

Özgün Araştırma

Hemşire Mesleki Yeterlilik Ölçeği Kısa Formu'nun Türkçe Geçerlik ve Güvenirliği

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Öz

Amaç: Bu çalışmada Hemşire Mesleki Yeterlilik Ölçeği Kısa Formu'nun Türkçe geçerlik ve güvenirliliğinin incelenmesi amaçlanmıştır.

Gereç ve Yöntem: Bu metodolojik çalışma, 188 hemşirelik öğrencisi ile gerçekleştirildi. Veriler, anket ve Hemşire Mesleki Yeterlilik Ölçeği Kısa Formu'nun Türkçe versiyonu kullanılarak toplandı. Ölçeğin kapsam geçerliği uzman görüşlerine dayalı olarak hesaplandı. Ölçeğin yapı geçerliği Açıklayıcı Faktör Analizi Varimax döndürme yöntemi ile incelendi. Ölçeğin güvenirliliği, test-tekrar test güvenirliliği ve iç tutarlılık için Cronbach alfa katsayıları kullanılarak belirlendi.

Bulgular: Çalışmada kapsam geçerlik indeksinin 0,80'den büyük olduğu belirlendi. Kaiser-Meyer-Olkin değeri 0,906 ve Bartlett testi istatistiği $\chi^2 = 4801,79$ olarak hesaplandı ($p < 0,001$). Cronbach alfa değeri, 85 ile ,90 arasındaydı. Açıklayıcı faktör analizi, faktörler tarafından açıklanan genel varyansın %67,08 olduğunu ortaya koydu. Toplam varyansı açıklayan faktörler %10,05 (Faktör 1), %12,91 (Faktör 2), %11,30 (Faktör 3), %8,71 (Faktör 4), %11,79 (Faktör 5) ve %12,31 (Faktör 6) şeklindedir. Altı farklı alt ölçeğin ortalamaları 83,87 ile 92,54 arasında değişmektedir. Ölçek 35 madde ve 6 alt boyuttan oluşmaktadır.

Sonuç: Hemşire Mesleki Yeterlilik Ölçeği kısa formunun Türkçe versiyonunun yüksek geçerlik ve güvenirliliğe sahip olduğu ve Türk toplumunda hemşirelik öğrencilerinin mesleki yeterliliklerini değerlendirmek için kullanılabileceği bulundu.

Anahtar kelimeler: hemşirelik eğitimi, klinik yeterlilik, hemşirelik öğrencileri, hemşirelik, psikometri

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Original Research

Psychometric Properties of the Turkish Version of Nurse Professional Competence Scale-Short Form

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Abstract

Objectives: This study aimed to examine the validity and reliability of the Turkish version of the Nurse Professional Competence Scale Short Form.

Material and Methods: This methodological study was conducted with 188 nursing students. Data were collected using a questionnaire and the Turkish version of the Nurse Professional Competence Scale Short Form. The validity of the scale was calculated based on expert opinions. The construct validity of the scale was examined through Explanatory Factor Analysis with Varimax rotation. The reliability of the scale was assessed using test-retest reliability and Cronbach's alpha coefficients for internal consistency.

Results: In the study, the content validity index was greater than 0.80. Kaiser-Meyer-Olkin value was calculated as 0.906, and the Bartlett test statistic was calculated as $\chi^2=4801.79$ ($p<0.001$). Cronbach's alpha was between .85 and .90. Explanatory factor analysis revealed an overall variance of 67.08% explained by the factors. The factors explaining the total variance were 10.05% (Factor 1), 12.91% (Factor 2), 11.30% (Factor 3), 8.71% (Factor 4), 11.79% (Factor 5) and 12.31% (Factor 6). The means of the six different subscales ranged between 83.87 and 92.54. The scale consists of 35 items and six sub-dimensions.

Conclusion: The Nurse Professional Competence Scale has high validity and reliability and can be used to assess the professional competence of nursing students in Turkish society.

Keywords: *nursing education, clinical competence, nursing students, nursing, psychometrics*

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Introduction

With the rapid advances in healthcare today, patients' expectations of care have increased significantly. As healthcare services change and innovate, it has become increasingly important to provide evidence for care, to ensure patient safety, to base practice on evidence, and consequently to focus on clinical outcomes of care. These developments require a high level of competence among all healthcare professionals, making the concept of competency in nursing a hot topic (Gardulf et al., 2016; Saldıroğlu & Türk, 2021).

Competence is defined as the combination of knowledge and skills that a person possesses to perform tasks and fulfill responsibilities and the ability to carry out safe and effective practice without the need for supervision (Pantelidou et al., 2016). Competence in nursing refers to the effective implementation of a combination of various complex processes, such as leadership, professional development, diagnosis, planning, observation, problem-solving skills, critical thinking, social engagement, communication, and personal awareness, as well as the correct and effective use of nurses' knowledge, skills, attitudes, and abilities (Gardulf et al., 2019; Kaldan et al., 2019; Nilsson et al., 2014).

Competence is cited as a fundamental component of professional standards, and competence in nursing is essential for the provision of high-quality, ethical, and safe care (Kendall-Gallagher & Blegen, 2009). Nurses must have competent judgment, professional knowledge, and skills to fulfill their professional roles, functions, and responsibilities as expected and to deliver care accurately and effectively (Notarnicola et al., 2018; Tiryaki Şen et al., 2019; van de Mortel et al., 2021).

Nurses must be competent in their field, adapt to rapid changes in healthcare, and maintain a skilled and cost-effective healthcare service (Feliciano et al., 2019). This is because professional competence is necessary to improve the quality of care and patient safety and to achieve the goals of care (van de Mortel et al., 2021). Studies have shown that the low professional competence of nurses leads to increased mortality among hospitalized patients (Cho et al., 2015; West et al., 2014). Furthermore, nurses are expected to take professional responsibility for ongoing care management, maintaining the continuity of an individual's life, and assisting with activities of daily living. Therefore, nurses need to develop and apply their professional competencies in their daily practice (Fukada, 2018).

Nursing education aims to equip professional nurses with appropriate attitudes, sufficient skills, and knowledge to provide safe and skilled nursing and health care to patients, families, and the community (Dunagan et al., 2014; van de Mortel et al., 2021). Therefore, for

nursing students who have completed a Bachelor of Nursing to effectively take their place in the health care system of the future, it is essential to identify the professional competencies expected of them, regularly assess these competencies, determine the factors that influence them, and conduct research to develop their professional competencies (Feliciano et al., 2019; Nilsson et al., 2018; Notarnicola et al., 2018). Nursing students need to have advanced professional competencies to prevent complications that may occur in healthcare and to provide safe and quality care to patients. On the other hand, there is no valid and reliable measurement tool to assess the professional competencies of nursing students in Türkiye. In addition, nursing students and educators need to use valid and reliable assessment tools to measure the progress and development of nursing students' competencies. Therefore, this study aims to investigate the Turkish psychometric properties of the Nurse Professional Competence Scale Short Form (NPC Scale-SF). The study is expected to contribute to the assessment of competence by nurse educators, help in determining students' competence levels, identify deficiencies, evaluate the training curriculum, and make necessary adjustments.

Materials and Methods

Study Design

In the study, a methodological research design was used to test the Turkish validity and reliability of the NPC scale SF.

Universe and Sample of the Study

The study population consisted of 204 nursing students who will graduate from the Faculty of Nursing in the academic year 2019-2020. In factor analysis, it is recommended to increase the number of items in the scale by at least 5-10 times to calculate the sample size (Acaroğlu, 2014). The scale contained 35 items, and we calculated the sample size to include five students for each item to reach 175 students. In the data collection phase, 188 nursing students participated in the study, achieving the desired response rate of 92%.

Inclusion and Criteria

- Being a nursing student
- Agreeing to take part in the study
- Speaking and writing Turkish

Data Collection

The study was carried out in four stages.

Stage I: Translation and Linguistic Adaptation

The techniques of group translation and back-translation for the linguistic adaptation of the scale were used. Four independent individuals who were fluent in English and whose native language was Turkish translated the scale items into Turkish using group translation. The researchers and a language expert then rated these translations, combining the translations that best reflected the meaning and content of each item in the original scale into a single form. Three different researchers, who had not seen the original scale and were fluent in both languages, translated the Turkish form of the scale into English. The researchers combined the three translations into a single translation by consensus. An English native-speaker linguist checked the consistency between the English and Turkish versions. An expert in Turkish language and literature evaluated the scale for language, meaning, integrity, and spelling rules and then checked its compatibility with Turkish. Finally, the researchers tested the scale for content validity in both languages.

Stage II: Content Validation

Expert opinions from 10 faculty members were received to assess the clarity, compatibility, and content validity of the expressions in the final Turkish form of the scale after ensuring their linguistic equivalence. Each expert was asked to rate the scale expressions as follows: 'A - Appropriate' (4 points), 'B - Slightly revised' (3 points), 'C - Seriously revised' (2 points), and 'D - Not appropriate' (1 point) to determine the content validity index (CVI) values. We used the Davis (1992) technique for content validity based on expert opinion. This technique determines the 'Context Validity Index (CVI)' for the item by dividing the number of experts who ticked options A (4 points) and B (3 points) by the total number of experts. The experts rearranged the scale items using the most appropriate expressions. The experts recommended changing the terms in the scale items to "pharmaceutical knowledge," "pharmacological knowledge," "establishing a dialogue," "communicating," "continuous," "existing," "current," "documentation," and "record."

Stage III: Pilot Study

To assess the clarity of the statements in the instrument, a preliminary test was conducted on ten nursing students who shared the same characteristics as the intended sample for the scale. The preliminary administration did not result in any negative feedback on the statements of the scale, which led to the decision to administer the instrument to a sufficiently large sample to investigate its psychometric properties. Those ten students were excluded from the study sample, and related data was not used.

Stage IV: Procedure

This study was conducted between May and June 2020 at Zonguldak Bülent Ecevit University, Nursing Department. Due to the COVID-19 pandemic, data was collected via Google Forms one month before the graduation of the senior nursing students. Data collection took 15-20 minutes on average. In the reliability analysis of the scale, we applied the test-retest method, which tests the time-invariance property of the scale, to the same sample group three weeks after the initial responses from 106 nursing students. We asked the students in the test-retest group to choose a nickname, ensuring 100% agreement between their responses.

Measuring Instrument

Socio-demographic Form

The questionnaire consisted of six questions about the socio-demographic characteristics of the nursing students, including age, gender, level of education, economic situation, satisfaction with the nursing department, and reason for choosing nursing.

NPC Scale Short Form (NPC Scale-SF)

Nilsson et al. (2014) first developed the NPC scale SF in 2014 to assess professional nursing competence using 88 items and eight factors in a 4-point Likert-type (1=very low, 4=very high). The researchers created a shorter version of the NPC scale consisting of 35 items to increase its accessibility, as the 88-item scale poses practical challenges (Nilsson et al., 2018). The NPC scale - SF, created in a 7-point Likert-type (1= I absolutely cannot, 7= I absolutely can), consists of 35 items and measures the six competence domains. The 35 items of the NPC Scale - SF explain 53.6% of the total variance and are a valid and reliable measurement tool. The subdimensions of the original scale have Cronbach's alpha coefficients of 0.76, 0.71, 0.79, 0.82, 0.86, and 0.84, respectively. Factor scores were calculated by summing the items in each factor, dividing by the highest possible score in the factor, and then multiplying by 100 (Nilsson et al., 2018). Table 1 shows the calculation of the scale score. The scale did not have a total score, and each of the six domains received an independent score. A high score in each factor indicates that the student has a good level of competence, and a low score indicates that the competence is not good.

Table 1. Competence Area and Calculation Formulas

Competence Area	Items Counts	Calculation Formulas
1. Nursing Care	5	$(1+2+3+4+5)/35 \times 100$
2. Value-based Nursing Care	5	$(6+7+8+9+10)/35 \times 100$
3. Medical and Technical Care	6	$(11+12+13+14+15+16)/42 \times 100$
4. Care Pedagogics	5	$(17+18+19+20+21)/35 \times 100$
5. Documentation and Administration of Nursing Care Development	8	$(22+23+24+25+26+27+28+29)/56 \times 100$
6. Leadership and Organization of Nursing Care	6	$(30+31+32+33+34+35)/42 \times 100$

Ethical Consideration

Ethical approval was obtained from the Zonguldak Bülent Ecevit University Human Research Ethics Committee (date: 26/10/2020 and number: 882), and written consent was obtained from the director of the institution where the study was to be conducted. We included student consent on the first page of the online data collection form, ensuring that only students who had given their consent could proceed with the form. Permission to adapt the scale into Turkish was obtained from the authors by e-mail.

Data Analysis

IBM SPSS 20.0 (IBM Corp., Armonk, NY, USA) was used for statistical analysis. We used descriptive statistics to analyze the socio-demographic characteristics of the nursing students and applied explanatory factor analysis (EFA) to examine the validity of the scale. We calculated the Kaiser-Meyer-Olkin (KMO) coefficient and performed the Bartlett sphericity test to determine the sample availability for factor analysis. For reliability analysis, Cronbach's alpha (α) reliability coefficient was used for internal consistency, and the intraclass correlation coefficient (ICC) was calculated for test-retest reliability analysis. A p-value < 0.05 was considered statistically significant.

Results

The mean age of participants was 22.77 ± 1.73 (min= 21, max=30) years. One hundred thirty-two of the participants (70.6%) had a high school diploma, and the income of 117 (62.2%) was equal to expenses. Table 2 displays the distribution of socio-demographic characteristics.

Table 2. Participants' Socio-demographic Characteristics (n=188)

Variables	Mean±SD	Min-Max	Median (IQR)
Age (n=188)	22.77±1.73	21-30	22 (22-23)
		n	%
Gender	Female	139	73.9
	Male	49	26.1
Graduated high school (n=188)	High School	132	70.6
	Vocational High School	18	9.6
	Health Vocational High School	23	12.3
	Associate Degree in Health	8	3.8
	Bachelor's Degree	7	3.7
Satisfaction with the nursing department	Yes	157	83.5
	No	31	16.5
Reason for choosing nursing*	For her own will	120	63.8
	Family	86	45.7
	Relative	15	8.0
	Media	5	2.7
	Friends	9	4.8
	Easy job idea	76	40.4
	Unintentional selection	17	9.0
	Others	3	1.6
Income level	Income is less than expenses	53	28.2
	Income is equal to expenses	117	62.2
	Income is more than expenses	18	9.6

SD: Standard Deviation, Min: Minimum, Max: Maximum, IQR: Interquartile range *More than one option selected

Content Validation

For content validity based on expert opinion, the technique of Davis (1992) was used. Davis (1992) accepted the CVI as a minimum of 0.80 for items. Consistent with the expert opinions received, the content validity index for each item in the scale was higher than 0.80. Therefore, we did not exclude any item from the scale. Experts rearranged the items on the scale using the most appropriate expressions.

Explanatory Factor Analysis (EFA)

The construct validity of the NPC Scale - SF was investigated using explanatory factor analysis. We used principal component analysis and varimax rotation for factor analysis. The EFA result showed a Kaiser-Meyer-Olkin (KMO) value of 0.906, indicating that the sample size was adequate for factor analysis. We also performed the Bartlett sphericity test to apply factor analysis. The Bartlett test statistic was calculated as $\chi^2 = 4801.79$ ($p < 0.001$) and was found to be adequate for factor analysis (Table 3).

The NPC-SF scale contained 35 items in a six-factor structure, and the factor loadings of the items are shown in Table 3. The variance explanation ratios of the factors were 10.05%

(factor 1), 12.91% (factor 2), 11.30% (factor 3), 8.71% (factor 4), 11.79% (factor 5) and 12.31% (factor 6). A six-factor structure together explained 67.08% of the total variance (Table 3).

Table 3. Factor structure of the NPC Scale –SF (n=188)

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
NPC 1	0.761	0.088	0.212	0.055	0.198	0.151
NPC 2	0.789	0.171	0.213	0.128	0.182	0.195
NPC 3	0.719	0.138	0.172	0.173	0.165	0.217
NPC 4	0.675	0.299	0.112	0.193	0.230	0.176
NPC 5	0.488	0.047	0.154	0.282	0.149	0.240
NPC 6	0.128	0.871	0.064	0.147	0.158	0.040
NPC 7	0.106	0.843	0.002	0.006	0.081	0.267
NPC 8	0.220	0.825	0.067	0.125	0.218	0.060
NPC 9	0.034	0.648	0.126	0.200	0.131	0.210
NPC 10	0.171	0.567	0.316	0.300	0.097	0.150
NPC 11	0.190	-0.167	0.680	0.067	0.165	0.257
NPC 12	0.259	-0.073	0.637	0.100	0.065	0.213
NPC 13	0.227	0.072	0.773	0.023	0.182	0.078
NPC 14	0.111	0.389	0.721	0.188	0.100	0.124
NPC 15	0.100	0.420	0.717	0.250	0.147	0.061
NPC 16	-0.013	0.203	0.701	0.272	0.367	-0.015
NPC 17	0.129	0.297	0.315	0.573	0.326	0.053
NPC 18	0.225	0.157	0.215	0.796	0.122	0.196
NPC 19	0.241	0.064	0.238	0.772	0.192	0.219
NPC 20	0.212	0.386	0.035	0.594	0.295	0.141
NPC 21	0.059	0.369	0.061	0.524	0.300	0.300
NPC 22	0.323	0.395	0.015	0.179	0.507	0.134
NPC 23	0.351	0.329	0.071	0.198	0.564	0.078
NPC 24	0.166	0.048	0.306	0.184	0.762	0.154
NPC 25	0.128	0.093	0.234	0.274	0.757	0.253
NPC 26	0.237	0.136	0.258	0.139	0.601	0.388
NPC 27	0.263	0.327	0.221	0.086	0.495	0.312
NPC 28	0.181	0.219	0.142	0.102	0.531	0.427
NPC 29	0.177	0.216	0.126	0.188	0.574	0.377
NPC 30	0.101	0.247	0.170	0.110	0.252	0.601
NPC 31	0.202	0.050	0.298	0.099	0.408	0.529
NPC 32	0.250	0.171	0.168	0.096	0.208	0.723
NPC 33	0.200	0.220	0.115	0.164	0.166	0.744
NPC 34	0.125	0.178	-0.008	0.120	0.086	0.808
NPC 35	0.136	-0.042	0.112	0.143	0.164	0.762
Explained variance (%)	10.05	12.91	11.30	8.71	11.79	12.31
Total explained variance (%)= 67.08						
KMO=0.906						
Bartlett $\chi^2= 4801.79$ (p<0.001)						

Factor 1: Nursing care

Factor 2: Value-based nursing care

Factor 3: Medical and technical care

Factor 4: Care pedagogics

Factor 5: Documentation and administration of nursing care

Factor 6: Development, leadership, and organization of nursing care

Internal Reliability

In the reliability analysis of the NPC Scale-SF scale, Cronbach's alpha values were calculated for all sub-dimensions to determine internal consistency. All sub-dimensions of the

NPC Scale-SF had a high degree of internal consistency (Table 4). The means of the six different subdimensions varied from 83.87 to 92.54. Table 4 presents the mean and standard deviation values for the subdimensions.

Table 4. Internal Consistency of the NPC Scale -SF Sub-scales

NPC Scale-SF sub-scales	Cronbach's α	Mean\pmSD
Value-based nursing care	0.885	92.54 \pm 8.11
Development, leadership and organization of nursing care	0.879	83.87 \pm 11.9
Documentation and administration of nursing care	0.903	86.61 \pm 9.71
Medical and technical care	0.859	83.98 \pm 11.29
Nursing care	0.857	86.87 \pm 8.78
Care pedagogics	0.871	87.07 \pm 9.39

SD: Standard Deviation

Test-Retest Reliability

The ICC values of the scores obtained for the sub-dimensions of the NPC scale, showing the test-retest reliability, are given in Table 5. ICC value of 0.895 for “Value-based nursing care,” 0.590 for “Development, leadership, and organization of nursing care,” 0.570 for “Documentation and administration of nursing care,” 0.571 for “Medical and technical care,” 0.501 for “Nursing care” and 0.500 for “Care pedagogics.” Acceptable test-retest reliability was achieved ($p < 0.001$).

Table 5. Test-retest reliability analysis of the NPC sub-scales (n=106)

NPC sub-scales	ICCs	95% CI	p
Value-based nursing care	0.895	0.858-0.923	<0.001
Development, leadership and organization of nursing care	0.590	0.476-0.685	<0.001
Documentation and administration of nursing care	0.570	0.453-0.669	<0.001
Medical and technical care	0.571	0.453-0.669	<0.001
Nursing care	0.501	0.372-0.611	<0.001
Care pedagogics	0.500	0.371-0.611	<0.001

ICCs: Intra-class Correlation Coefficients, CI: Confidence Interval

Discussion and Conclusion

Regular assessments of basic nursing education programs should take into account the needs of healthcare organizations and community changes (Gardulf et al., 2019). Professional competence is a crucial requirement for ensuring patient quality of care and safety. However, the perceptions of nursing students about their professional competence at graduation, particularly in the Turkish context, remain largely unexplored. Many European countries have used the short version of the original NPC as a research tool among nurses, demonstrating a high level of reliability in both the original population and the current study setting (Nilsson et

al., 2018). In this study, the Turkish psychometric properties of the newly developed short version of the NPC Scale were evaluated.

Content Validity Assessment

We examine content validity to determine whether a measurement tool is adequate in quantity and quality to measure the desired concept. There are different ways to assess content validity. However, the most common method is to obtain expert opinion (Almanasreh et al., 2019). Here, we calculated the content validity index to evaluate the content validity. After the linguistic accuracy was confirmed, the Turkish version of the scale was further submitted to an expert opinion (n=10) to assess the comprehensibility, appropriateness, and content validity of the wording. The CVI was accepted as a minimum of 0.80 for the items (Davis, 1992). To the expert opinions, the content validity index of each item was higher than 0.80. The CVI was calculated as 0.98 in the Slovenian validity and reliability study conducted by Prosen et al. (Prosen et al., 2021). The results of the study indicated that the Turkish version was sufficient in terms of linguistic and content validity.

Construct Validity Assessment

Construct validity is calculated to determine whether the scale is capable of adequately measuring a desired concept (Izquierdo et al., 2014). Construct validity is defined as the degree of measurement of the test that measures an abstract feature. Factor Analysis is one of the most preferred methods to obtain data on construct validity (Seçer, 2018). How many factors the items in the measurement tool will be grouped under, and what kind of relationship between them are determined by Exploratory Factor Analysis (Izquierdo et al., 2014; Seçer, 2018).

We recommend creating a sample with a size of five or ten times the number of items in exploratory factor analysis. We use Kaiser-Meyer-Olkin's (KMO) measurement technique to determine the sample adequacy, and a value close to 1 indicates the adequacy of the sample size. Although the literature recommends varying values for KMO, it is defined as very good between 0.80 and 0.90, with a minimum of 0.70 or 0.80 and above 0.90 as excellent. After this condition is met, the significance value is expected to be less than 0.05 based on Barlett's Test of Sphericity (Sönmez & Alacapınar, 2016). The scale in this study was put through factor analysis, and the KMO test value (0.906) and the Barlett sphericity test significance value ($p<0.001$) were found. This provided that data were good for factor analysis.

We applied EFA to explore the subdimensions believed to influence nursing students' professional competence. The literature states that a variance rate of 30% or more on single-factor scales and 40–60% on multi-factorial scales is adequate. The scale's factor structure

becomes stronger the more the factors explain the total variance (Gaskin & Happell, 2014). The study determined the explanatory power of the scale's variance in EFA to be 67.08%. This result indicates that the scale measures the professional competencies of nursing students well. The NPC Scale-SF's thirty-five items accounted for 53.6% of the total variance, with factor loads ranging from 0.428 to 0.795, confirming its validity and reliability as a measurement tool (Nilsson et al., 2018). The NPC Scale-SF, like its original version, comprises six factors.

The means for the six different subdimensions varied from 83.87 to 92.54. Development, Leadership, and Organization of Nursing Care were the areas in which the students rated their competence lowest. At the same time, Value-based Nursing Care was the area rated highest by the students. Nursing Care and Documentation and administration of nursing care received average scores. This result aligns with previous studies (Gardulf et al., 2016; Lachmann & Nilsson, 2021; Theander et al., 2016; van de Mortel et al., 2021). A recent study conducted with newly graduating students in six European countries reported that the students also rated competence in Value-Based Nursing Care among the highest and Development, Leadership, & Organization of Nursing Care as the lowest (Nilsson et al., 2019).

Cronbach's Alpha coefficient best reflects the general reliability structure of the scale. If Cronbach's Alpha coefficient is between 0.80 and 1.00, the scale is considered to have high reliability (Acaroğlu, 2014). In this study, the reliability measured using Cronbach's alpha was found to be very good, varying from .86 to .90. In the original scale, this value was between 0.70 and 0.86 (Nilsson et al., 2018). In the study conducted in the Kingdom of Saudi Arabia with nurses, the reliability measured as internal consistency for Cronbach's alpha of the NPC short version was found to range from 0.86 to 0.93 (Halabi et al., 2021).

The scores obtained from the six different sub-scales ranged between 83.87 to 92.54. The areas in which students rated their competence lowest were Development, Leadership, and Organisation of Nursing Care, while those rated highest were Value-based Nursing Care. Nursing Care and Documentation and administration of nursing care received intermediate mean scores. This is in line with previous studies (Gardulf et al., 2016; Lachmann & Nilsson, 2021; Theander et al., 2016; van de Mortel et al., 2021) A recent European study including newly graduating students in six European countries showed that they also rated competence in Value-Based Nursing Care among the highest and Development, Leadership, & Organisation of Nursing Care as the lowest (Nilsson et al., 2019). Value-based nursing consists of skills and abilities concerned with communication, humanistic values, a holistic view, and respect for a patient's autonomy, integrity, dignity, different values, and beliefs. Acting on patients' and

relatives' wishes and needs is also included in this competence area. These competencies are in line with the person-centered framework, which includes working with patients' beliefs and values, engagement, having a sympathetic presence, sharing decision-making, and providing for physical needs. The increased focus on these topics in nursing curriculum programs may account for this outcome.

The lowest competency of "Development, Leadership, and Organization of Nursing Care" is understandable since most nurses are in clinical bedside nursing care, with only a few in organization and leadership management positions. Therefore, nursing education curricula in Türkiye also emphasize value-based nursing approaches that prioritize communication with patients and team members, respect for humanistic and ethical values, a holistic perspective, and a focus on addressing patients' autonomy, beliefs, values, and their physical, emotional, and social needs. Cummings et al. (2018) emphasized the importance of nurses' professional leadership knowledge. This leadership addresses challenges in complex and various healthcare settings and gradually depends on empirical knowledge for successful outcomes (Cummings et al., 2018)

With the rapid advancement of healthcare systems, nurses constitute a vital professional group that must be competent in delivering safe, high-quality, and cost-effective healthcare services. Nursing competence is a fundamental concern for nursing educators and administrators, and evaluating and enhancing nurses' competencies is crucial to meeting the requirements of an improved healthcare system. The study found the Turkish adaptation of the NPC Scale-SF, consisting of 35 items and six sub-dimensions, to be a valid and reliable measurement tool for assessing the professional competence of nurses based on core competencies in the Turkish population.

For graduating students, competence assessment can help prepare them for professional practice, guide them in acquiring the skills needed to provide safe and effective care, assist in identifying their strengths and areas for improvement, and instill a sense of professional responsibility by ensuring they meet basic quality standards of care. For nursing educators, assessing students' competency levels plays a critical role in enhancing the effectiveness of education. Educators can review and refine curricula and teaching methods based on evaluation results, thus ensuring students acquire the knowledge and skills necessary for their roles. For nursing administrators, evaluating the competence of employed nurses is essential to ensuring safe, high-quality, and effective patient care. Competence assessments enable nurse administrators to identify the professional development needs of their staff, thus supporting

continuous improvement in healthcare services. Future national studies may also utilize the NPC Scale-SF.

In conclusion, this study aimed to examine the Turkish validity and reliability of the NPC-SF scale. The construct validity of the scale was evaluated using the exploratory factor analysis (EFA) method, and it was determined that the NPC-SF scale consists of 35 items and a six-factor structure, explaining 67.08% of the total variance. The reliability of the scale was analyzed in terms of both internal consistency and test-retest reliability. The Cronbach's alpha values indicated that the subdimensions possess high internal consistency. These findings support that the NPC-SF scale is a valid and reliable measurement tool. The adapted NPC-SF scale can be utilized in clinical settings and academic studies to assess the professional competencies of nursing students.

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Conflicts of Interest

The authors report no actual or potential conflict of interest.

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