Turkish Adaptation of the Scale of the Attitudes to Patient Safety: Nursing Student Sample

Hasta Güvenliğine Yönelik Tutum Ölçeğinin Türkçe Uyarlaması: Hemşirelik Öğrencisi Örneği

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ABSTRACT

Objective: Medical errors are very important problems in all health institutions around the world. Creating a patient safety culture is very important in reducing medical errors. Nurses have a special importance in terms of maintaining patient safety. Knowledge, skills and attitudes that can help improve patient safety and reduce medical errors can be gained through nursing education. There is no valid and reliable tool to measure nursing students' attitudes towards patient safety culture. The aim of the research was to investigate whether the Turkish version of the patient safety attitude scale was a valid and reliable tool for nursing students.

Methods: The study, which was designed methodologically, was carried out between February and April 2019. It was conducted with third- and fourth-year students (n=226) in the nursing department of a private university in Istanbul after obtaining ethical approval and institutional permissions.

Results: According to the results of the analysis, it was found that the original scale did not generally comply with the factor structure. The scale was composed of 22 items and 4 factors. The total variance of the scale was 65.14%. As a result of the reliability analysis, Cronbach's alpha coefficient of the scale was calculated as 0.91.

Conclusion: The scale that was developed by Carruthers et al. in 2009, was found to be a valid and reliable measurement tool that could be used to measure the attitude of nursing students towards patient safety in Turkey.

Keywords: Patient safety, nursing, student, validity and reliability

ÖZ

Amaç: Tıbbi hatalar, dünyadaki tüm sağlık kuruluşlarında çok önemli bir sorundur. Hasta güvenliği kültürü oluşturmak tıbbi hataların azaltılmasında çok önemlidir. Hemşireler hasta güvenliğini sağlamada özel bir öneme sahiptir. Hemşirelik eğitimi ile hasta güvenliğini artırmaya ve tıbbi hataları azaltmaya yardımcı olabilecek bilgi, beceri ve tutumlar kazanılabilir. Hemşirelik öğrencilerinin hasta güvenliği kültürüne yönelik tutumunu ölçmek için geçerli ve güvenilir bir araç yoktur. Araştırmanın amacı, hemşirelik öğrencileri için hasta güvenliği tutum ölçeğinin Türkçe versiyonunun geçerli ve güvenilir bir araç olup olmadığını araştırmaktır.

Yöntemler: Metodolojik olarak tasarlanan çalışma, Şubat-Nisan 2019 tarihleri arasında gerçekleştirilmiştir. Araştırma, İstanbul'da bir özel üniversitenin hemşirelik bölümünde okuyan üçüncü ve dördüncü sınıf öğrencileri (n=226) ile etik onay ve kurum izni alınarak yürütülmüştür.

Bulgular: Analiz sonuçlarına göre orijinal ölçeğin genel olarak faktör yapısına uymadığı görülmüştür. Ölçek, 22 madde ve 4 faktörden oluşmaktadır. Ölçeğin toplam varyansı %65,14'tür. Güvenilirlik analizi sonucunda ölçeğin Cronbach alfa katsayısı 0,91 olarak hesaplanmıştır.

Sonuç: İki bin dokuz yılında Carruthers ve ark. tarafından geliştirilen ölçeğin, Türkiye'deki hemşirelik öğrencilerinin hasta güvenliğine yönelik tutumlarını ölçmek için kullanılabilecek geçerli ve güvenilir bir ölçme aracı olduğu bulunmuştur.

Anahtar Sözcükler: Hasta güvenliği, hemşirelik, öğrenci, geçerlilik ve güvenilirlik

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Introduction

Medical errors are a very important problem in all health institutions around the world. For this reason, studies to ensure patient safety and to improve the culture of safety in institutions are among the issues that are primarily handled by the managers (1,2). The fact that healthcare professionals have information about professional education and patient safety is a major factor in creating a safety culture (3,4). Nurses are the largest group in healthcare system. As the largest health care workforce, nurses interact more with patients and their relatives because they spend longer working hours in institutions than other healthcare professionals. Therefore, they play a critical and essential role in ensuring patient safety (5). The World Health Organization (WHO) published the "WHO patient safety curriculum guide for medical schools" in 2009. In this guide, it was emphasized that patient safety and quality improvement should be in the curriculum during undergraduate medical education (2-6). In 2011, it was expanded to include nurses, midwives and other health professionals (2).

Patient safety education is required not only for healthcare professionals working in institutions, but also for undergraduate students in healthcare (7). Health institutions strongly emphasize educations on how to avoid medical errors for healthcare professionals who will graduate in order to develop a patient safety culture and what to pay attention to minimize these errors (8-10). Prevention of adverse events and increasing patient safety in health care services should be among the key goals of nursing education. Knowledge, skills and attitudes that can help improve patient safety and reduce medical errors can be gained through education (11,12). Awareness of patient safety to be gained in nursing education contribute to the development of the quality of nursing care and patient safety (13). The knowledge and competencies of nurses on patient safety can be increased and improved with in-service training programs in health institutions. However, the study by Steven et al. (14) emphasized that patient safety education should be included in the curriculum in order to increase the competence of nurses in patient safety. The training to be given in undergraduate nursing programs is the first step towards improving patient safety and service quality in clinical trainig (15). Nursing students should be properly educated about patient safety with theoretical lectures, clinical practice experiences, laboratory and simulation applications, and their competencies should be improved (16,17). In addition, it is important to evaluate and develop trainings to standardize students' competencies in patient safety (15-18). Therefore, the result of the training given should be evaluated with a valid and reliable tool. Evidence is limited in healthcare professional curricula about how patient safety is addressed, and how safe practitioners develop in schools (19).

In our country, there is no standard and compulsory course on patient safety in nursing undergraduate education curriculum. In addition, nursing students do not have a valid and reliable scale to measure the attitude towards the patient safety culture. For this reason, this study was conducted to adapt the internationally accepted scale (20), which measured the attitude of medical students to the patient safety, to Turkish in nursing students.

Methods

Type of the Study

The aim of this methodological study was to test the validity and reliability of the Turkish version of the Attitudes to Patient Safety scale with nursing students.

Sample and Setting

The study was carried out between February and April 2019, in a private nursing school in Istanbul, which offered four years of undergraduate education. The school accepts students from all parts of the country, and its graduates work in public or private hospitals, responsible for health care. The data were collected by reaching the students between lectures after obtaining permission from the school administration. After the students were informed about the subject and purpose of the research, the data collection tool was given in the envelope and it was taken back after it was filled. The subject of patient safety is included in various sections of the curriculum such as medical-surgical nursing. However, the education curriculum does not include a standard and compulsory course on patient safety.

The number of third- and fourth-year students was 350. In order to determine the size of the sample, we used the criteria that accepted the number of participants ranging from 5 to 20 times the number of items in the scale when testing psychometric properties (21). The scale consisted of 26 items, the required sample size was at least 130 participants. Therefore, the questionnaires were distributed to 300 students (50 students were absent or did not agree to participate). The sample consisted of 226 students who agreed to participate in the research, filled the forms correctly and provided the appropriate data. The response rate was 75.3%.

Instrument

In the study, a data collection tool consisting of two parts was used. In the first part, there was the "student personal information form" (age, class, gender, high school graduated) and in the second part, "The Attitudes to Patient Safety questionnaire" (APSQ) which was developed by Carruthers et al. (20) was used. This scale was translated into Turkish and validity and reliability were tested in this study.

The scale included 9 factors consisting of 26 items designed to measure medical students' attitudes towards patient safety culture.

The scale is a 7-point Likert-type scale including options from "1: absolutely disagree" to "7: absolutely agree". Since 6 items (11,14,15,16,17,25) were negative, these items were re-coded in the opposite direction. The maximum score that can be obtained from the scale is 154 and the minimum score is 26. High scores from the scale show a positive attitude to patient safety. It was stated that the internal consistency coefficient of the original scale was 0.73, and cronbach alpha values of the subscales were

as follows; 0.82 (3 items) for "patient safety training received", 0.77 (3 items) for "error reporting confidence", 0.71 (3 items) for "working hours as error cause", 0.63 (3 items) for "error inevitability", 0.68 (4 items) for "professional incompetence as error cause", 0.68 (3 items) for "disclosure responsibility", 0.69 (2 items) for "team functioning", 0.68 (2 items) for "patient's role in error", and 0.66 (3 items) for "importance of patient safety in the curriculum" (20). In Turkey, in the validity and reliability study done with medical students, the Cronbach alpha value was found as 0.79 for the total scale, but its subscales were between 0.66-0.85 (22). In this study, Cronbach's alpha value for the total scale was 0.91, the Cronbach's alpha values of the sub-scales were found to be between 0.76 and 0.91.

Statistical Analysis

Statistical analyzes were made in IBM SPSS Statistics 21.0 program. Descriptive statistics (frequency, percentage and average) were used to define students' sociodemographic characteristics. In the validity of the study, exploratory factor analysis (EFA) and confirmatory factor analyses (CFA) were used. In the reliability study of the scale, Cronbach's alpha coefficient for determining internal consistency was calculated.

Procedure

Adaptation Process

During the adaptation of the scale to Turkish, the guidelines of the International Testing Commission and the WHO for cross-cultural adaptation studies and the consensus-based standards for the selection of health status measurement instruments (COSMIN) were followed (23-25).

There were four steps in the adaptation process: "translation, back translation, expert opinion and pilot study" (23,25,26) (Figure 1).

Firstly, the scale was translated from English to Turkish independently by three instructors whose native language was Turkish, and who were well educated in English. Later, after the three translations were combined and evaluated by the researchers, two translators independent of the other three

translators translated the Turkish version into English. In the third stage, the original scale and translated version were evaluated by a committee (8 academic and clinical nurses) specializing in content validity. Davis technique was used to calculate the content validity index (CVI) (27). According to this technique, the opinions of the experts were evaluated in four categories from 1 to 4, from "absolutely acceptable" to "incompatible". Then the number of experts who chose (1) and (2) was divided by the total number of experts for each item, as Davis suggested, and the tool's CVI value was calculated as 0.98. Finally, The draft scale which was revised according to expert opinion was applied to 30 nursing students outside the sample group in pilot study. No problems were experienced with students' understanding of scale.

Validation Process

In the confirmation process, CFA and EFA were used (28). The second step involved the internal consistency of the APSQ and its sub-scales (26) (Figure 1).

Ethical Considerations

Before collecting data, permission was taken from Carruthers by e-mail, who developed the scale, to adapt APSQ to Turkish. This study was ethically approved by Gelisim University Ethical Review Committee (no.01/2019). Informed consent forms were obtained from each student who agreed to participate in the study by informing the students about the aim and process of the study. No questionnaire was distributed to students who did not agree to participate. Informed consents were obtained before applying the questionnaires.

Limitations of the Research

While performing reliability analyzes, no test repetition showing the reliability of the scale over time was performed. The fact that the research was conducted in a center and the answers were based on student opinions were the limitations of the study.

Results

The Distribution of Participants' Characteristics

The mean age of students was 21.57±2.16, 77.9% were women and 38.1% were third-year students. It was found that most of
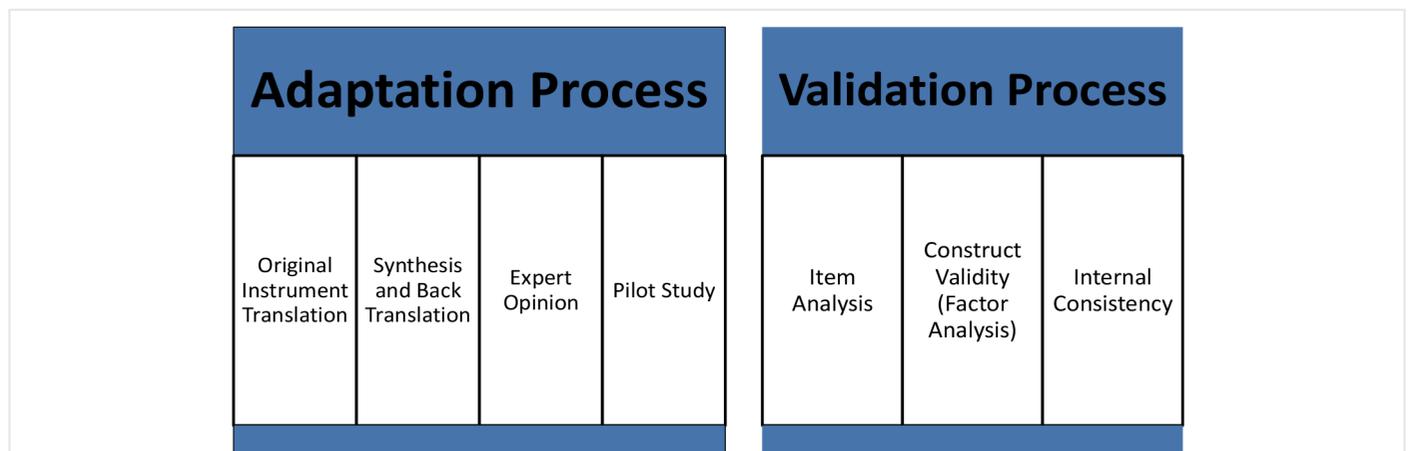

Figure 1. Study process

the students (50.9**%**) graduated from Anatolian/Science High School.

Validity Analysis of APSQ

Before starting the construct validity analysis of the scale, all items were analyzed and item total correlations were examined. In the scale, the correlation coefficients of 3 items (11,17,18) were between r=0.00 and 0.15, while the item-total correlation coefficients of other items were between r=0.35 and 0.68. After this analysis, it was decided not to include 3 items below 0.30 in the scale, and the number of items was reduced to 23.
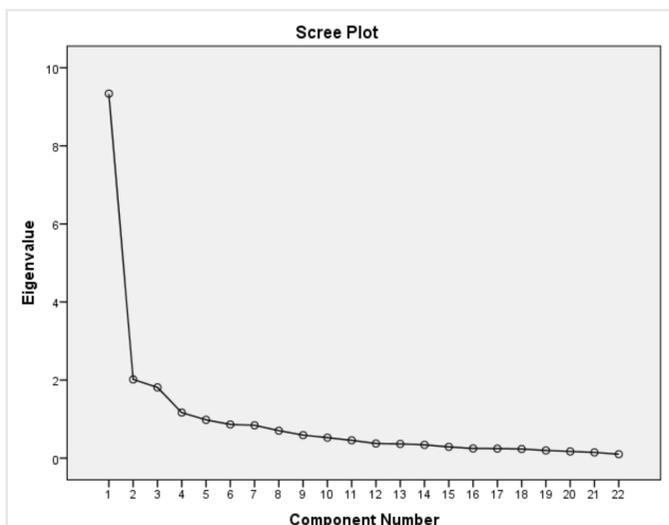
To determine the sampling adequacy, KMO test was performed and the result was found to be 0.90. Bartlett's test result was 3,283.78 [degree of freedom (df):231, p=0.00] (Table 1).

Anti-image r-values of the scale were between 0.65-0.96 and eigen value was accepted as 1. When the analysis was made with the Varimax rotation technique, factor loading of the items was more than 0.30 but 14th item was migrated to its alternative factor and thus was removed. When the scale analysis was repeated, it was found that 22 items were collected in 4 sub-scales. These 4 sub-scales explained 65% of the total variance of the scale.

In the scree plot graph of the factors, it was seen that the break point of the curve was in the fourth factor and then the curve progressed at the same level (Figure 2).

When the factor distribution of the items were taken as eigen-value 1, the scale was divided into 4 subscales, and the factor loading was above 0.30 (Table 2).

As a result, the final model consisted of a total of 22 surviving items that were loaded on the four factors, namely, "awareness of medical error causes", "medical error reduction precursors", "importance of patient safety education", and "professional incompetence in medical error".

Confirmatory Factor Analysis

CFA was performed in order to test how extent the factor structure fit with the data obtained. Factor loading of items was found to be above 0.30 (Figure 3). As a result of this analysis of the model in which 22 items were explained with four factors, chi-square (χ^2) was 205.07; df 120 and root mean square error of approximation (RMSEA) 0.071 (Table 3).

Reliability Study of APSQ

The internal consistency of the scale was examined within the extent of reliability and Cronbach's alpha value was found to be 0.91. When the sub-scales of the scale were analyzed, the Cronbach's alpha values of the sub-scales were found to be between 0.76 and 0.91 (Table 4).

Discussion

Before starting the research, patient safety attitude scales developed for the students studying in nursing, medical and health sciences were examined by scanning in national and

Table 1. KMO and Bartlett''s test values

Kaiser-Meyer-Olkin Sampling Adequacy 0.90		
	Chi-square value	36283.78
Bartlett's test of sphericity	df	231
	p	0.00
df: Degree of freedom		

Figure 2. Scree plot graph
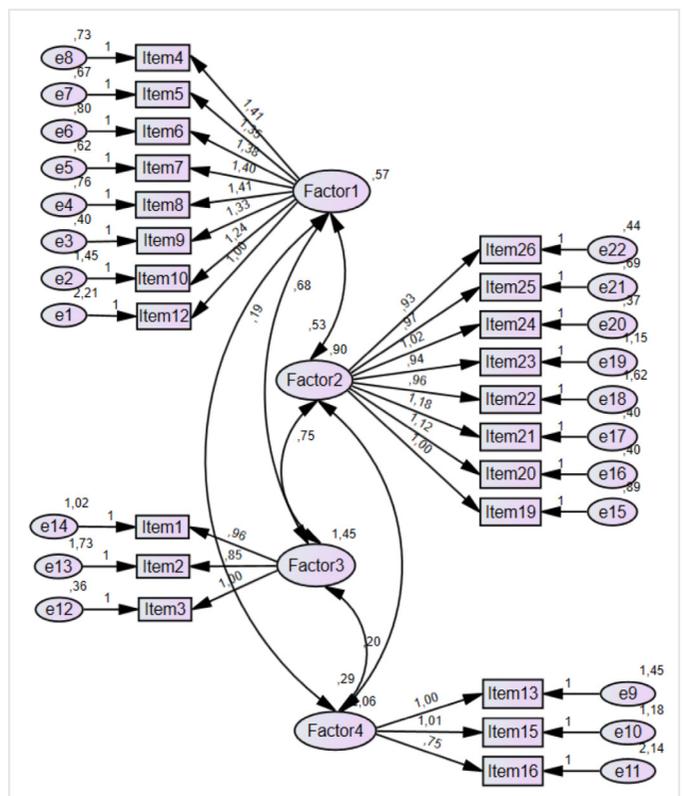
Figure 3. Confirmatory factor analysis results for the adapted version of the Attitudes to Patient Safety scale

Table 2. Factor solution for APSQ

Items	1.	2.	3.	4.
Item 4	0.65			
Item 5	0.74			
Item 6	0.71			
Item 7	0.74			
Item 8	0.72			
Item 9	0.78			
Item 10	0.68			
Item 12	0.49			
Item 19		0.60		
Item 20		0.66		
Item 21		0.69		
Item 22		0.68		
Item 23		0.74		
Item 24		0.79		
Item 25		0.76		
Item 26		0.73		
Item 1			0.79	
Item 2			0.72	
Item 3			0.69	
Item 13				0.83
Item 15				0.85
Item 16				0.73

APSQ: Attitudes to patient safety questionnaire

Table 3. CFA of APSQ

Fit index	Obtained value
RMSEA	0.071
NFI	0.81
RMSR	0.076
GFI	0,88
AGFI	0.81
א2	205.07
Df	120
א2/df	1,709

RMSEA: Root mean square error of approximation, NFI: Normed fit index, RMSR: Root mean square residual, GFI: Goodness of fit index , AGFI: Adjusted goodness of fit index, df: Degree of freedom

analysis was done (29-31). In order to evaluate the Turkish form prepared to test the content validity of APSQ, the opinions of 8 experts who studied on patient safety were received. As a result of the analysis made according to the Davis technique, the content validity criterion of this scale was determined as 0.98. In the literature, it is recommended to make a pilot study in a small group that has similar characteristics with the sample of the scale after language validity (32). In this study, 30 students who were not included in the sample were included in pilot study, so the comprehensibility of the scale items were evaluated and the content validity process was completed by making arrangements in line with the suggestions as a result of the application.

Before the construct validity analysis, the items in the scale were analyzed and the total correlation coefficient values of 26 items were examined. According to Tavşancıl (21), item-total score correlations must be 0.30 and higher in order to measure the features in the best way. Therefore, as a result of the analysis, it was decided to exclude 3 items below r=0.30 from the scale and factor analysis was carried out with 23 items.

In scale adaptation studies, Kaiser Meyer-Olkin (KMO) was performed to evaluate whether the sampling was adequate. KMO results range from 0 to 1. KMO's value must be over 0.50; values above 0.80 couldbe considered as perfect sampling adequacy (21). Bartlett's test is a test that measures whether the correlation

international literature. As a result, the instrument that was used by nursing students to measure the attitude of patient safety in Turkey was determined not to be valid and reliable instrument. APSQ developed by Carruthers et al. (20) was considered for nursing students in Turkey as appropriate scale in terms of content and fit. The language validity of the scale in the study was done by using the method that WHO recommended in adapting the measurement tools developed in different languages (25). With content validity analysis, the extent to which the measurement tool covered the subjects, and target behaviors or features that were wanted to be measured were tested so content validity

Table 4. Factor analysis and reliability results of APSQ

Factor number	Items	n	Total variance explained	Factor loading	Corrected item total correlation	Cronbach alpha
1	4,5,6,7,8,9,10,12 (4,5,6,7,8,9,10,11)	8	22,936	0.49-0.78	0.38-0.67	0.89
2	19,20,21,22,23,24,25,26 (15,16,17,18,19,20,21,22)	8	21,643	0.60-0.79	0.52-0.70	0.91
3	1,2,3 (1,2,3)	3	11,031	0.69-0.79	0.46-0.62	0.79
4	13,15,16 (12,13,14)	3	9,537	0.73-0.83	0.32-0.35	0.76
Total		22	65,147	0.49-0.83	0.32-0.70	0.91

APSQ: Attitudes to Patient Safety questionnaire
*The last version of the scale is given in parentheses

matrix between the variables in the scale is sufficient for factor analysis. This test is expected to be significant in the analysis (21). In this study, the KMO being 0.90 showed that the sample was sufficient for factor analysis, and the result of Bartlett's test showed that the correlation matrix of variables was suitable for analysis. In the EFA, principal components analysis was preferred, which was one of the most frequently used techniques. During the factor analysis, Varimax rotation technique, one of the most frequently used vertical rotation techniques, was used to provide clarity in independence and interpretation (33). In the first EFA made with 23 items, the factor loading of the items was more than 0.30 but the 14th item was found to be in more than one sub-scale and the values in the factors that were included were less than 0.10. Therefore, 14th item was removed and the analyzes were continued with 22 items. No exact limit has been specified in the literature for factor load values that explain the relationship of items with the factor. However, Büyüköztürk (29) states that factor loading should not be lower than 0.30 and factor loading of 0.45 and above are ideal for selection. When the analysis was repeated with 22 items, it was found that the scale was divided into four factors, explaining 65% of the total variance. If there is a single factor in the scales, it is expected to explain at least 30% of the total variance, while it is expected that this ratio will be higher in structures with multiple factors (33). According to the findings obtained, it can be said that the factor structure is strong since the four factors explain the majority of the total variance.

CFA is one of the two most common methods used in scale development studies to analyze structure validity (34,35). There are different goodness of fit indices used in the evaluation of model suitability, and there are statistical functions of these indices. According to Jöreskog and Sörbom (36), the most used indices were; goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI), root mean square residual (RMSR) and RMSEA indices (36). In CFA, it was stated that GFI should be at the desired level. In chi-square fit statistics, the result obtained indicates model-data fit. The chi-square value is divided by the degree of freedom, and if the resulting value is 2 or below, the model is a good model. The value of 5 or less indicates that the model has an acceptable goodness of fit (37,38). In this study, it can be said that the model is a good model with x2/df=1,709. The closer the fit goodness indexes to 1, the model-data fit is good, and the goodness of fit indexes are acceptable to be 0.90-0.95 and values higher than 0.95 indicate a high fit (39). Also, if RMSR is less than 0.10 and RMSEA is equal to or less than 0.08, it shows good fit (37,38). In this study, it was found to be RMSEA=0.071; NFI=0.81; GFI=0.88; AGFI=0.81; SRMR=0.076 and this results showed acceptable fit. Accordingly, the good fit and acceptable fit of the fit measurement, as well as good fit of the corrective chi-square value show that the data have good fit and the 4 factor and 22-item model is statistically significant and valid. Within the content of the reliability study, it is necessary to test the internal consistency of the items in the scale (21,40). The most widely used analysis method in Likert-type scales is the Cronbach alpha coefficient. In the literature is stated about coefficient value, 0.80-1.00 as high reliable, 0.60-

0.79 as very reliable, 0.40-0.59 as low reliability, and 0.00-0.39 as unreliable (21,32,41). The Cronbach alpha coefficient of APSQ was found to be 0.91 for the total of the scale. This result shows that the scale items have high internal consistency and high reliability.

Conclusion

In present study, where the validity and reliability of the Turkish version of APSQ in the student nurse sample were examined, it was determined that the 4 sub-scales and the 22-item scale met the validity and reliability criteria at an acceptable level so it was found to be a valid and reliable measurement tool that could be used to measure the attitude of nursing students in our country. It is also suggested that the scale should be tested for validity and reliability before applying it to different cultures, considering that it is affected by intercultural differences.

Ethics

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Gelişim University Ethical Review Committees (no.01/2019).

Informed Consent: Informed consent forms were obtained from each student who agreed to participate in the study.

Peer-review: Externally peer reviewed.

Authorship Contributions

Concept: F.K., H.A., Design: F.K., H.A., Data Collection or Processing: F.K., Analysis or Interpretation: F.K., H.A., Literature Search: F.K., H.A., Writing: F.K., H.A.,

Conflict of Interest: No conflict of interest was declared by the authors.

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References

1. Institute of Medicine (US) Committee on Quality of Health Care in America; To Err Is Human: Building a Safer Health System.Kohn LT, Corrigan JM, Donaldson MS, editors. Washington, DC: The National Academies Press; 2000. p.312.

2. World Health Organization. Multi-professional patient safety curriculum guide, 2011.

3. Healthcare Risk Control. Culture of safety. ECRI Institute; 2009 [cited 2019 september 26]. Available from: https://www.ecri.org/Documents/Patient_Safety_Center/HRC_CultureofSafety.pdf

4. Wold Health Organization.World Alliance for patient safety. Forward programme 2006-2007. Geneva: WHO Press; 2006. LİNK YOK LİNK BIRAKIYORUM. https://apps.who.int/iris/bitstream/handle/10665/69349/WHO_EIP_HDS_PSP_2006.1_eng.pdf?sequence=1&isAllowed=y

5. Farquhar M, Sharp BAC, Clancy CM. Patient safety in nursing practice. AORN J 2007;86: 455-7.

6. Batalden P, Berwick D, Billi J. Report V. Contemporary issues in medicine: Quality of care. Washington, DC: Association of American Medical Colleges, 2001.

7. Patey R, Rlin R, Cuthbertson BH, MacDonald L, Meams K, Cleland J, et al. Patient safety: Helping medical student understand error in healthcare. Qual Saf Health Care 2007;16:256-9.

8. Ziv Stephen D Small Paul Root Wolpe A. Patient safety and simulation-based medical education. Med Teach 2000;22:489-95.

9. Seiden SC, Galvan C, Lamm R. Role of medical students in preventing patient harm and enhancing patient safety. Qual Saf Health Care 2006;15:272-6.

10. Institute of Medicine (US) Committee on the Health Professions Education Summit. Health Professions Education: A Bridge to Quality. Greiner AC, Knebel E, editors. Washington (DC): National Academies Press (US); 2003.

11. Firth-Cozens J. Cultures for improving patient safety through learning: the role of teamwork. Qual Health Care 2001;10(Suppl 2):ii26-31.

12. Henderson AJ, Forrester K, Heel A. The establishment of structures and processes for the safe and effective clinical placement of nursing students. Nurse Educ Pract 2006; 6:275-80.

13. Vaismoradi M, Salsali M, Marck P. Patient safety: nursing students' perspectives and the role of nursing education to provide safe care. Int Nurs Rev 2011;58:434-42.

14. Steven A, Magnusson C, Smith P, Pearson PH. Patient safety in nursing education: contexts, tensions and feeling safe to learn. Nurse Educ Today 2014;34:277-84.

15. Lee NJ, An JY, Song TM, Jang H, Park SY. Psychometric evaluation of a patient safety competency self-evaluation tool for nursing students. J Nurs Educ 2014;53: 550-62.

16. Hwang JI. What are hospital nurses' strengths and weaknesses in patient safety competence? Findings from three Korean hospitals. Int J Qual Health Care 2015;27:232-8.

17. Tella S, Liukka M, Jamookeeah D, Smith NJ, Partanen P, Turunen H. What do nursing students learn about patient safety? An integrative literature review. J Nurs Educ 2014;53:7-13.

18. Mansour MJ, Al Shadafan SF, Abu-Sneineh FT, AlAmer MM. Integrating patient safety education in the undergraduate nursing curriculum: a discussion paper. Open Nurs J 2018;12:125-32.

19. Attree M, Cooke H, Wakefield A. Patient safety in an English pre-registration nursing curriculum. Nurse Educ Pract. 2008;8:239-48.

20. Carruthers S, Lawton R, Sandars J, Howe A, Perry M. Attitudes to patient safety amongst medical students and tutors: Developing a reliable and valid measure. Med Teach 2009;31:e370-6.

21. Tavşancıl E. Measuring attitudes and data analysis with SPSS, 5th ed. Nobel Akademy Press, Ankara; 2014.

22. Torun N, Dinçer M, Öztaş D, Demir P, Sanisoğlu SY. Adapting the Scale for Culture of Patient Safety Attitude of Students of Medicine School to Turkish. Journal Of Contemporary Medicine 2018;8:153-8.

23. International Test Commission, The ITC guidelines for translating and adapting tests (Second edition). 2017. (Date of Access: 26.9.19). Available from: https://www.intestcom.org/files/guideline_test_adaptation_2ed.pdf

24. Mokkink LB, Terwee CB, Patrick DL, Alonso J, Stratford PW, Knol DL, et al. The COSMIN checklist for assessing the methodological quality of studies on measurement properties of health status measurement instruments: an international Delphi study. Qual Life Res 2010;19:539-49.

25. World Health Organization (WHO), Process of translation and adaptation of instruments, 2019. [cited 2019 september 26]. Available from: https://www.who.int/substance_abuse/research_tools/translation/en/

26. Capik C, Gozum S, Aksayan S. Intercultural scale adaptation stages, language and culture adaptation: Updated guideline. Florence Nightingale J Nurs 2018;26:199-210.

27. Davis LL. Instrument review: Getting the most from a panel of experts. Appl Nurs Res 1992;5:194-7.

28. Polit DF, Beck CT. Nursing Research: Principles and Methods, PA: Lippincott Williams & Wilkins, Philadelphia; 2012.

29. Büyüköztürk Ş, Kılıç Çakmak E, Akgün ÖE, Karadeniz Ş, Demirel F. Bilimsel Research methods. 5th edition, Pegem Academy, Ankara; 2010.

30. Çam M, Arabacı L. Qualitative and Quantitative Steps on Attitude Scale Construction. Turkish J Res Dev Nurs 2010;2:65-8.

31. Polit DF, Beck CT. Nursing research: Principles and Methods, PA: Lippincott Williams & Wilkins., Philadelphia; 2012.

32. Akgül A. Statistical Analysis Techniques in Medical Research "SPSS Applications". 3rd edition, Emek Ofset Ltd., Ankara; 2005.

33. Büyüköztürk Ş. Manual of data analysis for social sciences. 15th edition, Pegem Academy, Ankara; 2011.

34. Erefe İ. The nature of data collection tools. Research principles and methods in nursing. Erefe İ, Ed. 1st Edition. Istanbul: Focus Offset; 2002.p. 169-88.

35. Gözüm, S., Aksayan, S. Guidelines II for intercultural scale adaptation: Psychometric properties and intercultural comparison. Journal of Research and Development in Nursing 2003;5:3-14.

36. Jöreskog K, Sörbom D. LISREL 8: User's Reference Guide. Scientific Software International Inc, Chicago; 2001.

37. Harrington D. Confirmatory Factor Analysis. Oxford University Press. Newyork, USA; 2009.

38. Şimşek ÖF. Introduction to Structural Equation Modeling Basic Principles and LISREL Applications, 1st Edition. Ankara: Ekinoks Education Publishing; 2007. p. 14-49.

39. Byrne BM. Structural Equation Modelling with LISREL, PRELIS and SIMPLIS: Basic Concepts, Applications and Programming, 1st Edition. Lawrence Erlbaum Associates Publishers, London; 1998. p. 3-37.

40. Öner N. Psychological Tests Used in Turkey: A Reference Guide, Expanded 2nd Edition. Istanbul: Boğaziçi University Publishing House; 2008.

41. Yurdugül H. Some details for scale development studies in behavioral sciences; 2005. [cited 2019 september 20]. Available from:http://yunus.hacettepe.edu.tr/~yurdugul/3/indir/FA_OrneklemGe nislilik.pdf