Original Article

Psychometric Properties of the Turkish Version of the Nursing Clinical Facilitators Questionnaire

CD Barutcu, SG Eskin¹, S Bulut¹

Department of Internal Medicine Nursing, Faculty of Health Science, Burdur Mehmet Akif Ersoy University, Burdur, ¹Department of Internal Medicine Nursing, Faculty of Health Science, Adnan Menderes University, Aydın, Turkey

Received: 22-Apr-2024; Revision: 12-Jul-2024; Accepted: 24-Jul-2024; Published: 30-Oct-2024

INTRODUCTION

fursing education consists of clinical practice and theoretical education. Students spend more than threefold as much time in clinical learning environments (including simulation laboratories) than in the classroom for theoretical education.^[1] The clinical learning environment and the trainer-student relationship are extremely important for the learning outcomes of nursing students.^[2] Nursing advisors undertake guiding and facilitating roles in this process. The meaning of the roles of nursing advisors related to student education is that they can support student learning and the quality of professional development. Clinical educators support student learning and have a strong influence of the learning of students.^[2,3] Educator support has been shown to play an important role in the ability of students to develop clinical practice and acquire better knowledge related to patient care.^[4,5] In addition, the evaluation of students by nursing advisors contributes to the development of nurses and improving the quality of clinical training. However, a difficulty in the evaluation of the clinical experiences of students has been a lack of appropriate tools.

Access this article online				
Quick Response Code:	Website: www.njcponline.com			
	DOI: 10.4103/njcp.njcp_289_24			

Background: Translation and adaptation of English-language tools for use in communities speaking other languages is a facilitating factor for conducting nursing and health-related research. **Aim:** To test the validity and reliability of the Nursing Clinical Facilitators Questionnaire (NCFQ) for Turkish society. **Methods:** The study was carried out on 316 students between September 2022 and April 2023. The results were tested with validity and reliability analyzers such as factor analysis, Cronbach's alpha, and item-total score analysis. **Results:** The scale comprised 22 items including three subdimensions. In both exploratory and confirmatory factor tests, the overall factor loading was greater than 0.30. In the confirmatory factor analysis, all the goodness of fit indexes were greater than 0.87, and the root mean square error of approximation was less than 0.07. The Cronbach's alpha coefficient of the scale was 0.92, with Cronbach's alpha values ranging between 0.55 and 0.88 for the subscales. **Conclusion:** NCFQ was found to be a valid and reliable scale for the Turkish population.

Keywords: Nursing students, preceptors, reliability, supervision, validity

No published study could be found that has measured the satisfaction and efficacy of supervision support from the perspective of nursing students in Turkey. Therefore, it is important to develop valid and reliable instruments that measure supervision support by students. Hence, this study was conducted to test the validity and reliability of the Nursing Clinical Facilitators Questionnaire (NCFQ) in Turkey, which was developed by Sydney Technology University Training Centre.

MATERIAL AND METHODS

Design and sampling

This methodological, descriptive, and correlational research investigated the validity and reliability of the NCFQ for the Turkish population. This study was carried out between September 2022 and April 2023 on

> Address for correspondence: Dr. CD Barutcu, Department of Internal Medicine Nursing, Faculty of Health Science, Burdur Mehmet Akif Ersoy University, 15100 - Burdur, Turkey. E-mail: cdemir@mehmetakif.edu.tr

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Barutcu CD, Eskin SG, Bulut S. Psychometric properties of the Turkish version of the nursing clinical facilitators questionnaire. Niger J Clin Pract 2024;27:1185-9.

nursing students educated at a university in the western part of the country. In the literature, when calculating the sample size for psychometric studies, it is stated that the sample should be between 200 and 500 individuals, and it is recommended to include at least 100 people for factor analysis.^[6,7] First, a total of 350 students were invited. Thirty-four of them did not want to participate in the research, and a total of 316 students volunteered to take part in the study. The data were collected from the students in classroom.

Data collection tools

The data of the study were collected using a Personal Information Form and the NCFQ.

The personal information form

The personal information form prepared by the researchers in line with the literature consisted of eight questions about sociodemographic characteristics and the opinions about the clinic, profession, and trainer.

Nursing Clinical Facilitators Questionnaire

The NCFO was created by the Centre for Learning and Teaching at the University of Technology in Sydney, Australia. This questionnaire has been used in different cultural contexts and has shown good psychometric properties in evaluating the satisfaction of nursing students with their supervision in clinical teaching. The original version was published by Espeland and Indrehus^[8] and Raholm. Thorkildsen et al.^[9] adapted to a sample of Norwegian students.^[8,9] The questionnaire contains 27 statements, and each statement has five possible answers on a Likert scale. In the original scale, items 3, 4, and 8 were removed from the scale due to low factor loadings, and questions 26 and 27 were not included in the evaluation because they measured general satisfaction. Therefore, the scale was analyzed over 22 items. The questionnaire is based on the following three factors: 1: learning-supporting behavior (items 7, 9, 17, 18, 19, 20, 21, 22, 24, and 25), 2: learning-stimulating behavior (items 5, 6, 10, 11, 12, 13, 14, 15, 16, and 23), and 3: preparatory behavior (items 1 and 2). The objectives of this study were to perform the cultural adaptation to Turkish of the NCFQ and to validate the instrument.

Adaptation stages NCFQ to Turkish translation

In translation adaptations, the most appropriate sentence structures, phrases, and idioms in the target language should be used, and items that do not fully conform to the target culture should be changed. For this purpose, the scale was translated into Turkish by three English language experts. The Turkish version of the scale was improved by the researchers through group work. Then the draft version was translated back to English by a different person who is an expert in both Turkish and English languages.

Expert opinion

The scale was submitted for expert opinion on the scope and content validity of the scale. The scale was given to eight different specialists, including nurses working in different departments and nursing faculty members. The scale's final form was assessed by the experts. The selection validity index was used to assess the expert opinions depending on the products and size.^[7,10] After a good match among experts was obtained, the scale was piloted on 20 students. Since the scale's comprehensibility was considered to be sufficient in the pilot, it was used in the study.

Data entry and analysis

IBM SPSS Statistics 22.0 and IBM SPSS Amos 26.0 were used for data processing. The descriptive figures were calculated using percentages and mean ratings. The reliability analysis determined the internal accuracy of the scale and its subscales.^[10] The content validity index (CVI) and factor analysis were also used. EFA (exploratory factor analysis) assessed the relationship between item and factor.^[11,12] Confirmatory factor analysis (CFA) was conducted with a full estimate of the maximum likelihood using IBM SPSS Amos version 26.0. Cronbach's alpha coefficient was used to evaluate the internal accuracy of the scale and subscale. Pearson's correlation analysis was used to analyze the item-total score. Tukey's test and Hotelling's T-square test were also included in the statistical analysis. The significance level was accepted as < 0.01.

Ethical consideration

This study was approved by the Mehmet Akif Ersoy University Ethical Committee (approval no. 2018/120, date: 05/12/2018). The objective of the research was explained to the participants, and written permission was received from those agreeing to participate in the research.

RESULTS

The demographic characteristics of the participants are shown in Table 1. The mean age of the students was 21.12 ± 1.30 years, 65.8% were female, and 30.4% were in the second year of study, 27.8% in the third year, and 41.8% in the fourth year. Of the total students, 59.2% were clinical nursing advisors. The department had been freely selected by 70.6% of the students, 71.8% reported positive thoughts about the nursing profession, 81% stated that they loved the nursing profession, and 55.7% had experienced no problems during clinical practice.

According to the CFA, the structural equation modeling results of the scale were significant at the level of P = 0.000, and the 22 items comprising the scale were determined to be related to the scale with three factors. There was determined to be no need to form covariance between errors of the same factor in the model. According to the first-level multifactor analysis results, when the goodness-of-fit indexes of the scale were examined, there was determined to be excellent fit with χ^2 (Cmin/df) 2.874, acceptable fit with RMSEA 0.077, and an excellent level of the other fit indexes [Table 2].

Table 1: Demographic characteristics of students (n	=316)
---	-------

	п	%
Gender		
Female	208	65.8
Male	108	34.2
Class		
2 nd class	96	30.4
3 rd class	88	27.8
4 th class	132	41.8
Clinical guide*		
Nurse	187	59.2
Lecturer	129	40.8
Did you choose your department willingly?		
Yes	223	70.6
No	93	29.4
Thoughts about the nursing profession		
Positive	227	71.8
Negative	89	28.2
Do you like the nursing profession?		
Yes	256	81.0
No	60	19.0
Have you had any problems during clinical practice?		
Yes	140	44.3
No	176	55.7
	X±SD	
Age	21.12±1.30	

*Clinical guide: Nurse: A person who works as a nurse in a hospital and mentors students in practice; Lecture: A person who works at the university and is responsible for the education of students

Table 2: Results of the CFA				
Index	Perfect Fit	Criteria for	After	
	Criterion	acceptable fit	Modification	
$\chi^2 \chi^2 / \text{SD}$	$0 \le \chi^2/df \le 3$	$3 \le \chi^2/df \le 5$	2.874	
RMSEA	$0.00 \le \text{RMSEA}$	$0.05 \le \text{RMSEA}$	0.077	
	≤ 0.05	≤ 0.08		
SRMR	$0.00 \leq \text{SRMR} \leq$	$0.05 \leq \text{SRMR}$	0.055	
	0.05	≤ 0.08		
CFI	$0.95 \le \mathrm{CFI}$	$0.85 \le CFI$	0.874	
GFI	$0.90 \le \mathrm{GFI}$	$0.85 \leq GFI$	0.862	
IFI	$0.90 \leq \mathrm{IFI} \leq 1.00$	$0.80 \leq \mathrm{IFI}$	0.875	
TLI	$0.90 \le TLI$	$0.80 \le TLI$	0.855	
NI	$0.90 \leq \mathrm{NFI}$	$0.80 \leq \mathrm{NFI}$	0.820	

Chi square/Degrees of Freedom ($\chi^2 \chi^2$ /SD). Root Mean Square Error of Approximation (RMSEA). Comparative Fit Index (CFI). NNFI (TLI). Goodness of Fit Index (GFI) The CR value of all the scale items was significant, the factor load value of all the items was >0.30, and the factor loads of all the items were in the range of 0.413-0.751 [Table 3].

The results of the independent groups *t*-test showing the differentiating power of the scale items and the item total correlation findings are shown in Table 3. The item-total test correlation values of the responses given to the scale items were examined, and there were not determined to be any items with a value remaining < 0.30. The item-total test correlation values of all the items showed variability in the range of 0.386-0.698. As seen in the item-total test correlation table, all the items were determined to be related to each other. The raw scores obtained from the scale to determine the differentiating power of the items in the scale were listed from high to low, and when the mean points of the groups above and below 27% were compared with the independent groups *t*-test, there was seen to be a statistically significant difference between the mean item points of the lower and upper groups.

In the reliability analysis, the alpha value of the NCFQ was calculated to be 0.926, and the alpha values related to the subscales were in the range of 0.554–0.881. The results obtained from using the split-half method to test

Table 3: Item analysis of the nursing clinical facilitators questionnaire				
	r*	Cronbach α value when item is deleted	t	Р
F1				
Item 7	0.647	0.866	16.196	0.000**
Item 9	0.598	0.870	11.878	0.000**
Item 17	0.631	0.868	14.953	0.000**
Item 18	0.628	0.868	13.554	0.000**
Item 19	0.652	0.866	14.106	0.000**
Item 20	0.624	0.868	16.250	0.000**
Item 21	0.698	0.862	17.735	0.000**
Item 22	0.563	0.872	11.151	0.000**
Item 24	0.535	0.874	12.054	0.000**
Item 25	0.507	0.876	11.913	0.000**
F2				
Item 5	0.437	0.835	11.660	0.000**
Item 6	0.499	0.828	12.578	0.000**
Item 10	0.623	0.816	13.755	0.000**
Item 11	0.584	0.820	13.844	0.000**
Item 12	0.434	0.834	7.494	0.000**
Item 13	0.439	0.833	8.186	0.000**
Item 14	0.547	0.823	9.597	0.000**
Item 15	0.655	0.812	18.817	0.000**
Item 16	0.524	0.825	9.423	0.000**
Item 23	0.586	0.819	15.551	0.000**
F3				
Item 1	0.386		13.800	0.000**
Item 2	0.386		21.786	0.029**

《1187

r= Item Total Score Correlation **P < 0.05

Table 4: Results of the reliability analysis of the scale and subdimensions						
Sub-dimensions	Cronbach	First half of	Second half of	Correlation	Spearman-Brown	Guttman
	α	Cronbach α	Cronbach a	between two halves		Split-Half
Scale Total	0.926	0.843	0.870	0.902	0.948	0.947
First Subdimension	0.881					
Second Subdimension	0.839					
Third Subdimension	0.554					



Figure 1: CFA of the three-factor model. *s = item

the reliability of the scale are shown in Table 4. The scale was divided in two based on odd- and even-numbered items, and the correlation coefficient between the two halves was calculated as 0.70. Therefore, the scale was determined to be reliable.

To evaluate response bias of the scale, analysis was made with the Hotelling T² method of the responses of each individual to each item of the scale. There was determined to be no response bias (F = 13.210, P = 0.000).

DISCUSSION

1188

This study was conducted to test the validity and reliability of the Turkish version of the NCFQ. Reliability is defined as the degree of consistency between independent measurements of a scale or between the measured features. The reliability of the measurement tool in this study was evaluated using agreement between independent observers (correlation, variance analysis, Kendall's W coefficient of concordance), Cronbach's alpha, split-half method, and item-total points scale reliability methods.^[13]

Reliability analysis is performed to test whether the statements in the scale are consistent with each other and whether or not all the statements measure the same subject.^[13] For the tests and results to be reliable, the measurements must be reliable. In this context, the reliability of the scale was examined with Cronbach's alpha and the split-half method.

With CFA, the theoretical structure of the model is explained and whether or not it is sufficient is tested.^[6] Acccording to the CFA results in this study, the structural equation model of the scale was significant in relation to the scale structure of 22 items and three factors. The goodness-of-fit indexes of the scale were determined to be excellent with first-level multifactor analysis.^[14] Thus, it was determined that the scale structure had validity [Figure 1].

The CR value calculations show whether or not the scale items are statistically significant.^[15] The results showed that the CR values of all the scale items were significant and the factor load value of all the items was appropriate for the structure, and thus, it was concluded that the scale item structure was confirmed.^[16]

For the total test correlation to be sufficient showing the differentiating power of the scale items, a minimum value of 0.30 is determined and items remaining below this value must not be included in the analysis.^[6] In the current study, the item-total test correlation values of the responses given by the participants to the scale questions were determined not to be below this value. According to the item-total test correlation, the scale items were determined to be related to each other. The result that there was no statistically significant difference between the mean item points of the scale upper and lower groups showed that the scale could differentiate in the context of measuring the desired feature.

Reliability analysis is performed to test whether the statements in the scale are consistent with each other

and whether or not all the statements measure the same subject. In the reliability analysis, a Cronbach's alpha value of 0.8–1.00 is evaluated as high reliability of the scale.^[6] From the results of this study, it was concluded that the NCFQ was a scale with a high degree of reliability.

The split-half method is used when a single score can be obtained by dividing the test into two parts. This method is based on the points obtained from both halves of the sample being similar if the scale is reliable. The split-half method can be applied as odd- and even-numbered items or in random order.^[17] The correlation between the two halves shows whether or not it is a reliable measurement tool. A correlation coefficient >0.70, that is, close to 1, shows that the scale is reliable.^[18] In this study, the correlation coefficient between the two halves was >0.70, showing that the Turkish version of the scale is reliable.

The evaluation of response bias provides an evaluation of the homogeneity of the responses given to each item in the scale. In other words, it determines whether or not the averages of a statement and question are equal to each other. The Hotelling T-test evaluates whether the participants perceived the scale items with the same approach and measures the level of difficulty of each item.^[6] In the light of this information, response bias of the scale in this study was analyzed with the Hotelling T² method. As a result of the responses of the participants to the scale items, it was concluded that there was no response bias in the scale.

CONCLUSION

In this study, where reliability and validity of the NCFQ for the Turkish society were examined, adaptation studies were conducted in accordance with international scientific methods. The NCFQ was found to be a valid and reliable measuring instrument in Turkey. It was concluded that the scale could be employed in the nursing practices and research in Turkey.

Financial support and sponsorship Nil.

Conflicts of interest

There are no conflicts of interest.

References

- Flott EA, Linden L. The clinical learning environment in nursing education: A concept analysis. J Adv Nurs 2016;72:501-13.
- Johannessen AK, Barra M, Vullum S, Werner A. Nursing students' evaluation of clinical learning environment and supervision in a Norwegian hospital placement-A questionnaire survey using CLES+T scale. Nurse Educ Pract 2021;54:103-19.
- 3. Sweet L, Broadbent J. Nursing students' perceptions of the qualities of a clinical facilitator that enhance learning. Nurse Educ Pract 2017;22:30-6.
- Bradshaw CP, Pas ET, Bottiani JH, Debnam KJ, Reinke WM, Herman KC. Promoting cultural responsivity and student engagement through double check coaching of classroom teachers: An efficacy study. Sch Psychol Rev 2018;47:118-34.
- Kristofferzon M., Mårtensson G, Mamhidir AG, Löfmark A. Nursing students' perceptions of clinical supervision: the contributions of preceptors, head preceptors and clinical lecturers. Nurse Educ Today 2013;33:1252-7.
- Özdamar K. Scale and Test Development Applied Structural Equation Modeling IBM SPSS, IBM SPSS AMOS and MINITAB. Eskişehir, Nisan Publishers; 2017.
- Karagöz Y. SPSS and AMOS Applied Scientific Research Methods and Publication Ethics. 1st ed. Ankara: Nobel Publishers; 2018.
- Espeland, V, Indrehus O. Evaluation of students' satisfaction with nursing education in Norway. J Adv Nurs 2003;42:226-36.
- Råholm MB, Thorkilsen K, Löfmark A. Translation of the nursing clinical facilitator questionnaire (NCFQ) into Norwegian. Nurse Educ Pract 2010;10:196-200.
- Polit DF, Beck CT. Essentials of nursing research: Appraising evidence for nursing practice. 9th ed. Philadelphia: Lippincott Williams and Wilkins Publishers; 2018.
- Simsek Ö. Introduction to Structural Equation Modeling, Basic Principles and LISREL Applications. Ankara: Ekinoks Publishers; 2010.
- Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar AR. Design and implementation content validity study: Development of an instrument for measuring patient-centered communication. J Caring Sci 2015;4:165-78.
- Johnson B, Christensen L. Educational Research Quantitative, Qualitative, and Mixed Approaches. 5th ed. Sage Publications; 2014.
- Simon D, Kriston L, Loh A, Spies C, Scheibler F, Wills Cİ. Confirmatory factor analysis and recommendations for improvement of the Autonomy-Preference-Index (API). Health Expect 2010;13:234-43.
- 15. Seçer İ. Psychological Test Development and Adaptation Process: SPSS and LISREL Applications. Ani Publishers; 2018.
- DeVellis RF. Scale Development: Theory and Applications. 4th ed. India: Sage Publishers; 2012.
- 17. Baykul Y. Measurement in Education and Psychology: Classical Test Theory and Practice. Pegem Academy Publishers; 2015.
- Field A. Discovering Statistics Using SPSS. Thousand Oaks, CA: Sage Publishers; 2009.