatory factor analysis. Reliability was assessed through measures of internal consistency and item-total correlation coefficients.

### Results and Discussion

The adaptation phase yielded affirmative outcomes, affirming the linguistic and content validation of the Turkish version of the scale. Confirmatory factor analysis demonstrated a highly favorable fit for a six-factor model. The Cronbach’s alpha coefficient for the entire scale was determined to be 0.93, attesting to its strong internal consistency.

### Conclusion



The Turkish version of the Quality Nursing Scale showed consistently good psychometric properties of reliability and validity.

### Keywords

nursing care; quality of care; quality of nursing; scale validation.

## INTRODUCTION

Nursing care is a unique and indispensable concept for nursing that includes helping to meet the needs of an individual or a group of individuals offered by nurses<sup>1-3</sup>. While caregiving fundamentally denotes the satisfaction of an individual’s physiological requisites such as sustenance and attire, it is underscored that the procedures undertaken by nurses while addressing these necessities should be executed with meticulous attention and profound respect<sup>4</sup>. Nurses bestow care in a reverential manner, acknowledging the inherent dignity, worth, and distinctiveness of each person, irrespective of their societal or economic status, personal attributes, or the nature of their medical conditions<sup>5,6</sup>. Traits such as honesty, sympathy, kindness and patience also characterize nurses’ actions<sup>7</sup>. According to research, patients’ perception of quality nursing includes providing them with a comfortable physical environment, being honest with them, being sensitive to their

1. MOLLAOĞLU, Mukadder, Sivas Cumhuriyet University, Faculty of Health Sciences, Nursing Department, 58140, Sivas, Turkey,
2. BASİT, Gülден, Necmettin Erbakan University Faculty of Nursing, Department of Fundamentals of Nursing, Konya/Turkey, BASİT, Gülден. SU Serpil, 
3. SU, Serpil, Necmettin Erbakan University Faculty of Nursing, Department of Fundamentals of Nursing, Konya/Turkey, BASİT, Gülден, 
4. BOY, Yasemin, Tokat Gaziosmanpaşa University, Faculty of Health Sciences, Nursing Department, 60500, Tokat, Turkey.

### Correspondence

Gülден BASİT, Necmettin Erbakan University Faculty of Nursing, Department of Fundamentals of Nursing, Konya/Turkey, E-mail: [guldenbasit@gmail.com](mailto:guldenbasit@gmail.com)

needs, ensuring confidentiality for the duration of the care and spending time with them<sup>8-10</sup>. Consequently, in addition to possessing requisite theoretical knowledge and psychomotor proficiencies, a nurse must align their actions with these affective attributes to deliver comprehensive care.

Different aspects of caregiving are emphasized in the literature. Cortis and Kendrick (2003) state that caregiving is a universal human behaviour, an impact on a person, an interpersonal dynamic, a therapeutical process and a moral imperative<sup>11</sup>. According to Watson (2013), caregiving is an interpersonal process with physical, mental, spiritual and socio-cultural aspects<sup>12</sup>. Watson also addresses the ethical aspect of caregiving by suggesting that it requires conscious moral action and passion. Larson and Ferketich mention that caregiving aims to offer a sense of peace and security and provide emotional and physical care, thus indicating the physical, emotional and spiritual aspects of caregiving<sup>13</sup>. Travelbee underlines the need to approach patients with compassion and tenderness and adopt a humanistic approach while giving care<sup>14</sup>. Therefore, considering the physical, emotional, spiritual, socio-cultural and moral aspects of caregiving while planning the care of a patient will improve the quality of the care.

Nursing care holds a paramount status within the realm of healthcare, significantly influencing overall patient satisfaction, as it constitutes a substantial segment of the services furnished within healthcare institutions<sup>15,16</sup>. In this context, measuring, improving and developing the quality of nursing care necessitates the evaluation and consideration of the views of nurses and patients, who are defined as permanent members of health care institutions, about care. Determining the views of patients and nurses about care with valid and reliable measurement tools on a regular basis will allow the evaluation of the quality of care and the necessary adjustments in nursing practices, thus increasing the quality of nursing services. The appraisal of nursing care quality is predicated upon established care benchmarks, patient contentment, and quality of care assessment instruments<sup>17</sup>. In the evaluation of nursing care in Turkey, a limited number of scales such as the Nursing Care Quality Patient Satisfaction Questionnaire (PSNCQQ), “Caring Behaviors Inventory-24” and the Quality of Care Scale are used to assess patients’ perception of care quality and satisfaction<sup>18-21</sup>.

The Quality Nursing Care Scale in Mongolia

(QNCS-M) developed by Tsogbadrakh et al. (2021), discusses the quality of care given by nurses in detail. This scale examines nurses’ interconnected nursing role, independent nursing role, psychological component, personal and social environment, empowering factor, and spiritual strength in patient care. This scale also offers the opportunity to consider the quality of care given by nurses to patients in a broad framework with a holistic approach<sup>22</sup>. The development of the Turkish version of this measurement tool, which enables the holistic approach in care by evaluating different aspects of care together, is considered as a requirement for the evaluation of the quality of care given to patients in our country by nurses. In contrast, such studies have the capacity to yield mutual benefits by leveraging the information shared among various countries on the subject, with the overarching goal of elevating the quality of nursing care. Additionally, these studies facilitate the exchange of potential solutions to enhance nursing care quality within different global contexts. With this understanding, this study was conducted by Tsogbadrakh et al. (2021), aims to ensure the validity and reliability of the QNCS-T scale developed by Turkey.

## MATERIALS AND METHODS

### *Population and sampling*

The sample of this methodological study were consists of 372 nurses working in a university hospital. When developing a scale, 5-10 times more samples must be worked, which is the number of items that create the scale during the reliability and validity process for making factor analysis; besides, there must be 30 pairs of data should be to make test and re-test method while analyzing the constancy over time<sup>23</sup>. In this study amount of scale’s items is considered as (n=36), and it is targeted to reach ten times more (36x10) nurses. In addition, the literature pointed that the sample amount should be more than 100 for reliability works<sup>24</sup>. The study was completed with 347 nurses. After two weeks, a test-retest measurement of 32 nurses was done. Data was gathered utilizing online survey software (specifically, Google Surveys) and facilitated through social media communication via WhatsApp during the period spanning from April 25, 2021, to May 5, 2021.

### *Data collection tools*

“Personal Information Form” and “Quality Nursing Care Scale (QNCS)” were used for the collection of research data.

### Personal Information Form

There are questions in this form, and it includes the age of nurses that are contributed to the research, their departments, gender, work time and education level.

### Quality Nursing Care Scale (QNCS)

Developed by Tsogbadrakh et al. (2021), the scale consists of 36 items and six sub-dimensions: dependent nursing role, interdependent nursing role, personal milieu, psychological element, social milieu, and spiritual force<sup>22</sup>. Scoring of the Scale is done in a 6-point Likert type as (0) Never, (1) Very Rarely, (2) Rarely, (3) Sometimes, (4) Very Often, (5) Always. The total score that can be obtained from the scale is minimum 0 and maximum 80. The higher the score obtained from the scale, the higher the quality of nursing care. A high mean score in one sub-dimension indicates that high-quality nursing care is provided in the specified dimension.

The Cronbach's  $\alpha$  was found to be 0.93 for the scale, 0.74 for the interdependent nursing role, sub-dimension, 0.81 for the independent nursing role sub-dimension, 0.89 for the psychological element sub-dimension, 0.78 for the personal and social milieu sub-dimension, 0.81 for the empowering element sub-dimension, and 0.85 for the spiritual force sub-dimension<sup>22</sup>.

### Language and content validity

Scale items was translated to Turkish by three different and independent experts working for the School of Foreign Languages. Three translates were mixed by researchers and turned into a form. At this step, some expressions and concepts in the original scale was revised due to the concept equivalence approach that may be caused by Turkish expressions and Turkish cultural featured translation. For the Turkish suitability of expressions, they were controlled and edited by an academican working at the Department of Turkish Language and Literature. The scale, which was translated into Turkish, was again translated into English by two Professional interpreters who have excellent Turkish. The original and back-translated scales were compared and evaluated by two experts about their meanings and words suitability. After this evaluation, it was asked two academicians that are experienced in nursing care evaluate the scale. Lastly, the pilot study is done by 16 nurses to determine the unclear points. At the end of the pilot study, contributors stated that there was no unclear point. Obtained data during the pilot scheme were not included in validity and reliability analyses.

### Ethical considerations

Approval for the study was granted by the Cumhuriyet University Non-Interventional Clinical Research Ethics Committee (decision no: 2021-04/10). Written authorization was additionally obtained from the university hospital's administrative body. Participants were comprehensively briefed regarding the study's objectives, and their informed consent was duly acquired. The research adhered to the principles outlined in the Declaration of Helsinki.

### Statistical analysis

Data obtained by research was evaluated with SPSS statistics package program. Cronbach's alfa was used to measures the internal consistency of the reliability feature of the scale. Kaiser-Meyer-Olkin (KMO) and Barlett Tests were used to define sample size sufficiency. Exploratory Factor Analysis (EFA) was used for defining factorial structure. Test-retest comparison was evaluated by calculating the intraclass correlation coefficient (ICC). In research, Confirmatory Factor Analysis (CFA) was done using AMOS program. The significance level is taken as  $p < .05$ .

**Table 1: Socio-demographic and characteristics of the participants**

Variables		n	%
Gender	Woman	264	76.1
	Man	83	23.9
Education Level	Associate's Degree	48	13.8
	Bachelor's Degree	227	65.4
	Postgraduate Degree	72	20.7
Marital Status	Single	155	44.7
	Married	192	55.3
Having children	Yes	159	45.8
	No	188	54.2
Way of Working	Day shift	94	27.1
	Night shift	22	6.3
	Both	231	66.6
Profession Willingly Chosen	Yes	245	70.6
	No	102	29.4
<b><math>\bar{X} \pm SD</math></b>			
Age	31.37 $\pm$ 7.25		
Working Years	9.25 $\pm$ 7.79		
Working Hours/Weeks	45.94 $\pm$ 8.44		

**Table 2: Exploratory factor analysis and reliability coefficients**

Items	Item No	Factor loading	Cronbach's Alpha	Explained Variance Ratio
<b>Factor 1: Psychological Element</b>				
I encourage and allow time for patients to talk about their priority concerns.	10	0.726	0.89	12.31%
I spend enough time with patients to sincerely discuss their feelings.	11	0.739		
I encourage patients' self-confidence to assist in maintaining their health and help manage their illnesses.	12	0.651		
I encourage the patient to be resolute and determine to get better.	13	0.517		
I educate each patient specifically for individual needs.	15	0.532		
I give up-to-date and evidence-based health education for patients.	16	0.726		
<b>Factor 2: Personal and Social Milieu</b>				
I am available when patients call me or ring their bell.	17	0.520	0.78	11.92%
I have ability to apologize to patients if I make mistakes.	18	0.302		
I make patients feel welcome on the ward	25	0.591		
I maintain an environment that promotes healing e.g., quiet, clean and good ventilation.	26	0.575		
I draw a curtain to separate patients from others when performing any physical care procedures.	27	0.632		
I ensure the promotion of safety and security of all patients on the ward.	28	0.715		
<b>Factor 3: Spiritual Force</b>				
I maintain consideration for patients' beliefs, such as the use of traditional healing methods or a more appropriate date of discharge from the hospital.	31	0.493	0.85	8.20%
I volunteer to help when patients and their families desire to perform religious activities in the unit, e.g., provide a suitable room for the patient and the monk or pastor to spend time together in when he/she arrives.	32	0.548		
I provide the opportunity for religious activities in the unit.	34	0.354		
I consider the patients' different health-related attributes and cultural needs when I develop nursing care plans.	35	0.757		
I freely discuss with patients about any restrictions relating to their cultures e.g., dietary, hygiene, etc.	36	0.616		

Items	Item No	Factor loading	Cronbach's Alpha	Explained Variance Ratio
<b>Factor 4: Independent Nursing Role</b>				
I help patients to maintain their hygiene e.g., taking a bath/washing and combing hair/oral hygiene/shaving etc.	5	0.674	0.81	7.18%
I determine whether or not my patients are getting enough sleep or rest for their physical and psychological health.	6	0.721		
I promote adequate daily exercise programs or physical activities based on correcting any underlying clinical issues.	7	0.569		
<b>Factor 5: Empowering Element</b>				
I make efforts to allow my patients to do things that get them to calm down.	22	0.512	0.81	7.15%
I softly touch my patients' shoulders or hands when appropriate.	23	0.528		
I allow time to make an effort to cheer my patients up.	24	0.843		
<b>Factor 6: Interdependent Nursing Role</b>				
I use the standardized interventions to relieve patients' physical suffering.	1	0.489	0.74	5.8%
I provide prompt care when I notice patients' clinical symptoms.	2	0.671		
I observe my patients to recognize clinical symptoms such as pain / vomit / nausea / edema / shortness of breathing etc.	3	0.498		
My priority is concern for relieving or reducing physical suffering.	4	0.405		
<b>Quality Nursing Care Scale for Nurses-Turkish</b>			0.93	52.55%

The test-retest reliability of the scale was evaluated with ICC. The test-retest reliability ( $n = 32$ ) of the Psychological Element sub-dimension (ICC = .96, 95% CI .91-.98), Personal and Social Milieu sub-dimension (ICC = .98, 95% CI .96-.99), Spiritual Force sub-dimension (ICC = .92, 95% CI .83-.96), Independent Nursing Role sub-dimension (ICC = .91, 95% CI .84-.95), Empowering Element sub-dimension (ICC = .92, 95% CI .66-.95), Interdependent Nursing Role sub-dimension (ICC = .95, 95% CI .90-.98), and Total Severity scale (ICC = .96, 95% CI .92-.98) was excellent.

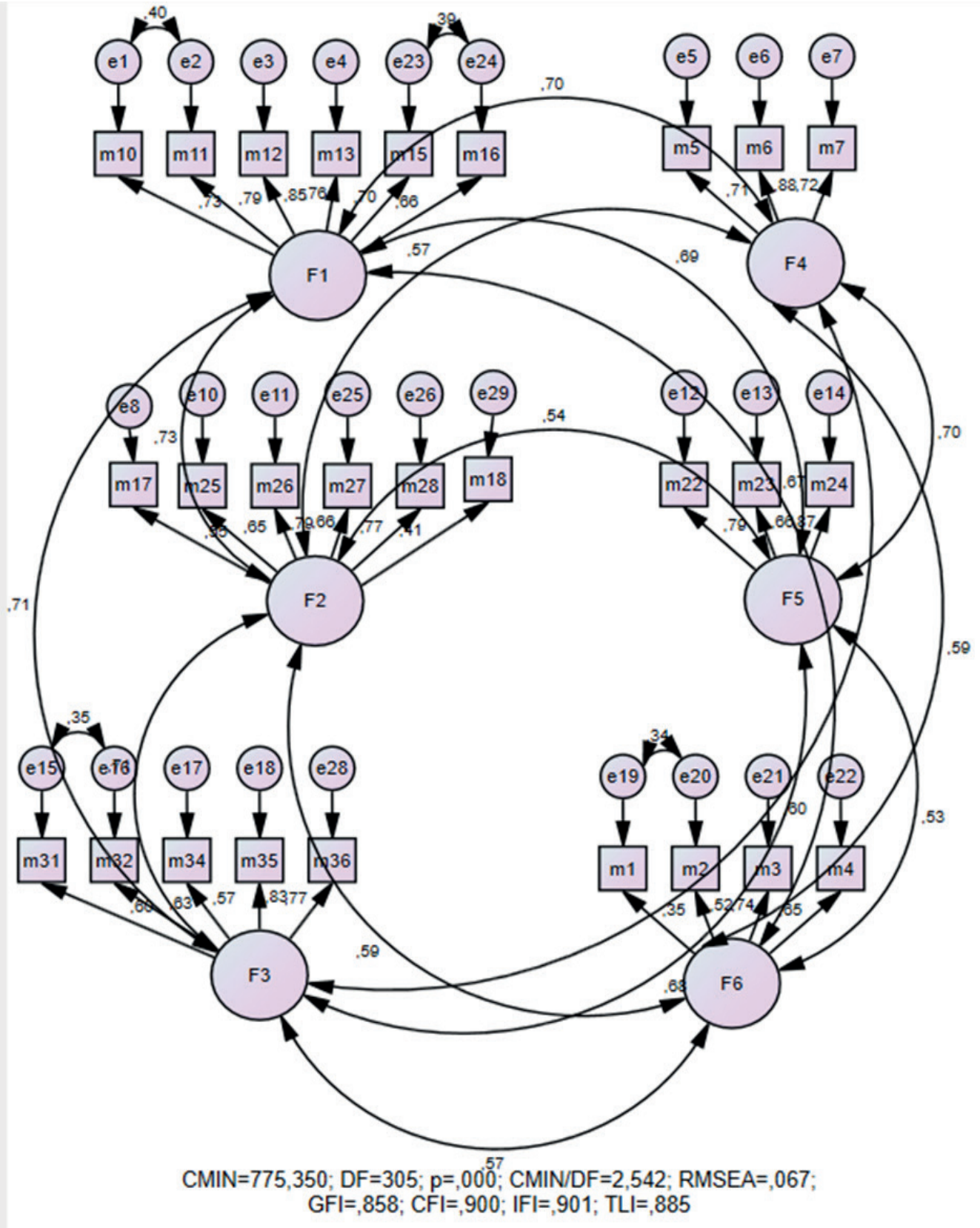


Figure 1. Confirmatory factor analysis results

## RESULTS

Of the nurses participating in the study, 76.1% were women, 65.4% had a bachelor's degree, 55.3% were married, 45.8% had children, and 70.6% stated that they chose the nursing profession willingly. The mean age of the nurses was  $31.37 \pm 7.25$ , the average working years  $9.25 \pm 7.79$ , and the average weekly working hours  $45.94 \pm 8.44$  (Table 1).

### *T Findings of scale regarding its validity and reliability*

In order to determine the construct validity and reliability of the scale; EFA, Cronbach alpha, CFA and test-retest analyzes were performed.

### *Exploratory factor analysis (EFA) and reliability coefficients*

Primarily, KMO and Bartlett tests were done to understand if the scale was suitable for factorial analysis of sample amount. KMO value was calculated as .933 in factor analysis. Regarding this value, the sample amount is acceptable for factor analysis ( $KMO > .500$ ). In the Bartlett test  $X^2$  value was found as 7163.014 and statistically meaningful ( $p < .001$ ). Thus normal distribution was provided. The result was obtained that KMO and Bartlett tests' data results were suitable for factor analysis. The factor loads of the items and the sub-dimensions of the scale are shown in Table 2 in detail.

Items 8-9-19-20-21-29-30-33 were removed from the analysis because their factor loads overlapped and the factor load of item 14 was less than 0.30. As a result of the analysis, the number of items of the scale decreased from 36 to 27.

The total variance explanatory power of the scale was 52.55%. Subdimensions, factor loads, variance explanatory power and Cronbach's alpha reliability coefficient were given in Table 2.

### *Confirmatory factor analysis (CFA)*

To confirm the factor's structure and to measure the fixed index, confirmatory factor analysis was done. CFA analyzed the six factor structure of the QNCS-T consisting of 27 items. In order for the goodness of fit of the model's structure to be acceptable, the RMSEA value must be less than .08,  $\chi^2/df$  ratio must be less than 4 and the CFI, GFI, IFI and TLI values must be greater than .90<sup>25</sup>. However, CFI and IFI values of .80 and above are at acceptable levels<sup>26, 27</sup>. The data obtained for the fit index as a result of the analysis are  $\chi^2/df$  ratio = 2.55, RMSEA = .07, CFI = .90, GFI = .86, IFI = .90 and

TLI = .89 (Figure 1). Regarding CFA results, fit indexes are provided, and factor structures were compatible.

### *Findings regarding the quality nursing care scale for nurses*

When score distributions of the sub-dimensions of the QNCS-T for nurses were examined, it was found that they got  $17.95 \pm 2.06$  from the interdependent nursing role sub-dimension,  $11.72 \pm 2.72$  from the independent nursing role sub-dimension,  $29.02 \pm 4.62$  from the psychological element sub-dimension,  $26.51 \pm 3.03$  from the personal and social milieu sub-dimension,  $10.76 \pm 3.03$  empowering element, and  $19.68 \pm 4.01$  from the spiritual force sub-dimension. The total mean score of the QNCS-T for nurses was found to be  $115.63 \pm 15.28$ , which indicates that the care they provide were high-quality (Table 3).

**Table 3:** Nurses' QNCS-T mean score (n=347)

Scales	Sub-Dimension	Mean± SD	Min-Max Score Possible
Quality of Nursing Care Scale-Turkish	Interdependent Nursing Role	17.95±2.06	0-20
	Independent Nursing Role	11.72±2.72	0-15
	Psychological Element	29.02±4.62	0-35
	Personal and Social Milieu	26.51±3.03	0-30
	Empowering Element	10.76±3.03	0-15
	Spiritual Force	19.68±4.01	0-25
	<b>Total Score</b>	115.63±15.28	0-140

## DISCUSSION

The QNCS-T underwent a rigorous psychometric assessment to evaluate its reliability and validity. Initially, the factor structure of the QNCS-T was investigated through an Exploratory Factor Analysis (EFA). Subsequently, the EFA results were confirmed through a Confirmatory Factor Analysis (CFA). The reliability of the QNCS-T was assessed using several methods, including the calculation of Cronbach's  $\alpha$  internal consistency coefficients, a test-retest procedure, and the examination of item-total correlation coefficients, as recommended by DeVellis (2003)<sup>23</sup>. In the original study by Tsogbadrakh et al. (2021), the Cronbach's  $\alpha$  coefficient was reported as .92. In line with these findings, the current study also yielded a Cronbach's  $\alpha$  value of 0.93 for the scale, indicating a high level of internal consistency.

Six sub-dimensions were included both in the original

and in the Turkish version of the scale. The acceptance level of factor loads was adjusted as 0.30 in the factor analysis. Factors with eigenvalues greater than one were considered significant<sup>28</sup>. Items 8-9-19-20-21-29-30-33 were removed from the analysis because their factor loads overlapped and the factor load of item 14 was less than .30<sup>23</sup>. As a result of the analysis, item 22, item 23 and item 24 in the personal milieu sub-dimension of the original scale were grouped under a separate factor. This factor was named the “empowering element sub-dimension.” Also, since item 26, item 27 and item 28 from the social milieu sub-dimension in the original scale and the item 25 from the personal milieu sub-dimension in the original scale were gathered under one factor, this factor was named the “personal and social milieu sub-dimension.”

This 6-factor structure explains 52.55% of the total variance. The higher the total variance ratio gets, the stronger the scale becomes. Variance values between 40% and 60% are considered ideal in scales that measure attitudes and behaviours. The total variance value of our scale was found to be adequate. The six-dimensional structure of the QNCS-T was tested using CFA. The CFA results showed that the QNCS-T models had acceptable fit values<sup>28</sup>.

A scale that has been tested for reliability is also required to be tested for validity<sup>23</sup>. Cronbach’s alpha was found to be .93 in the reliability analyses of the scale. Cronbach’s alpha of the sub-dimensions was found to be .89 for the “Psychological Element” sub-dimension, .78 for “Personal and Social Milieu” sub-dimension, .85 for the “Spiritual Force” sub-dimension, .81 for the “Independent Nursing Role” sub-dimension, .81 for the “Empowering Element” sub-dimension, and .74 for the “Interdependent Nursing Role” sub-dimension. In light of these findings, the scale was considered to have reasonable reliability levels ( $\alpha > .60$ ) both in terms of sub-dimensions and the overall scale<sup>23</sup>. Another step of the scale reliability study is determining the stability of the scale over time. Test-retest reliability was assessed using the ICC. ICC values below .5 imply poor reliability, while those between .5 and .75 indicate moderate reliability. Good reliability falls within the .75 to .90 range, and values exceeding 0.90 signify excellent reliability. (Koo & Li, 2016). QNCS-T (ICC= .96) and all sub-dimensions (ICC= .91 - .96) demonstrated excellent 2-week test-retest reliability.

When the scores of QNCS-T for nurses are examined, it was seen that the total scale score and the score of each of the sub-dimensions were found to be high. These findings indicate that nurses were provide quality holistic care for their patients.

## CONCLUSION

Quality nursing care is wanted by patients and promised by nurses and directly affects the care outcomes of the patient<sup>29</sup>. This study aims to adapt the Quality Nursing Care Scale (QNCS), which approaches and investigates nursing care from a holistic perspective, taking all its aspects into account, into Turkish, and evaluating its psychometric features. The results of the study showed that the Turkish version of the QNCS (QNCS-T) is a valid and reliable survey tool for investigating the quality of nursing care. It is thought that the use of the scale in nursing care services will create a great awareness in determining the deficiencies of the care they provide, as well as evaluating the quality of nursing care holistically. As a result of this evaluation, training programs can be organized to complete the missing information of nurses and focus on the patient care dimension that nurses need. As a result, it is predicted that all these efforts will increase the quality of patient care.

The most important limitation of this study is that research data was collected from only one university hospital. Despite this limitation, the study results in question showed that the QNCS-T is a valid and reliable survey tool for the investigation of the quality of nursing care among Turkish-speaking communities.

The main reason for this limitation is that the research was conducted during the pandemic period. In studies using QNCS-T, it is recommended to collect data from nurses working in different institutions and evaluate the Cronbach alpha value.

## Author Contributions

Mukadder MOLLAOĞLU, Gülden BASİT, Serpil SU and Yasemin BOY carried out design and concept of the study. Mukadder MOLLAOĞLU drafted the manuscript of the study. The acquisition and analysis of data for the work was performed by Yasemin Boy. Gülden BASİT and Serpil SU revised the manuscript critically. Final approval of the version to be published was done by Mukadder MOLLAOĞLU, Gülden BASİT, Serpil SU and Yasemin BOY.

## CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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## DATA AVAILABILITY STATEMENT

Data used in this study can be requested from the corresponding author.

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