Agri 2024;36(3):181–193
doi: 10.14744/agri.2023.62547

ORIGINAL ARTICLE

Developing an ethical attitude scale for pain management in nursing

Hemşirelikte ağrı yönetiminde etik tutum ölçeği geliştirme

Emre NAMIK,[1*] Esra AKIN,[1] Meltem UYAR[2]

Summary

Objectives: The aim of this study is to develop the "Developing an Ethical Attitude Scale for Pain Management in Nursing" to assign the ethical attitudes of nurses in pain management.

Methods: The population of the study comprised nurses (n=411) working in a university hospital in İzmir. The Ethical Attitude Scale in Nursing Pain Management was developed in five sub-dimensions: "Care and Dignity," "Ethical Values," "Attitude," "Rights," and "Pain Management." This scale was created by examining many research studies related to pain management in nursing in the literature and taking expert opinions. "The Ethical Attitude Scale in Nursing Pain Management" initially consisted of 36 items. After expert opinions and validity analyses, the draft scale was reduced to 34 items, and then reliability analysis further reduced the scale to 23 items.

Results: In the validity and reliability study of "The Ethical Attitude Scale in Nursing Pain Management," the total Cronbach's alpha value of the scale was 0.86. The Cronbach's alpha value for the "Care and Dignity" sub-dimension was 0.88; for the "Ethical Values" sub-dimension, it was 0.83; for the "Attitude" sub-dimension, it was 0.86; for the "Rights" sub-dimension, it was 0.79; and for the "Pain Management" sub-dimension, it was 0.72.

Conclusion: According to these data, it was determined that "The Ethical Attitude Scale in Nursing Pain Management" is a valid and reliable scale.

Keywords: Attitude; development of scale; ethical attitude; nursing; pain management.

Özet

Amaç: Bu araştırmanın amacı, hemşirelerin ağrı yönetiminde etik tutumlarının belirlenmesi için "Hemşirelikte Ağrı Yönetiminde Etik Tutum Ölçeği"nin geliştirilmesidir.

Gereç ve Yöntem: Araştırmanın evrenini, İzmir iline bağlı bir üniversite hastanesinde görev yapan hemşireler (n=411) oluşturmuştur. Hemşirelikte Ağrı Yönetiminde Etik Tutum Ölçeği, araştırmacılar tarafından "Bakım ve Onur," "Etik Değerler," "Tutum," "Haklar" ve "Ağrı Yönetimi" olmak üzere beş alt boyutta, literatürde yer alan hemşirelikte ağrı yönetimi ile ilgili pek çok araştırma incelenerek ve uzman görüşleri alınarak geliştirilmiştir. İlk geliştirildiğinde 36 maddeden oluşan taslak ölçek, uzman görüşleri ve geçerlik analizleri sonucunda önce 34 maddelik şeklini almış, sonrasında yapılan geçerlik güvenirlik analizleri neticesinde 23 maddeden oluşmuştur. Bu bağlamda; ölçeğin geliştirilmesinde "Açımlayıcı Faktör Analizi, Doğrulayıcı Faktör Analizi, Barlett Testi, Ki-Kare Uyum Testi, Cronbach Alfa Testi, Shapiro-Wilk Testi, Hotelling's T Testi, Spearman Brown Katsayısı, Guttman Split-Half Coefficient Testi, ROC Eğrisi Analizi" kullanılmıştır.

Bulgular: Ölçeğin toplam Cronbach alfa değeri 0.862 olarak belirlenirken; faktörlere ait Cronbach alfa değerleri incelendiğinde ise sonuçlar: "Bakım ve Onur" alt boyutuna ait Cronbach alfa katsayısı değeri 0.889; "Etik Değerler" alt boyutuna ait Cronbach alfa katsayısı değeri 0.838; "Tutum" alt boyutuna ait Cronbach alfa katsayısı değeri 0.861; "Haklar" alt boyutuna ait Cronbach alfa katsayısı değeri 0.795; "Ağrı Yönetimi" alt boyutuna ait Cronbach alfa katsayısı değeri 0.721 olarak saptanmıştır.

Sonuç: Bu veriler doğrultusunda, "Hemşirelikte Ağrı Yönetiminde Etik Tutum Ölçeği"nin geçerli ve güvenilir bir ölçek olduğu belirlenmiştir.

Anahtar sözcükler: Ağrı yönetimi; etik tutum; hemşirelik; ölçek geliştirme.

***The current affiliation of the author:**
Dokuz Eylül University Faculty of Medicine, İzmir, Türkiye

[1]Department of Fundamentals of Nursing, İzmir Katip Çelebi University, Institute of Health Sciences, İzmir, Türkiye
[2]Department of Anesthesiology and Reanimation, Ege University Faculty of Medicine, İzmir, Türkiye

Submitted *(Başvuru)*: 10.05.2023 **Revised *(Revize)*: 11.09.2023** **Accepted *(Kabul)*: 02.10.2023** **Available online *(Online yayımlanma)*: 10.07.2024**

Correspondence: Dr. Esra Akın. İzmir Katip Çelebi Üniversitesi, Sağlık Bilimleri Enstitüsü, Hemşirelik Esasları Anabilim Dalı, İzmir, Türkiye.
Phone: +90 - 232 - 329 35 35/4790 **e-mail:** esra.akin@ikc.edu.tr

Introduction

Pain is an abstract concept that is experienced by all people at certain times in their lives and affects the lives of individuals in many ways.[1,2] The definition of pain by the Taxonomy Committee of the International Association for the Study of Pain (1979) emphasizes that pain is a sensory, emotional, and subjective experience and that the underlying cause is tissue destruction.[1,3–5] Pain is an experience that produces changes in the patient's cognitive, behavioral, and intellectual processes, leading the individual to attempt to eliminate it. Effective pain management is very important and essential because pain negatively affects and changes the individual's life at many points.[2,6–9] Unmanaged pain leads to serious consequences, such as prolonged hospitalization and consequently higher patient care costs. Studies conducted in the United States (US) to determine patient care cost outcomes for chronic pain have found serious cost consequences, particularly for cancer and heart disease.[10,11] All of these findings unfortunately demonstrate that there are problems with clinical pain management. However, the management of pain is a basic human right for any individual suffering from it. In this sense, health systems should provide universal services that can effectively treat pain.[12–14]

Nurses play an active role in the effective management of pain, which is one of the rights of patients. What makes nurses so important among health care professionals in pain management is the personal communication they have with patients, the time they take to get to know the patient better, the consideration of the individual's values and beliefs, and their planning for pain management. For this reason, nurses, who have a great responsibility in pain management, should know pain in its mechanisms of action from the physiopathological dimension to the emotional level, be familiar with both classical and innovative treatment options, and have experience in pain assessment.

The review of the literature shows that nurses usually apply the determined treatment in pain management and often use their medical role in this case.[2,6,8] A positive nurse attitude toward pain is made possible by a procedural approach that includes appropriate topics in the assessment and management of pain. Pain management is essential to good clinical practice, and patients have the right to get pain management. Treatment of pain must be justified from a medical, economic, and ethical perspective. Nurses must continually improve their knowledge in pain management, including the medical, legal, and ethical aspects of pain. From an ethical perspective, leaving a person with a pain that is likely to be relieved is a human rights violation. Relief of pain is a human right for every individual. The source for this decision is the rights that people around the world have by virtue of being human.[15–18] At this stage, it is important to consider the non-pharmacological aspects of pain management. This situation directly affects the nurse and represents his or her ethical obligation. This is because the nurse should correctly assess the pain and use complementary and integrative treatments in addition to pharmacological treatments. Nurses have ethical principles, values, and duties in pain management. As with all other initiatives, nurses have ethical obligations in pain management.

Considering all this information, it is clear that the nurse's positive attitude toward pain management is very important. At this point, the ethical aspect of this attitude comes into play. Effective pain management is an ethical issue because it requires consideration of the patient's autonomy, the patient's free choice during the treatment process, protection of human dignity, and relief of pain as quickly as possible. Considering all these factors, it was considered necessary to conduct this study because it is believed that it is important to investigate a scale that directly examines the ethical attitudes of nurses in pain management and also because there is no such scale in the literature. In addition, it is believed that the scale designed to reveal the ethical attitudes of nurses in pain management will also serve as a guide for the presentation of ethical behavior in pain management in nursing.

MATERIALS and METHODS

The nature of this investigation is methodological.

Population and Sample of the Research

The study was conducted at İzmir Katip Çelebi University Atatürk Training and Research Hospital between December 2019 and February 2020. The

population of the study consisted of nurses working at İzmir Katip Çelebi University Atatürk Training and Research Hospital. To determine the number of nurses to be included in the sample of the study, the stratified sampling method was used, which is one of the appropriate probability sampling methods, and the weight of the strata was calculated. The simple random sampling method was used to select the nurses. In addition, it is recommended that the sample should be 5 to 10 times the total number of items in the scale to perform factor analysis in scale studies.[19] In this regard, the study sample consisted of 194 nurses, which is more than 5 times the number of scale items.

Data Collection Tools

The "Student Introduction Form" and the "Perception and Understanding of Human Dignity in Nursing Scale" developed by the researchers were used for data collection.

Nurse Introduction Form: This form, designed by the researchers in accordance with the purpose of the study, consists of 13 open- and closed-ended questions designed to capture nurses' views on sociodemographic characteristics, professional characteristics, and the concept of ethical attitude in pain management.

Ethical Attitude Scale in Pain Management in Nursing: The scale developed by the researchers consists of 23 items and sub-dimensions ("Care and Dignity," "Ethical Values," "Attitude," "Rights," and "Pain Management"). The items of the 5-point Likert-type scale are rated as follows: 1: "I do not agree at all", 2: "I do not agree", 3: "I am undecided", 4: "I partially agree", 5: "I agree". Only positive and negative statements are included in the scale items.

Developmental Stages of the Ethical Attitude Scale in Pain Management in Nursing

In developing the Ethical Attitude Scale in Pain Management in Nursing, the stages of development for measurement instruments described in the literature were followed. These stages are determining the topic to be measured, creating an item pool related to the topic, determining the measurement format, obtaining expert opinions on the scale items, and conducting validity and reliability analysis of the scale.[20,21] In this context, the creation of the scale items and the testing of the validity and reliability of the scale were conducted in two steps.

1. Stage: The Ethical Attitude Scale in Pain Management in Nursing was developed by researchers. The scale's item pool was created benefiting from the literature on ethical attitudes in pain management in nursing and in-depth interviews with experts in the field. Faculty members from the fields of medical ethics, algology, philosophy, sociology, and nursing principles who have conducted studies on this topic participated in the in-depth interviews. Interviews lasted an average of 45–60 minutes with each expert. The interviews focused on the following questions:

- What is pain?
- What is ethics?
- What is an ethical attitude in pain management?

The relevant interviews were recorded using a voice recorder. These interview data were documented by transferring them to the computer. The written documents were reviewed by repeatedly listening to the audio recordings. The written documents obtained from the interviews were subjected to content analysis. Based on the information obtained from the literature review and interviews, a draft scale with 36 items was created. To test the content validity of the scale, an expert opinion-based procedure was used. In this process, the expert rating form was hand-delivered or emailed to 10 experts composed of faculty members who agreed to provide an expert opinion. The experts rated each item in the draft scale as "fairly suitable," "suitable," "suitable but needs modification," and "not suitable." In addition, the experts were allowed to make suggestions for each item.

2. Stage: The validity and reliability of the Ethical Attitude Scale in Pain Management in Nursing were examined to determine whether the data measured reflect the characteristic being measured and whether the measurement is compliant with the rules.

Content validity, face validity, and construct concept validity were used in examining the validity of the scale. In determining the content validity values, the number of experts expressing the opinions "fairly suitable," "suitable," "suitable but needs modification"

and "not suitable" was first calculated for each item in the draft scale. Then, for each item, the number of experts who expressed opinions on that item was divided by half of the total number of experts who expressed opinions on that item. The content validity ratio (CVR) for the items was determined by taking 1 less than this ratio for each item. Items that were deemed inappropriate by all experts and items that were found to be statistically insignificant in the CVRs were eliminated. The items suggested by the experts were revised, the mean values of the total CVRs of the remaining items were taken, and the content validity index (CGI) was calculated. For the face validity of the Ethical Attitude Scale in Pain Management in Nursing, all items were evaluated by the researchers for their comprehensibility and expression, taking into account the suggestions of the experts who had expressed their opinions, and appropriate corrections were made. The construct-concept validity of the measurement instrument was evaluated to determine what characteristics the Ethical Attitude Scale in Pain Management in Nursing measures and what the scores of the individuals to whom the scale was applied mean. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were applied to statistically determine the construct-concept validity of the dimension; KMO (Kaiser-Meyer-Olkin) and Bartlett tests were applied to assess their suitability for factor analysis.

In examining the reliability of the scale, the agreement of the scale with the normal distribution, internal consistency reliability, and test-retest reliability were used. The coefficients kurtosis and skewness were used to determine the fit of the data results to the normal distribution, and the Shapiro-Wilk test was used to determine the appropriate test statistic and fit the normal distribution. The Cronbach alpha coefficient, Hotelling's t-test, Guttman split-half coefficient test, Spearman-Brown coefficient, and split-half reliability test analysis were used to determine the internal consistency reliability of the scale whose fit to the normal distribution was examined. To test the ability of the scale to provide consistent results with each application and to show temporal invariance, it was applied again three weeks after the first application of the scale to 23 nurses selected from the research sample by stratified and systematic sampling methods.

The Ethical Aspect of the Research

Written approvals were obtained from the İzmir Katip Çelebi Non-Interventional Clinical Studies Institutional Review Board (decision date: 14.11.2018, approval number: 386) and from the institution where the research was conducted. In addition, verbal consent was obtained from the participants by informing them about the purpose of the study. The principles of the 2008 Declaration of Helsinki were followed throughout the study.

Data Collection and Evaluation

The draft scale was applied to 194 nurses who volunteered to participate in the study between December 2019 and February 2020, and tests of validity and reliability of the scale were performed with the data obtained. The statistical significance value was determined as <0.05 for all tests. Data analysis was performed using SPSS version 22.0 (SPSS Inc, Chicago, IL, USA) and the LISREL structural equation modeling package to perform CFA. Numbers, percentages, and averages were used to analyze the nurses' descriptive data. Lawshe's content validity ratio (CVR), EFA, and CFA were applied to determine the validity of the scale. In the reliability analysis, the Cronbach's alpha coefficient and the correlation coefficient for test-retest adjustment were calculated. The statistical significance value was determined as <0.05 for all tests.

RESULTS

93.3% of the nurses participating in the study were women, and 38.1% were in the age group of 30–39 years. The average age of nurses was 35.00±7.54 (20–52 years), length of service was 13.61±8.51 (1–34 years), and weekly working hours were 50.00±7.81 (33–80 hours). More than half of the nurses (66%) have a bachelor's degree, and 88.1% of them work in shifts.

Validity of the Scale

Content validity: Multiple expert opinions were obtained for content validity, and content validity was assessed by a total of 10 faculty members who were experts in their field using the Davies technique. In accordance with the expert opinions and content validity analysis, 2 items (items 8-items 12) were eliminated in the first stage. 2 items with CVR values below 0.62 were removed from the scale according to the experts' recommendations. After the inap-

Table 1. Item-total correlations of the Ethical Attitude Scale in Pain Management in Nursing

Items	Item-total correlation	Internal consistency coefficient when item is deleted	p
M1	0.372	0.773	0.000
M2	0.344	0.772	0.000
M3	0.334	0.773	0.000
M4	0.142	0.778	0.000
M5	0.442	0.771	0.000
M6	0.381	0.769	0.000
M7	0.388	0.768	0.000
M8	0.494	0.763	0.000
M9	0.388	0.767	0.000
M10	0.371	0.768	0.000
M11	-0.020	0.793	0.000
M12	-0.072	0.798	0.000
M13	0.284	0.773	0.000
M14	0.456	0.770	0.000
M15	0.035	0.785	0.000
M16	0.235	0.777	0.000
M17	0.210	0.775	0.000
M18	0.251	0.775	0.000
M19	0.454	0.767	0.000
M20	0.377	0.769	0.000
M21	0.288	0.773	0.000
M22	0.367	0.770	0.000
M23	0.517	0.767	0.000
M24	0.479	0.768	0.000
M25	0.099	0.783	0.000
M26	0.406	0.769	0.000
M27	0.401	0.769	0.000
M28	0.408	0.766	0.000
M29	0.087	0.783	0.000
M30	0.349	0.769	0.000
M31	0.329	0.770	0.000
M32	0.353	0.769	0.000
M33	0.393	0.767	0.000
M34	0.329	0.771	0.000

propriate items were removed, the content validity analysis of the scale was performed again. Appropriate rules and item rankings were changed according to the experts' suggestions. After all adjustments were made, item rankings were changed. According to this; the rank of item 10 became 1, the rank of item 11 became 2, the rank of item 9 became 3, the rank

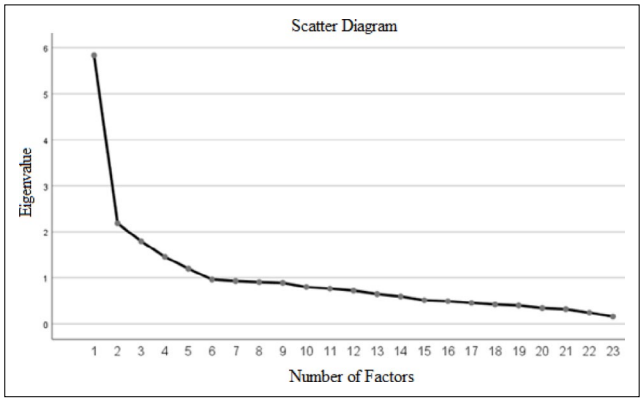

Figure 1. Scatter diagram obtained when substances are released.

of item 21 became 4, the rank of item 16 became 5, the rank of item 1 became 8, the rank of item 2 became 9, the rank of item 3 became 10, the rank of item 13 became 11, the rank of item 14 became 12, the rank of item 15 became 13, the rank of item 5 became 14, the rank of item 17 became 15, the rank of item 18 became 16, the rank of item 19 became 17, the rank of item 20 became 18, the rank of item 4 became 19, the rank of item 22 became 20, the rank of item 23 became 21, the rank of item 24 became 22, the rank of item 36 became 34, and items 6 and 7 remained in the same order. For the first version of the scale, which consisted of 32 items, content validity proved to be statistically significant, yielding CGI≥CGO (0.91>0.80) ($p<0.05$).

Construct Concept Validity: Before construct validity was determined, the overall correlations of each item were assessed (Table 1). Items with an item-total correlation of less than 0.30 (items 4, 11, 12, 13, 15, 16, 17, 18, 21, 25, 29) were discarded, and construct validity analyzes of EFA and CFA were then conducted. For the EFA, items were released and principal component analysis was performed. As a result of the first principal component analysis, it was determined that the scale had a five-factor structure (Fig. 1).

The dimension of factor 1 was labeled "Care and Honor" in the "Ethical Attitude Scale in Pain Management in Nursing." The factor loadings of the 6 items belonging to the dimension of factor 1 ranged from 0.434 (the smallest) to 0.812 (the largest). Factor 1 explained 25.395% of the total variance. The five items belonging to the dimension of factor 2 labeled "Ethical Values" had values ranging from 0.510 to 0.746 and explained 34.876% of the total variance. The dimension of factor 3 is labeled "Attitude." The factor load-

Table 2. Factor loads according to the results of the explanatory factor analysis of the Ethical Attitude Scale for Pain Management in Nursing

Items	F1	F2	F3	F4	F5
M1		0.746			
M2		0.573			
M3		0.669			
M5		0.645			
M6		0.510			
M7				0.666	
M8				0.709	
M9				0.804	
M10				0.410	
M14					0.454
M19	0.742				
M20	0.594				
M22	0.457				
M23	0.812				
M24	0.774				
M26					0.663
M27					0.588
M28			0.673		
M30					0.617
M31			0.691		
M32			0.788		
M33			0.810		
M34	0.434				
Eigenvalue	5.841	2.181	1.791	1.458	1.197
Explained variance (%)	25.395	9.481	7.788	6.340	5.205
Total score average (Maen±SD, min–max)	27.3505±2.963 (8–30)	23.659±1.837 (16–25)	15.794±3.33 (4–20)	17.263±2.73 (6–20)	17.881±2.143 (11–20)
Scale total score average (Maen±SD, min–max)			101.949±8.84 (70–115)		

SD: Standard deviation; Min: Minimum; Max: Maximum.

ings of the four items belonging to the sub-dimension of factor 3 ranged from 0.673 (the smallest) to 0.810 (the largest). Factor 3 explained 42.664% of the total variance. Four items belonging to the dimension of factor 4 labeled "Rights" had values ranging from 0.410 to 0.804. Factor 4 explained 49.004% of the total variance. The dimension of factor 5 labeled "Pain Management" took values between 0.454 and 0.663 and explained 54.209% of the total variance (Table 2). The result of Barlett's test for sampling adequacy was χ^2=1458.216, df=253, p=0.000, and the KMO index was 0.797. Because it was recommended that factor items should be greater than 0.30,[22,23] no item was discarded as a result of principal component analysis. Accordingly, it can be said that the sample size of the scale is quite sufficient.[23,24] The overall mean score of the dimension "Factor 1/Care and Honor" is 27.3505±2.963 (range, 8–30 points), the overall mean score of the dimension "Factor 2/Ethical Values" is 23.659±1.837 (range, 16–25 points), the overall mean score of the sub-dimension "Factor 3/Attitude" is 15.794±3.33 (range, 4–20 points), the overall mean score of the sub-dimension "Factor 4/Rights" is 17.263±2.73 (range, 6–20 points), and the

Table 3. CFA Results of the Ethical Attitude Scale for pain management in nursing

Indexes	χ^2/SD	χ^2	GFI	AGFI	CFI	S-RMR	RMSEA	NFI	IFI	NNFI	ECVI
Value from scale	**370.46/220=1.684**	370.46	0.88	0.85	0.95	0.070	**0.060**	0.90	0.95	0.95	2.50

SD: Standard deviation; CFA: Confirmatory factor analysis; GFI: Goodness of fit index; AGFI: Adjustment goodness of fit index; CFI: Comparative fit index; S-RMR: Standardized root mean square residual; RMSEA: Root mean square error of approximation; NFI: Normed fit index; IFI: Incremental fit index; NNFI: Non-normed fit index; ECVI: Expected cross validation index.

overall mean score of the sub-dimension "Factor 5/ Pain Management" was calculated as 17.881±2.143 (range, 11–20 points). With the item pool prepared for the CFA, the five-factor structure was as follows. Items 19, 20, 22, 23, 24, and 34 are placed in factor 1. Items numbered 1, 2, 3, 5, and 6 are placed in factor 2. Items numbered 28, 31, 32, and 33 are placed in factor 3. Items numbered 7, 8, 9, and 10 are placed in factor 4. Items numbered 14, 26, 27, and 30 are placed in factor 5. The CFA was applied to this five-factor structure. As a result of CFA, which was used to examine whether the factor structure of the scale to which EFA was applied was confirmed, values above 1.96 were considered significant at the 0.05 level, and values above 2.56 were considered highly significant at the 0.01 level.[22,24] Since the T value was not less than 1.96, no item was omitted in this context, and as a result of the CFA analysis of the tested model of the scale, it was found that the fit indices were at an acceptable level (Table 3).

When the coefficients showing the relationship between the observed variables of the model containing the factorial structure of this scale and its factors were examined, it was concluded that the χ^2/SD and RMSEA values were at the level of excellent and good agreement. Considering the fit statistics calculated by CFA, it was decided that the scale provided an acceptable level of fit according to the fit index values obtained with the collected data. Accordingly, the t values of the Path diagram of the scale are shown in Figure 2 and the standard values are shown in Figure 3.

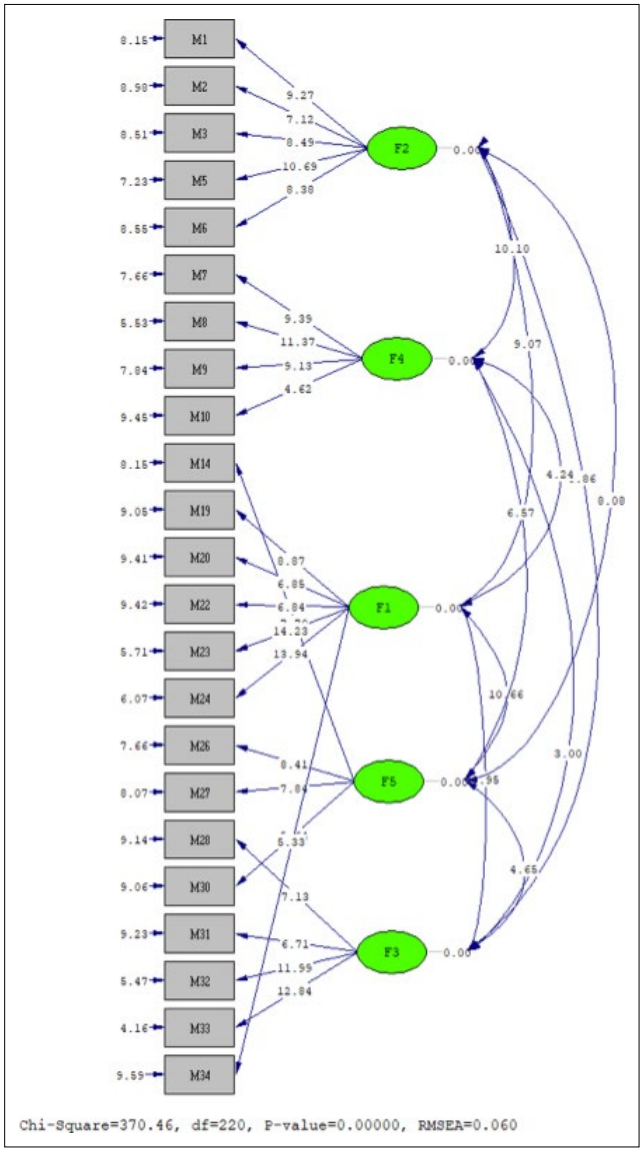

Figure 2. T values for Path diagram of the scale.

Reliability of the Scale

Prior to the reliability analysis of the scale, it was examined whether the data set had a normal distribution. As a result of the examination, the conformity of the scale to the normal distribution was evaluated using an extreme value analysis. The overall item mean score of the Ethical Attitude Scale in Pain Management in Nursing was 101.95±8.845, the median score was 102.00, the skewness score was 1.020±0.347, and the slope score was -0.945±0.175. The distribution appeared to be moderately skewed to the right. In addition, the Kolmogorov-Smirnov value was determined to be 0.091 and the p-value was determined to be 0.000. It can be said that the analysis is similar to normal distribution because central tendency measures (arithmetic mean 101.95 and median value 102.00) are close to each other, and the steep-

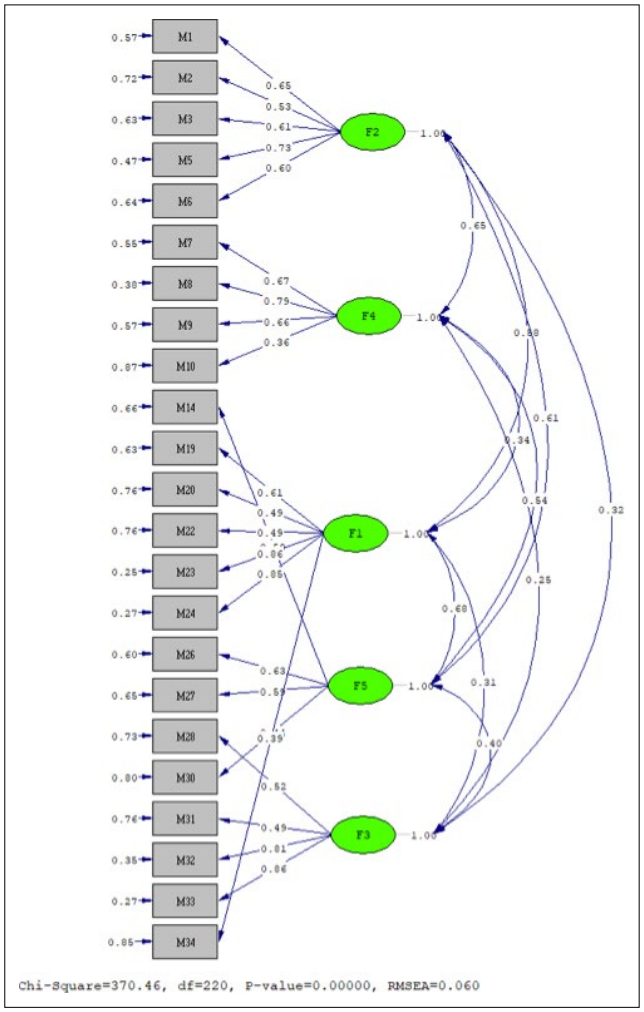

Figure 3. Path diagram standardization values of the scale.

ness and skewness coefficients vary from (0.945 and 1.020) -1.96 to +1.96. Since the data set is not suitable for normal distribution, the transformation was performed with the application of the square root. After applying the square root, the data set was normalized by a logarithmic transformation.

Internal consistency - reliability: As a result of the performed analyses, it was found that the Cronbach's alpha value of the developed scale is 0.86. The Cronbach alpha value of the "Care and Honor" sub-dimension was calculated as 0.88; the Cronbach alpha value of the "Ethical Values" sub-dimension was calculated as 0.83; the Cronbach alpha value of the "Attitude" sub-dimension was calculated as 0.86; the Cronbach alpha value of the "Rights" sub-dimension was calculated as 0.79; and the Cronbach alpha value of the "Pain Management" sub-dimension was calculated as 0.72. In the Hotelling t-test, conducted to determine whether the means of the questions asked in each item were the same and whether students perceived the questions in a similar manner, it was determined that the item means were different (Hotelling T^2=359.452, p<0.001). The value of the Spearman-Brown coefficient was determined to be 0.813. Because this coefficient was greater than 0.70, the internal consistency of the test was considered high. The value of the Guttman split-half coefficient was calculated to be 0.713. The fact that the value of the Guttman split-half coefficient of the test is greater than 0.70 indicates that the reliability of the test is high (Table 4). In addition, the correlation coefficients of the factors vary from 0.430 to 0.735. When the p-values were examined, it was found that both the factors belonging to the scale and the total score of the scale have a very positive relationship with factor loadings (p<0.001) (Table 5).

Invariance reliability over time: When the invariance of the "Ethical Attitude Scale in Pain Management in Nursing" over time was examined, it was found that the sub-dimensions factor I, factor II, factor III, factor IV, factor V, and the total scale score showed a statistically highly positive and significant difference between time points (p<0.001). Examination of the correlation values reveals that factor I (0.732) and factor V (0.735) are at reliable levels with values above 0.70, and factor II (0.612), factor III (0.625), and factor IV (0.639) are at questionable reliable levels (Table 6).

After conducting validity and reliability analyses, the scale was finalized with 23 items. The numbers of the scale items were rearranged according to the sub-dimensions. The scale, designed as a 5-point Likert scale, consists of five sub-dimensions.

DISCUSSION

In the international literature, there are very few studies on ethical decision-making in pain management. These studies found that individual interviews, focus group interviews, semi-structured or in-depth interview methods, and questionnaires were often used as measurement tools.[25–27] Considering that there are generally very few articles on ethical attitudes in nursing in our country and that the relevant factors may vary depending on the culture, the need for a valid and reliable measurement tool specific to our value system is obvious. In this context, a newly developed measurement instrument should have validity and reliability characteristics.

Table 4. Other reliability analysis results regarding the items of the Ethical Attitude Scale for pain management in nursing

Reliability test	Significance level
Spearman Brown coefficient	0.813
Guttman split-half coefficient	0.713
Two-half test reliability	Cronbach Alpha values for the first 12 items a: 0.739
	Cronbach Alpha values for the last 11 items b: 0.808

a: Items: 7, 8, 9, 10, 14, 26, 27, 28, 30, 31, 32, 33; b: Items: 1, 2, 3, 5, 6, 19, 20, 22, 23, 24, 34.

Table 5. Correlations of factor groups Ethical Attitude Scale for pain management in nursing

Factor groups	Total scale	FI	F2	F3	F4	F5
Total scale	–					
F1	0.732 **	–				
F2	0.612**	0.438**	–			
F3	0.625**	0.309**	0.154*	–		
F4	0.639**	0.281**	0.487**	0.223**	–	
F5	0.735**	0.538**	0.433**	0.294**	0.352**	–

*: Significant at the p<0.05 level; **: P<0.001.

Table 6. Analysis of the difference between time in terms of scores for Ethical Attitudes Scale for pain management in nursing (n=194)

						Test		Test sig. level
	Mean	SD	SE	Min.	Max.	r[1]	r	Test, p
F1 (first test)	7.43	1.95	0.407	6	13	0.765***	0.630***	Z=-2.388
F1 (final test)	8.21	1.62	0.338	6	12			p=0.017*
F2 (first test)	6.52	1.99	0.416	5	12	0.440	0.282	Z=-1.180
F2 (final test)	7.04	1.89	0.395	5	11			p=0.238
F3 (first test)	15.30	3.21	0.669	8	20	0.798***	0.665***	t=0.649
F3 (final test)	14.96	3.05	0.636	9	20			p=0.523
F4 (first test)	6.65	2.76	0.575	4	16	0.863***	0.761***	Z=-0.530
F4 (final test)	6.44	2.94	0.612	4	16			p=0.596
F5 (first test)	6.09	2.27	0.474	4	12	0.635**	0.506**	t=-0.941
F5 (final test)	6.48	1.50	0.314	4	10			p=0.357
Scale total score (first test)	42.0	7.94	1.655	32.0	67.0	**0.841*****	**0.738*****	Z=-1.062
Scale total score (final test)	43.13	6.63	1.382	36.0	63.0			p=0.288

sig: Significance; r[1]: Intraclass correlation; r spearman's rho test; Z: Wilcoxon test; t: T test on dependent samples; SD: Standart deviation; SE: Standart error; *: P<0.05; **: P<0.01; ***: Significant at the p<0.001 level.

In this study, construct validity, face validity, and content validity were examined to test the validity of the scale. In examining the content validity of the scale, a method based on expert opinion was used. Since the 32-item form of the scale yielded a CGI ≥ CVR (0.91>0.80), the content validity was considered statistically significant. For face validity of the Ethical Attitude Scale in Pain Management in Nursing, all items were first evaluated by the researcher in terms of readability, comprehensibility, expression, and sentence length according to the experts' recommendations, and appropriate adjustments

were made. 194 questionnaires that had been fully completed by students in nursing departments within the research universe were included in the evaluation of the validity and reliability of the Ethical Attitudes Scale in Pain Management in Nursing. In Karadaş's[28] (2018) development of the Scale of Perceived Power in Senior Nurses, 42 items were applied to 546 nurses. 50 items from the Scale of Ethical Values in Academia developed by Sevim[29] (2014) were applied to 508 academics. In the Scale of Nursing Patient Confidentiality study developed by Ozturk et al.[30] (2014), 27 items were applied to 354 nurses. In the development of the Scale of Patient Safety Culture conducted by Türkmen et al.[31] (2011), 432 individuals were surveyed with 51 items. It is generally assumed in the literature that the sample size of the scale development/validity and reliability studies should be at least five times the number of scale items. It is assumed that the sample size is relatively higher than the number of items in the studies because it is thought to have a positive effect on the validity and reliability of the scale and/or that there could be questionnaires that may be excluded from the scale after the evaluation.

CFA and EFA were used to examine the construct validity of the scale to determine what the scale's features measure and what the scores of the individuals to whom the scale was applied mean. First, the results of the KMO and Bartlett's tests were examined to determine the suitability of the data for factor analysis of the developed scale. Accordingly, the KMO test measurement should be ≥0.50, and the Bartlett's test result for sphericity should be statistically significant.[32] In this study, it was found that the result of the KMO test was 0.797, and Bartlett's test for sphericity was statistically significant ($p<0.001$). In accordance with these results, it was found that there is a high correlation between the variables and they come from a normal distribution. In other words, it was found that the data were suitable for factor analysis. The EFA cutoff value of 0.30 was accepted for the loading values in the factor-containing items. Items with a factor loading value below 0.30 were not included in the analysis. After analysis, items 4, 11, 12, 13, 15, 16, 17, 18, 21, 25, and 29 in the Ethical Attitude Scale in Pain Management in Nursing were discarded. Accordingly, it can be said that the sample size of the scale is sufficient.[23,24] The overall mean of the dimension for factor 1 labeled as "Care and Honor" is 27.3505±2.963 (range, 8–30 points), the overall mean of the dimension for factor 2 labeled as "Ethical Values" is 23.659±1.837 (range, 16–25 points), the overall mean of the sub-dimension for factor 3 labeled as "Attitude" is 15.794±3.33 (range, 4–20 points), the overall mean of the sub-dimension for factor 4 labeled as "Rights" was 17.263±2.73 (range, 6–20 points), and the overall mean of the sub-dimension for factor 5 labeled as "Pain Management" was calculated as 17.881±2.143 (range, 11–20 points). Analysis of the Nursing Career Choice Scale validated by Önler and Varol[33] (2010) revealed that 47.44% of the total variance was explained by a two-factor structure. The EFA analysis method was used in the Turkish validity and reliability study by Ulusoy et al.[34] (2018). As a result of the analysis, it was found that the six-factor structure of the scale explained 53.99% of the total variance. Aksoy[35] (2016) in the study on the development of the Scale of Occupational Risk Perception Among Nursing Students, the proportion of variance explained by the first factor was 28.74%; the second factor was 12.26%; the third factor was 10.54%; the total amount of variance explained in the scale was found to be 51.55%.

Reliability Analysis Based on Classical Test Theory (CTT)

Reliability analysis based on classical test theory (CTT) used internal consistency reliability and test-retest reliability methods to demonstrate that the Ethical Attitude Scale in Pain Management in Nursing can measure without error, collect data correctly, and be repeated at different time points. To determine the internal consistency reliability of the Ethical Attitude Scale in Nursing, the internal consistency coefficient of Cronbach's alpha, Hotelling's t-test, Spearman-Brown coefficient, and split-half test reliability analysis were calculated. As a result of the reliability analysis, the overall Cronbach's alpha value of the scale was determined to be 0.862. The Cronbach's alpha coefficient for the factor 1 sub-dimension was 0.889; the Cronbach's alpha coefficient for the factor 2 sub-dimension was 0.838; the Cronbach's alpha coefficient for the factor 3 sub-dimension was 0.861; the Cronbach's alpha coefficient for the factor 4 sub-dimension was 0.795; the Cronbach's alpha coefficient for the factor 5 sub-dimension was determined to be 0.721. Because the Cronbach's al-

pha coefficients were greater than 0.70, the internal consistency of the scale was considered high. At the same time, it is recommended that the value of the Spearman-Brown coefficient (0.813) be greater than 0.70.[36] Because this value is greater than 0.70, the internal consistency of the test was considered high.

In the examination of the studies in the literature; in the study of Sevim[29] (2014), in the development of the Scale of Academic Ethical Values, the Cronbach Alpha value in the reliability analysis of the scale was found to be 0.86 and it was found that the internal consistency of the scale is high. The Cronbach Alpha value of the Scale of Peer Support developed by Kuo et al.[37] (2007) and adapted into Turkish by Çalışkan and Çınar[38] (2012) was calculated to be 0.93 and the internal consistency was found to be high. In the Turkish validity and reliability study of the Scale of Nursing Diagnostics Perception by Korhan et al.[39] (2013), a Cronbach's alpha value of 0.84 was obtained. In the guide published by Tezbaşaran[40] (2008) for creating Likert scales, it is emphasized that the reliability coefficient should be as close to 1 as possible. In this regard, the results of this study and the data in the literature show parallelism, and it is found that the Ethical Attitude Scale in Pain Management in Nursing is quite reliable, so it is concluded that the items of the scale agree with each other and the scale has a high internal consistency.

The ability of the Ethical Attitude Scale in Pain Management in Nursing to provide consistent results from application to application and its invariance over time were assessed by reapplying the scale 3 weeks after initial application in 8.3% (n=23) of the sample. In the studies in the literature, the test-retest reliability analysis method was used in the study on the development of the Scale of Nursing Care Satisfaction for Chemotherapy Patients by Köşgeroğlu et al.[41] (2005), and the reapplication was performed in periods ranging from two weeks to one month after the first test application. In the validity and reliability study conducted by Öncü et al.[42] (2018), the data for the test-retest reliability analyses were collected four weeks after the first application of the scale. In the study conducted by Orgun and Khorshid[43] (2009) to examine the validity and reliability of Byrd's Nurse's Ethical Sensitivity Test, test-retest was conducted at six-week intervals. In the validity and reliability study conducted by Rekleiti et al.[44] (2018), a time invariance analysis was also used and a retest was conducted four weeks after the first test application. In the validity and reliability study conducted by Berens et al.[45] (2019), test-retest application was conducted at two-week intervals. In the scale development/validity/reliability studies in the national and international literature, it was found that there is no fixed time interval between the two applications in the analysis of time invariance, but this period generally varies from 2 to 6 weeks. In this direction, the literature supports that the three-week time interval is an appropriate time for the application of test-retest reliability.

CONCLUSION

Ethics in pain management is a topic that has become increasingly important in recent years. In particular, the ethical obligation of the nurse in the treatment of pain is explained in the axis of ethical principles and ethical values, and the importance of the ethical decision-making process is emphasized. However, when reviewing the literature, it is found that there is no scale for ethical attitude in pain management in nursing. As a result of the analyses, a valid and reliable measurement instrument consisting of 23 items and five factors was created. The item numbers of the scale were rearranged, and this scale, called the Ethical Attitude Scale in Pain Management in Nursing, took its final form with sub-dimensions "Care and Honor," "Ethical Values," "Attitude," "Rights," and "Pain Management." With this developed scale, the concept of human dignity, which is abstract, was anchored with the sub-dimensions of perception and understanding. Care, which is the center of nursing, is emphasized with the sub-dimension of caring, and it provided the measurement of nursing behaviors.

Ethics Committee Approval: The İzmir Katip Çelebi University Non-Invasive Clinical Research Ethics Committee granted approval for this study (date: 14.11.2018, number: 386).

Conflict-of-interest issues regarding the authorship or article: None declared.

Use of AI for Writing Assistance: Not declared.

Financial Disclosure: This study has no funding or sponsor.

Peer-rewiew: Externally peer-reviewed.

References

1. Uyar M, Akın Korhan E. The effect of music therapy on pain and anxiety in intensive care patients. Agri [Article in Turkish]. 2011;23:139–46. [CrossRef]
2. Yılmaz F, Atay S. Clinical pain management of nursing students. Hacettepe Üniv Hemş Fak Derg [Article in Turkish]. 2014;1:32–41.
3. Kwan M. Music therapists' experiences with adults in pain: Implications for clinical practice. Qual Inq Music Ther 2010;5:43–85.
4. Summer GJ, Puntillo KA. Management of surgical and procedural pain in a critical care setting. Crit Care Nurs Clin North Am 2001;13:233–42. [CrossRef]
5. Eti-Aslan F. Ağrı değerlendirme yöntemleri. Cumhuriyet Üniv Hemş Yüksekokul Derg [Article in Turkish] 2002;6:9–16.
6. Çelik S, Baş BK, Korkmaz ZN, Karaşahin H, Yıldırım S. Hemşirelerin ağrı yönetimi hakkındaki bilgi ve davranışlarının belirlenmesi. Med J Bakirkoy [Article in Turkish] 2018;14:17–23. [CrossRef]
7. Babaoğlu G, İnan LE, Özdel K. Cognitive behavioral therapy in the chronic pain management. J Cogn Behav Psychother Res [Article in Turkish]. 2017;6:133–40. [CrossRef]
8. Ünver S, Kızılcık Özkan Z, Avcıbaşı İM, Babacan Dığın F. Determining the postoperative pain management İnterventions of nursing students. J Educ Res Nurs [Article in Turkish]. 2016;13:146–50. [CrossRef]
9. Usta Yeşilbalkan Ö. Pain in old people. Ege Üniv Hemş Yüksekokul Derg [Article in Turkish]. 2007;23:131–44.
10. Stewart WF, Ricci JA, Chee E, Morganstein D, Lipton R. Lost productive time and cost due to common pain conditions in the US workforce. JAMA 2003;290:2443–54. [CrossRef]
11. Gaskin DJ, Richard P. The economic costs of pain in the United States. J Pain 2012;13:715–24. [CrossRef]
12. Jukić M, Puljak L. Legal and ethical aspects of pain management. Acta Med Acad 2018;47:18–26. [CrossRef]
13. AAPM Council on Ethics. Ethics charter from American Academy of Pain Medicine. Pain Med 2005;6:203–12. [CrossRef]
14. International Association for the Study of Pain (IASP). Declaration of Montréal. Available at: https://www.iasp-pain.org/advocacy/iasp-statements/access-to-pain-management-declaration-of-montreal/. Accessed May 29, 2024.
15. Bockhold CR, Hughes AK. The ethics of opioids for chronic noncancer pain. Nursing 2016;46:63–7. [CrossRef]
16. Erdek MA, Pronovost PJ. The need for an ethics framework for the use of opioids in the treatment of chronic nonmalignant pain. Pain Manag 2017;7:229–31. [CrossRef]
17. Volkow ND, Collins FS. The role of science in addressing the opioid crisis. N Engl J Med 2017;377:391–4. [CrossRef]
18. Els C, Jackson TD, Kunyk D, Lappi VG, Sonnenberg B, Hagtvedt R, et al. Adverse events associated with medium- and long-term use of opioids for chronic non-cancer pain: An overview of Cochrane Reviews. Cochrane Database Syst Rev 2017;10:CD012509. [CrossRef]
19. Aksayan S, Gözüm S. Intercultural scale adaptation stages, language and culture adaptation: Updated guideline. Hemş Araş Derg [Article in Turkish]. 2002;4:9–13.
20. Karadağlı F. Students' professional value perception and affecting factors. Mersin Üniv Sağ Bil Derg [Article in Turkish] 2016;9:81–91.
21. DeVelli RF. Scale development: Theory and applications. 2nd ed. Thousand Oaks, CA: Sage Publications; 2003. p. 88–90.
22. Leech LN, Barrett CK, Morgan AG, editors. SPSS for intermediate statistics use and interpretation. New York: Lawrence Erlbaum Associates; 2008.
23. Özdamar K. Paket programlar istatistiksel veri analizi. İstanbul: Kaan Kitapevi; 2002. [In Turkish]
24. Şimşek ÖF. Yapısal eşitlik modellemesine giriş temel ilkeler ve LISREL uygulamaları. Ankara: Ekinox Yayınları; 2007. [In Turkish]
25. Aydın Er R, İncedere A, Öztürk S. Respectful care of human dignity: How is it perceived by patients and nurses? J Med Ethics 2018;44:675–80. [CrossRef]
26. Nåden D, Eriksson K. Understanding the importance of values and moral attitudes in nursing care in preserving human dignity. Nurs Sci Q 2004;17:86–91. [CrossRef]
27. Walsh K, Kowanko I. Nurses' and patients' perceptions of dignity. Int J Nurs Pract 2002;8:143–51. [CrossRef]
28. Karadaş A. Yönetici hemşirelerde algılanan güç kaynağı: Bir ölçek geliştirme çalışması. Doktora tezi. İstanbul: İstanbul Üniv; 2018. [In Turkish]
29. Sevim O. Akademik Etik Değerler Ölçeği'nin geliştirilmesi: Güvenirlik ve geçerlilik çalışması. Turk Stud [Article in Turkish] 2014;9:943–57. [CrossRef]
30. Ozturk H, Bahçecik N, Ozçelik KS. The development of the patient privacy scale in nursing. Nurs Ethics 2014;21:812–28. [CrossRef]
31. Türkmen E, Baykal Ü, Seren Ş, Altuntaş S. Hasta güvenliği kültürü ölçeğinin geliştirilmesi. Anadol Hemş Sağ Bil Derg [Article in Turkish] 2011;14:38–46.
32. Jeong J. Analysis of the factors and the roles of HRD in organizational learning styles as identified by key informants at selected corporations in The Republic of Korea. Doctoral dissertation. Amerika: Texas A&M Univ; 2003.
33. Önler E, Varol Saraçoğlu G. Hemşirelikte meslek seçimi ölçeğinin güvenilirlik ve geçerliliği. Dokuz Eylül Üniv Hemş Yüksekokul Elektr Derg [Article in Turkish] 2010;3:78–85.
34. Ulusoy H, Güler G, Yıldırım G, Demir E. Reliability and validity of the Salford-Scott Nursing Values Questionnaire in Turkish. Nurs Ethics 2018;25:80–91. [CrossRef]
35. Aksoy B, Gürdoğan Paslı E. Occupational risk perception: A scale development study. J Nurs Educ Pract 2018;9:98.
36. Erdoğan S, Nahcivan N, Esin MN. Hemşirelikte araştırma: Süreç, uygulama ve kritik. 2nd ed. İstanbul: Nobel Tıp Kitabevleri; 2015. p.193–233. [In Turkish]
37. Kuo CL, Turton MA, Lee-Hsieh J, Tseng HF, Hsu CL. Measuring peer caring behaviors of nursing students: Scale development. Int J Nurs Stud 2007;44:105–14. [CrossRef]
38. Çalışkan T, Çınar S. Peer cooperation: The study of validity and reability. Marmara Üniv Sağ Bil Enst Derg [Article in Turkish]. 2012;2:1–7.
39. Korhan Akın E, Hakverdioğlu-Yönt G, Bedriye AK, Erdemir

F. Analysis of Turkish validity and reliability of perception of nursing diagnosis. Hemş Araş Geliş Derg [Article in Turkish]. 2013;15:13–25. [CrossRef]

40. Tezbaşaran A. Likert tipi ölçek hazırlama kılavuzu. Ankara: Türk Psikologlar Derneği Yayınları; 2008. [In Turkish]
41. Köşgeroğlu N, Acat MB, Karatepe Ö. Kemoterapi hastalarında Hemşirelik Bakımı Memnuniyet Ölçeği. Anadol Psikiyatr Derg [Article in Turkish] 2005;6:75–83.
42. Öncü E, Selvi H, Vayısoğlu SK, Ceyhan H. Development of an Attitude Scale for Brain Drain among nursing students: A reliability and validity study. Cukurova Med J [Article in Turkish]. 2018;43:207–15. [CrossRef]
43. Orgun F, Khorshid L. Byrd'ın hemşirelere yönelik Etik Duyarlılık Testinin geçerlik ve güvenirliğinin incelenmesi. Doktora tezi. İzmir: Ege Üniv; 2008. [In Turkish]
44. Rekleiti M, Souliotis K, Sarafis P, Kyriazis I, Tsironi M. Measuring the reliability and validity of the Greek edition of the Diabetes Quality of Life Brief Clinical Inventory. Diabetes Res Clin Pract 2018;140:61–71. [CrossRef]
45. Berens AE, Kumar S, Tofail F, Jensen SKG, Alam M, Haque R, et al. Cumulative psychosocial risk and early child development: Validation and use of the Childhood Psychosocial Adversity Scale in global health research. Pediatr Res 2019;86:766–75. [CrossRef]