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Research

# Adaptation of the Person-Centered Perioperative Nursing Scale to Turkish: A Validity and Reliability Analysis

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A B S T R A C T

*Purpose:* This study aims to perform a detailed analysis of the validity and reliability of the Turkish version of the Person-Centered Perioperative Nursing Scale (PCPON).
*Design:* Methodological and descriptive study.
*Method:* This study was conducted online between December 2020 and February 2021, with 240 nurses working in the surgical wards of private hospitals in Istanbul, Turkey. Individual Characteristics Questionnaire and PCPON were used to collect data. Cronbach Alpha reliability analysis and Confirmatory Factor Analysis (CFA) were applied using R Project software to the data.
*Findings:* As a result of the analysis, all corrected item correlation values for compassionate interaction, respect, comfort, sharing information, and expertise were found to be positive following the original factors structure of the scale. According to reliability analysis statistics, Cronbach's Alpha coefficients were calculated as 0.781, 0.758, 0.780, 0.750 and 0.808 for compassionate interaction, respect, comfort, sharing information, and expertise sub-dimensions, respectively. According to these findings, all five sub-dimensions had high reliability levels. As a result of CFA, the items in all sub-dimensions were statistically significant. Standardized factor loads were also positive in the five sub-dimensions of the scale. Based on these results, all PCPON items were under appropriate sub-dimensions.
*Conclusions:* PCPON as adapted from English to Turkish had high levels of validity and reliability. It was concluded to be a valid and reliable scale, which we believe will be useful for our country in the fields of education, practice, and research to evaluate the attitudes and behaviors of surgical nurses towards the care-oriented nurse-patient relationship.


Perioperative nursing is a healthcare field in which patient-specific nursing care provides the required conditions for the patient to regain and maintain physiological, psychological, and social competence before, during, and after surgery.[1] The Association of periOperative Registered Nurses (AORN) published perioperative nursing standards in 2015, based on the American Nurses Association's (ANA) scope and practice standards. These criteria apply to all nurses in the perioperative setting and focus on providing nursing care and completing professional role duties. Nursing care should be person-centered for each patient, according to AORN. Person-centered care should always be provided with due respect to the patient's cultural, racial, and ethnic diversity in the context of disease or injury prevention, health promotion, health care, or palliative care.[2]

In health care, the concept of person-centered care has a long history. Dating back to Florence Nightingale, this concept and its history highlights the importance of nursing being concerned with the patient rather than the ailment. According to Hildegard E. Peplau, the nurse-patient connection is at the heart of nursing, and the focus of interpersonal relations is that nurses give care under the control of the individual rather than the clinician.[3] Patient, family, and relationship-based care are all built on the foundation of person-centered care. Personalized care improves the patient's psychological well-being as well as his or her physical health. Evidence supports that practicing person centered care can lead to reductions in length of stay, reduced infections, improving nurse-patient interactions.[4,5]

The perioperative person-centered model was developed by Rothrock and Smith in 2000. The surgical patient is in the center of this model, which is divided into four regions. These four regions represent the patient's physiological response pre and postoperatively and behavioral responses such as patient safety, with the final region representing the entire health system.[6] As defined by the Institute of Medicine in 2001, person-centered care is one of the six basic pillars

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of high-quality health care, guiding and responding to all clinical decisions in health care while respecting the patient's beliefs, preferences, and requirements.[7] The AORN advocates for person-centered care. According to AORN, person-centered nursing practices reduce complications, promote patient satisfaction, quality, evidence-based practice, safety, and informatics, in addition to teamwork and cooperation.[8]

In a systematic review comparing the similarities and differences of person-centered and patient- centered care, two concepts have similarities on the concepts of person- and patient-centeredness although they differ when their main goals are taken into account. According to the patient-centered approach, the caregiver must holistically consider what is known about the patient and comprehend the patient as a unique human being. For all that, person-centered care emphasize the individual as subjective, utterly unique, and in a self-actualizing relationship with other people. The review concluded that patient-centered care focuses on a functional life for the patient whereas person-centered care focuses on a meaningful life for the patient. In addition, the review article highlighted nine primary themes on person-centered care, namely empathy, respect, dedication, relationship, communication, shared decision making, holistic focus, individualized focus, and coordinated care.[9] Person-centered care is now widely recognized as the gold standard for health care services worldwide.[3] Thus, evaluating and monitoring personalized care has become critical.

Several scales in different languages and fields developed on person-centered care were identified as a result of the literature review.[10-14] The Person-Centered Perioperative Nursing Scale (PCPON) was developed by Soyeung Shin and Jiyeon Kang in 2017 to assess perioperative nursing care.[15] The literature review revealed that the scale was the first of its kind for the PCPON and that no validity and reliability studies in Turkish or any other language had been conducted. The scale will contribute to our country by measuring nurses' information sharing, trust, specialty, respect, and emotional engagement, as well as monitoring their care performances objectively, assuring patient safety, and transferring innovations to service. This study aimed to assess the validity and reliability of the PCPON in Turkey.

## Methods

### *Design and Setting*

This study was conducted online in the surgical wards of private hospitals in Istanbul, Turkey, between December 2020 and February 2021.

### *Participants*

The sample size was calculated based on at least ten respondents per item, and the study sample was determined to cover at least 200 (20 items x10) nurses. A total of 240 nurses who worked in surgical wards and agreed to take part in the study were included. Nurses who did not complete the questionnaire were excluded.

### *Data Collection Tools*

Individual Characteristics Questionnaire and PCPON were used to collect the data.

#### *Individual Characteristics Questionnaire*

This questionnaire contains six questions about sex, date of birth, marital status, educational status, nursing experience, and surgical nursing experience (in years).

#### *Person-Centered Perioperative Nursing Scale (PCPON)*

Developed by Soyeung Shin and Jiyeon Kang in English in 2017, the five-point Likert-type scale consists of five sub-dimensions and twenty-items and can be used to assess person-centered care in perioperative nursing. The five sub-dimensions includes five items for compassionate interaction, six for respect, and three for comfort, sharing information, and expertise. In the original scale, the Cronbach's alpha values for these sub-dimensions were 0.88, 0.86, 0.78, 0.76, and 0.83, respectively.[15]

### *Translation Procedure*

The study looked at the PCPON's linguistic equivalency first, then its validity and reliability. For language equivalence study, the scale was translated into the language in which it was originally written, into Turkish and again into Turkish independently by three persons who had a good command of both English and the relevant field. Ten faculty members and a Turkish language expert in the relevant discipline reviewed the Turkish translations and chose the best translation for each item. After that, the scale was translated into English by another expert fluent in both English and Turkish. This translation was compared to the original scale, and any items that did not match the original were revised and corrected in the Turkish version.

### *Data Collection*

The data was collected online from those who agreed to take part in the study. The first section of the questionnaire included the essential instructions regarding the study's goal and a check box for voluntary participation. Data collection took approximately 15-20 minutes.

### *Ethical Considerations*

Before beginning the study, authorization to adapt the scale into Turkish was sought via e-mail from the authors who developed the scale. With the report numbered 46418926-050.01.04 dated October 23, 2020, the Board of Health Sciences University examined the ethical approval of this study and determined it to be ethically appropriate. The study was conducted on a voluntary basis.

### *Statistical Analysis*

Frequency analysis, descriptive data analysis, Cronbach Alpha reliability analysis, and confirmatory factor analysis (CFA) were applied in this study as statistical analysis techniques. For each demographic variable, the number of observations (n), mean($\overline{X}$), standard deviation (SD), test statistics ($\chi^2$) and degrees of freedom (df) were provided in the statistical analysis. All of the applications were applied with R Project software.[16]

## Results

### *Characteristics of Participants*

The descriptive characteristics of nurses are shown in Table 1. About 86% of the participants were female, 63.75% of them were under 30 years and 55.83% of them were single. The highest rate of working experience as a nurse and as a surgical nurse was found to be between 6 and 10 years.

### *Reliability*

Internal consistency was tested various statistical approaches such as using Cronbach's Alpha, which is the most commonly used approach, the item-total score correlation analysis, and equivalent

**Table 1**
Distribution of Nurses' Descriptive Characteristics (N = 240)

| Variable Group | n | % |
|---|---|---|
| Sex | | |
| Male | 35 | 14.58 |
| Female | 205 | 85.42 |
| Age | | |
| Under 30 | 153 | 63.75 |
| 30 years and older | 87 | 36.25 |
| Marital status | | |
| Single | 134 | 55.83 |
| Married | 106 | 44.17 |
| Educational status | | |
| High school | 52 | 21.67 |
| Undergraduate | 146 | 60.83 |
| Postgraduate | 42 | 17.50 |
| Nursing experience (in years) | | |
| Less than a year | 31 | 12.92 |
| Between 1 to 2 years | 35 | 14.58 |
| Between 3 to 5 years | 36 | 15 |
| Between 6 to 10 years | 77 | 32.08 |
| Between 11 to 20 years | 46 | 19.17 |
| Over 20 years | 15 | 6.25 |
| Surgical nursing experience (in years) | | |
| Less than a year | 55 | 22.92 |
| Between 1 to 2 years | 51 | 21.25 |
| Between 3 to 5 years | 32 | 13.33 |
| Between 6 to 10 years | 63 | 26.25 |
| Between 11 to 20 years | 33 | 13.75 |
| Over 20 years | 6 | 2.50 |

correlation analysis.[17,18] If the Cronbach Alpha coefficient is less than 0.40, the measurement tool is not reliable while scores between 0.40 to 0.59 is considered low-reliable, 0.60 to 0.79 is acceptably reliable, and 0.80-1.00 is highly reliable.[19] The Cronbach Alpha reliability analysis results for the sub-dimensions of the PCPON are shown in Table 2. All corrected item correlation values for compassionate interaction, respect, comfort, sharing information, and expertise sub-dimensions were positive as a result of the reliability analysis. There was also no significant increase in the reliability coefficients when the item was removed from the sub-dimensions for all five sub-dimensions. According to these findings, the analysis included all PCPON items, and no items were omitted. Cronbach's Alpha coefficients for compassionate interaction, respect, comfort, sharing information, and knowledge were calculated as 0.781, 0.758, 0.780, 0.750, and 0.808, respectively, according to reliability analysis statistics. All five sub-dimensions had good levels of reliability, according to these data.

**Table 3**
Factor's Name

| Factors | Name |
|---|---|
| F1 | Compassionate interaction |
| F2 | Respect |
| F3 | Comfort |
| F4 | Sharing information |
| F5 | Expertise |

*Validity and/or Construct Validity*

The naming of the sub-dimensions after CFA is given in Table 3. The naming equivalents of the sub-dimensions were determined as F1 (Compassionate interaction), F2 (Respect), F3 (Comfort), F4 (Sharing information), and F5 (Expertise).

When adapting the validity of a scale developed in one language and/or culture to another language and/or culture, construct validity should be calculated as well. CFA was used to verify the congruence of components for construct validity in adapting the PCPON to Turkish. The fundamental goal of CFA is to improve the evidence for a factor model's convergent, discriminant, and predictive validity using the data set from the adapted scale.[20] The goodness of fit indices in CFA should be set to the desired level. The fit of the data to the constructed model is tested using Chi-square fit statistics. The outcome of dividing the chi-square value by the degrees of freedom is a value of two or less, suggesting a good fit between the covariance structures, that is, a good fit between the established model and the data.[21] The scale CFA results are presented in Figure 1. All sub-dimensions had statistically significant items ($P < .05$) as a result of CFA. In five of the scale's sub-dimensions, standardized factor loads were

**Table 2**
Statistics on Reliability Analysis for Sub-dimensions of the Person-Centered Perioperative Nursing Scale

| Sub-dimensions | Items | $\bar{X}$ | SS | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted | Alpha |
|---|---|---|---|---|---|---|
| Compassionate interaction | I empathize when the patient expresses emotions. | 4.425 | 0.662 | 0.526 | 0.749 | 0.781 |
| | I actively listen to the patient. | 4.546 | 0.577 | 0.622 | 0.730 | |
| | I attempt nonverbal communication with patients who cannot speak. | 4.246 | 0.859 | 0.369 | 0.805 | |
| | I try to reduce the anxiety of the patient through words or actions. | 4.471 | 0.653 | 0.693 | 0.707 | |
| | I use terms patients can understand. | 4.575 | 0.636 | 0.557 | 0.742 | |
| | I often check the patient's needs (e.g., breathing, voiding). | 4.479 | 0.599 | 0.502 | 0.755 | |
| Respect | I use honorific words for the patient. | 4.692 | 0.514 | 0.691 | 0.661 | 0.758 |
| | I call the patient by a proper title. | 4.700 | 0.486 | 0.603 | 0.694 | |
| | I avoid unnecessary body exposure of the patient. | 4.729 | 0.490 | 0.564 | 0.706 | |
| | I respond quickly to the patient's needs or questions. | 4.429 | 0.705 | 0.470 | 0.747 | |
| | I look at the patient's preoperative history. | 4.579 | 0.635 | 0.396 | 0.766 | |
| Comfort | I identify the patient's discomfort from the surgical position and take appropriate action. | 4.563 | 0.582 | 0.650 | 0.671 | 0.780 |
| | I check whether the patient is feeling cold and take appropriate action. | 4.700 | 0.494 | 0.627 | 0.695 | |
| | If the patient complains of pain, I take appropriate action. | 4.717 | 0.496 | 0.587 | 0.735 | |
| Sharing information | I explain the procedure to the patient before surgery. | 4.429 | 0.830 | 0.566 | 0.705 | 0.750 |
| | I explain the reason for a delay in the operation to the patient. | 4.496 | 0.732 | 0.664 | 0.562 | |
| | I provide the patient with an explanation before taking any nursing action. | 4.717 | 0.567 | 0.550 | 0.718 | |
| Expertise | I regularly attend perioperative nursing education. | 4.158 | 0.951 | 0.736 | 0.649 | 0.808 |
| | I participate in quality improvement activities on perioperative nursing. | 3.9916 | 0.970 | 0.719 | 0.669 | |
| | I cooperate with other departments to treat patients. | 4.442 | 0.774 | 0.540 | 0.848 | |

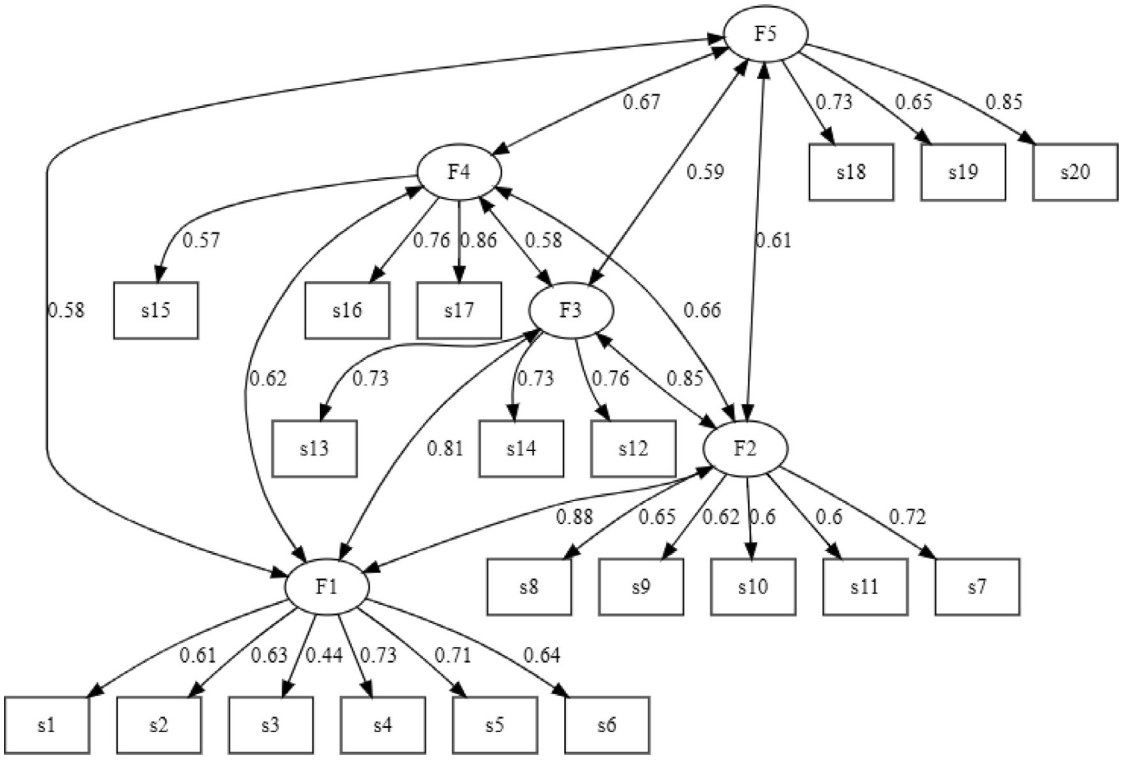


**Figure 1.** Confirmatory factor analysis results of the person-centered perioperative nursing scale.

likewise positive. According to these results, all PCPON items were validly included in the relevant sub-dimensions.

Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), Goodness of Fit Index (GFI), Turker-Lewis Index (TLI), Comparative Fit Index (CFI), and Adjusted Goodness of Fit Index (AGFI) are other commonly used goodness-of-fit indices. The RMSEA value, which ranges from 0 to 1, should be as close to zero as possible, and the error between the observed and created matrices should be as small as possible. A score of 0.05 or less implies perfect fit, whereas values of 0.08 or above suggest a good fit.[22] The goodness of fit values from the CFA of the PCPON are shown in Table 4. According to these values, the value of $\chi^2$/sd = 1.065 was less than two, and the RMSEA value was less than 0.05. The SRMR value was less than 0.10, but the GFI, TLI, CFI, and AGFI values were greater than 0.90. The PCPON's validity results showed an excellent fit in general.[23]

## Discussion

The person-centered perioperative nursing scale has five sub-dimensions. Compassionate interaction, respect, comfort, sharing information, and expertise are some of these. The scale's item-total correlation values were all positive. According to reliability analysis data, Cronbach's Alpha coefficients for compassionate interaction, respect, comfort, sharing information, and expertise sub-dimensions were computed as 0.781, 0.758, 0.780, 0.750, and 0.808, respectively, demonstrating that all five sub-dimensions had good levels of reliability. The Cronbach alpha coefficients of the English and Turkish scales were similar.[15] These findings suggest that, like the English language, the Turkish version of the scale has a high level of internal consistency. The Cronbach Alpha coefficient was 0.94 in another study conducted by Donmez and Ozbayir to evaluate the quality of perioperative nursing care and guide operating room (OR) nurses in determining the needs of patients who will undergo surgery, as well as the perceptions of the nurses' professional functions and duties.[24] Cronbach Alpha coefficients were found to be 0.81 (patients data) and 0.88 (nurses data) as a result of statistical analysis determined by a sample consisting of patients and surgical nurses in surgical clinics in another study conducted to analyze the psychometric properties of the Good Nursing Care Scale (GNCS).[25] GNCS adapted to Danish language and culture was applied to orthopedic patients and its psychometric properties were investigated. The Cronbach alpha value for the total scale score was found as 0.92 in another similar study that evaluated the perioperative nursing care experience of surgical patients. In the Swiss validity and psychometric reliability analysis of the Perceived Perioperative Competence Scale, which measures perioperative efficacy with OR nurses and nurse anesthetists, Cronbach's alpha values were 0.78 to 0.89 for OR nurses and 0.79 to 0.88 for nurse anesthetists. Both OR nurses and nurse anesthetists had Cronbach's alpha ratings of 0.85 and 0.76 for the overall scale, indicating strong internal consistency.[26]

While the English version of the scale's title was person-centered, the Turkish expert panel felt it was more acceptable to adapt it to

**Table 4**
The Fit Indices of CFA Findings of the Person-centered Perioperative Nursing Scale

| | df | GFI | AGFI | TLI | CFI | SRMR | RMSEA |
|---|---|---|---|---|---|---|---|
| 170.442 | 160 | 0.972 | 0.963 | 0.997 | 0.998 | 0.073 | 0.017 |

$\chi^2$ , Chi-square; df, Degrees of freedom; GFI, Goodness of Fit Index; AGFI, Adjusted Goodness of Fit Index; TLI, Turker-Lewis Index; CFI, Comparative Fit Index; SRMR, Standardized Root Mean Square Residual; RMSEA, Root Mean Square Error of Approximation; CFA, Confirmatory Factor Analysis.

individual-centered. No scale item was omitted during the item analysis of the scale, which assesses Turkish culture and Turkish nurses' individual-centered care, and the Turkish version of the scale was completed with 20 items.

The PCPON's Chi-square value ($\chi^2$/sd = 1.065) was determined to be less than 2, indicating that the model has an acceptable goodness of fit. The RMSEA score in this scale adaptation study was less than 0.05, indicating a perfect fit. A perfect fit is indicated by an SRMR value of less than 0.10 with GFI, TLI, CFI, and AGFI values of more than 0.90.[22] The goodness of fit indices in all sub-dimensions were found to be at the desired level in this study, and the fit was excellent. All 20 items had a standard factor load of 0.50 or higher and a critical ratio value of 1.97 or larger ($P < .05$) as a result of the CFA analyzed in the English validity and reliability study of the scale created by Shin & Kang (2019). Since it consisted of three or more items per factor, no model problem was found. The model's fit indices were Chi-square value 2 = 264.46 ($P > .05$). The RMSEA value was 0.05, which was similar to this study. The SRMR value was determined to be below 0.10 at a rate of 0.06, and TLI = 0.92, CFI = 0.93, and GFI = 0.90 values were found to be above 0.9, and they were all similar to the findings of this study.[15] CFA was applied to all seven factors of physical care, environment, information, support, respect, personnel characteristics, and the nursing process in a validity and reliability study assessing the psychometric qualities of the GNCS, which was modified to the Danish language and culture. Model fit estimates (CFI = 0.73, TLI = 0.70, RMSEA = 0.095 [90% GA: 0.09-0.10]) were calculated. However, since the nursing process factor was below the minimum (0.28) and a factor could not consist of a single question or item, all were excluded from the model. CFA was subsequently performed on the other six components, and it was discovered to produce better results (CFI = 0.73, TLI = 0.71, RMSEA = 0.097 [90% GA: 0.09-0.10]).[27] Two models were identified in the Swiss validity and reliability analysis of the Perceived Perioperative Competence Scale: OR nurses and nurse anesthesiologists. Six elements, including basic skills and knowledge, leadership, cooperation, competence, empathy, and professional development, were identified as a consequence of the CFA. Internal concept validity for OR nurses and nurse anesthetists was assessed using goodness-of-fit values. The $P$ values for both groups of chi-square tests were > .05, indicating that the six-factor model did not perfectly match the data. For both groups, SRMR values indicate a good model fit (nurses: 0.067, and nurse anesthetists: 0.065). The model fit the data reasonably well (nurses: 0.065, and nurse anesthetists: 0.061), and the Normed Fit Index (NFI) value in both groups was within a good range of model fit (nurses and registered nurse anesthetists (RNA): 0.95). The correlation between scales varies between 0.399 and 0.828 in OR nurses and between 0.345 and 0.801 in nurse anesthesiologists, according to test reliability between components. At the 5% level, the associations of all six factors in both groups were significant. Empathy, basic knowledge, and skills in OR nurses, and collaboration, basic knowledge, and skills in RNAs had the lowest relationships. In both groups, the highest correlation was found between proficiency, basic knowledge, and skills.[26]

## Conclusion

Person-Centered Perioperative Nursing Scale, which was adapted from English to Turkish, was found to have high levels of validity and reliability. This scale with five sub-dimensions and 20 items was determined to be valid and reliable. PCPON is suitable for our country to measure surgical nurses' attitudes and actions toward the person-centered nurse-patient interaction in education, practice, and research.

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