

## Research Article

# The Relationship Between Nursing Students Attitudes Towards Clinical Practice and Their Perceived Self-Efficacy During Physical Examination

## Hemşirelik Öğrencilerinin Klinik Uygulamaya Yönelik Tutumları ile Fizik Muayenede Algıladıkları Öz Yeterlilik Arasındaki İlişki

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### ABSTRACT

**Purpose:** This study aimed to examine the relationship between undergraduate nursing students' attitudes towards clinical practice and their perceived self-efficacy in physical examination.

**Methods:** The descriptive and correlational study was conducted in the nursing faculty of a state university. The sample consisted of 219 nursing students. Data were collected using the Descriptive Information Form, Attitudes Toward Clinical Practice Scale for Nursing Students, and Perceived Self-Efficacy in Physical Examination Scale for Undergraduate Nursing Students. Ethics committee and institutional permission were obtained for the study. Number, percentage, mean, independent groups t-test, oneway ANOVA, Tukey and Pearson correlation test were used for data analysis.

**Results:** The mean total score of the Perceived Self-Efficacy in Physical Examination Scale for Undergraduate Nursing Students was  $2.52 \pm 0.47$ , and the mean total score of the Attitude Towards Clinical Practice Scale for Nursing Students was  $104.68 \pm 16.85$ . A very weak significant relationship was found between the scales ( $r=0.205$ ).

**Conclusion:** In the study, students' attitudes towards clinical practice and perceived self-efficacy in physical examination were found to be above average. In addition, students with more positive attitudes towards clinical practice had higher self-efficacy in physical examination. It is recommended to focus more on clinical practice and increase mentoring support in nursing education.

**Keywords:** Nursing student, Physical examination, Self-efficacy.

### ÖZET

**Amaç:** Bu çalışmanın amacı, hemşirelik lisans öğrencilerinin klinik uygulamaya yönelik tutumları ile fizik muayenede algıladıkları öz yeterlilik arasındaki ilişkiyi incelemektir.

**Yöntem:** Tanımlayıcı ve korelasyonel tipteki çalışma bir devlet üniversitesinin hemşirelik fakültesinde yürütülmüştür. Örneklemi 219 hemşirelik öğrencisi oluşturmuştur. Veriler Tanıtıcı Bilgi Formu, Hemşirelik Öğrencileri İçin Klinik Uygulamaya Yönelik Tutum Ölçeği ve Hemşirelik Lisans Öğrencileri İçin Fiziksel Muayenede Algılanan Öz Yeterlilik Ölçeği kullanılarak toplanmıştır. Çalışma için etik kurul ve kurum izni alınmıştır. Veri analizi için sayı, yüzde, ortalama, bağımsız gruplar t-testi, tek yönlü ANOVA, Tukey ve Pearson korelasyon testi kullanılmıştır.

**Bulgular:** Hemşirelik Lisans Öğrencileri İçin Fiziksel Muayenede Algılanan Öz Yeterlilik Ölçeği toplam puan ortalaması  $2.52 \pm 0.47$ , Hemşirelik Öğrencileri İçin Klinik Uygulamaya Yönelik Tutum Ölçeği toplam puan ortalaması  $104.68 \pm 16.85$ 'tir. Ölçekler arasında çok zayıf düzeyde anlamlı bir ilişki bulunmuştur ( $r=0.205$ ).

**Sonuç:** Çalışmada öğrencilerin klinik uygulamaya yönelik tutumları ve fizik muayenede algılanan öz yeterlilikleri ortalamasının üzerinde bulunmuştur. Ayrıca, klinik uygulamaya yönelik daha olumlu tutuma sahip olan öğrencilerin fiziksel muayenede öz yeterlilikleri daha yüksektir. Hemşirelik eğitiminde klinik uygulamaya daha fazla odaklanılması ve mentörlük desteğinin artırılması önerilmektedir.

**Anahtar Kelimeler:** Fiziksel muayene, Hemşirelik öğrencisi, Öz yeterlilik.

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## 1. Introduction

Nursing education is a complex and comprehensive process that aims to enable students to gain professional competence by reinforcing their theoretical knowledge through clinical practice [1]. The success of this process largely depends on the attitudes of students towards clinical practice and the extent to which they realize the skills. Undergraduate nursing students' attitudes towards clinical practice directly affect their determination against the difficulties experienced, their willingness to learn, and the development of their professional identities [2]. Studies have shown that clinical practice increases students' professional knowledge and skills, strengthens their communication skills, enables them to take a more active role in teamwork, and improves their responsibility and care skills [3, 4]. Physical examination represents one of the clinical practice skills in which knowledge is transferred from theory to practice [5].

Physical examination, which constitutes an important step in creating systematic data for planning the nursing process, is the interpretation of what health professionals see, hear, and feel about the general condition of the patient. Physical examination is performed using auscultation, palpation, percussion, and inspection techniques. The quality of patient care is enhanced when nurses perform physical examinations correctly, resulting in positive outcomes [6]. Physical examinations are expected to be performed by nurses, which are an important component of undergraduate and graduate nursing education [7]. However, nursing students report feelings of discomfort and conflict when performing physical examinations, citing a lack of appropriate equipment, inadequate support from healthcare professionals, differences between theoretical and practical learning, and a lack of confidence in their abilities as key factors. [8, 9]. The effective application of this skill by students is closely related to their self-confidence [10].

Self-efficacy perception refers to an individual's belief in his/her capacity to fulfil a specific task successfully, and this belief directly affects the clinical performance of students [11]. The confidence gained by students in this process directly contributes to the quality of patient care in the later periods of their professional lives. Studies have shown that a positive attitude and high self-efficacy perception enable students to work more effectively, independently, safely, and motivated in clinical practice and improve their patient care skills [12-14]. Having a high self-

efficacy perception in physical examination reflects students' confidence in their competence in assessing the physical condition of patients and the extent to which they can successfully perform this process [15]. Understanding the relationship between nursing students' attitudes towards clinical practice and their perceived self-efficacy in a physical examination is of great importance in terms of improving the quality of nursing education and developing strategies for students to cope with the difficulties they encounter in clinical settings [16].

A review of the literature reveals the existence of studies that assess the self-efficacy levels of nursing students in the context of clinical practice [11, 17, 18], stress levels and coping perceptions in clinical practice [19]. At the same time, studies have been conducted to determine students' experiences towards physical examination [20] and self-efficacy levels [7, 16, 21]. However, there is no study examining the relationship between nursing students' attitudes towards clinical practice and their perceived self-efficacy in physical examination. In this context, examining the relationship between clinical practice attitudes and perceived self-efficacy in physical examination may contribute to the development of different strategies in clinical practice programs.

### Research Questions

Is there a relationship between nursing undergraduate students' attitudes towards clinical practice and their perceived self-efficacy in physical examination?

## 2. Methodology

### 2.1. Type of Research

The research was carried out in a descriptive and relationship-seeking type.

### 2.2. Population and Sample of the Study

The population of the study consisted of 501 students (161 second year, 157 third year, 183 fourth year) studying at Necmettin Erbakan University Faculty of Nursing. The sample size was calculated in the Raosoft program using the sampling method with a known population. The sample size was determined as 218 with a 95% confidence level and 5% margin of error for 501 people. The study was completed with a total of 219 students. The study population consisted of students who had received training in physical examination techniques as part of their course curriculum, had completed at least one semester of clinical practice, and had volunteered to participate in the study. First-year students who had not yet taken a physical examination course and had not yet been in

clinical practice and students who were absent on the day of data collection were excluded from the study.

### 2.3. Data Collection Tools

Data were collected using the Introductory Information Form, Attitudes Towards Clinical Practice Scale for Nursing Students (ATCPS), and Perceived Self-Efficacy in Physical Examination Scale for Undergraduate Nursing Students (PPSES).

#### 2.3.1. Introductory Information Form

The form was prepared in line with the literature [7, 16] and consisted of seven questions investigating the sociodemographic characteristics of the students.

#### 2.3.2. Attitude Scale Towards Clinical Practice for Nursing Students (ATCPS)

The scale developed by Akdeniz-Uysal and Yeşil-Bayülgen [2] consists of 26 items. The scale has four sub-dimensions: belief and expectation towards clinical practice (items 1-8), positive approach towards clinical practice (items 13-18 and 23), negative approach towards clinical practice (items 9-12, 22, 24 and 25) and personal development (items 19-21 and 26). In scoring the scale, items 9-12, 22, 24, and 25 are reverse coded. The lowest score that can be obtained from the scale is 26, and the highest score is 130. An increase in the total score indicates that students develop a more positive attitude towards clinical practice. In this study, the Cronbach Alpha value of the scale was calculated as 0.952.

#### 2.3.3. Perceived Self-Efficacy in Physical Examination Scale for Undergraduate Nursing Students (PPSES)

It was developed by Nasaif et al. [7] to evaluate the level of confidence felt by nursing students while performing physical examinations. The scale was adapted into Turkish by Utli et al. [16]. The PPSES consists of six sub-dimensions and 48 items in total. The statements in these items start with the question, "How confident are you in your ability?" and describe the specific skills required for each body system. The assessment is made on a four-point Likert scale ranging from 1 to 4 (1 = I am not confident at all; 2 = I am confident to some extent but not very much; 3 = I am confident; 4 = I am very confident).

The sub-dimensions of the scale are face and neck (1., 2. and 3.), eye (4., 5., 6., 7. and 8.), cardiovascular system (9., 10., 11., 12., 13., 14. and 15.), ear, nose and throat (16., 17., 18. and 19.), chest (20., 21., 22., 23., 24., 25., 26. and 27.) and other skills (28., 29., 30., 31., 32., 33., 34., 35., 36., 37., 38., 39., 40., 41., 42., 43., 44., 45., 46., 47. and 48.). There are no reverse items in the scale. Scoring of the scale was calculated by taking the difference between the highest and lowest scores on

the Likert scale ( $4-1=3$ ) and dividing this difference by the highest score (4) ( $3/4=0.75$ ). Accordingly, the average score ranges are defined as follows: 1 - 1.75 (Not at all sure), 1.76 - 2.51 (Very unsure), 2.52 - 3.27 (Sure), and 3.28 - 4.00 (Very sure). The lowest score that can be obtained from the scale is 1, and the highest score is 4. The reliability of the scale is high, and the Cronbach Alpha value was found to be 0.986 during the development phase. In this study, Cronbach Alpha value was found to be 0.947, which shows that the scale is a reliable measurement tool.

### 2.4. Data Collection

The data were collected by the researchers between February and March 2024 through face-to-face interview method. Before the data were collected, the participants were informed about the research, and their informed consent was obtained. The questionnaires were completed in approximately 10 to 15 minutes outside of class hours.

### 2.5. Data Analysis

The data analysis was performed in the SPSS 22 program. Since the data were normally distributed, a t-test was used to compare the sociodemographic characteristics of the participants in independent groups for paired groups, oneway ANOVA for three groups, and Tukey was used as post hoc to find the difference between groups. Data were presented as number, percentage, mean, and standard deviation. The correlation coefficients were interpreted as follows:  $r < 0.20$  indicated either no correlation or a very weak one;  $0.20 \leq r < 0.39$  indicated a weak correlation;  $0.40 \leq r < 0.59$  indicated a moderate correlation;  $0.60 \leq r < 0.79$  implied a strong correlation; and  $0.80 \leq r \leq 1.0$  indicated a very strong correlation [22].  $P < 0.05$  was accepted as statistically significant in all analyses.

## 3. Results

In the distribution of sociodemographic characteristics, it was found that the mean age of the students was  $21.35 \pm 1.65$ , 76.3% were female, 98.6% were single, 48.4% were second-year students, 95% were not working, 72.6% had a cumulative grade point average (CGPA) between 2.01-3.00 and 95% had experience in performing physical examination (Table 1).

In the distribution of ATCPS and PPSES statistics, the average PPSES total score of the students was  $2.52 \pm 0.47$  (above the average), while the average ATCPS total score was  $104.68 \pm 16.85$  (above the average) (Table 2).

A comparison of ATCPS and PPSES scores according to sociodemographic characteristics

revealed that, with regard to CGPA, the PPSES total mean score was  $2.52 \pm 0.89$ ,  $2.04 \pm 0.58$ ,  $2.49 \pm 0.43$ , and  $2.67 \pm 0.55$ , respectively. A statistically significant difference was found between the groups ( $p = 0.005$ ).

The difference arises from the 1.01-2.00 and 3.01-4.00 groups (Table 3).

The correlation between the scales was found to be very weak and positive ( $r = 0.205$ ) (Table 4).

**Table 1.** Distribution of Sociodemographic Characteristics of the Students (n=219)

|                                                      | Frequency (n)                | Percentage (%)             |
|------------------------------------------------------|------------------------------|----------------------------|
| <b>Gender</b>                                        |                              |                            |
| Woman                                                | 167                          | 76.3                       |
| Male                                                 | 52                           | 23.7                       |
| <b>Marital Status</b>                                |                              |                            |
| Single                                               | 216                          | 98.6                       |
| Married                                              | 3                            | 1.4                        |
| <b>Classroom</b>                                     |                              |                            |
| Second class                                         | 106                          | 48.4                       |
| Third class                                          | 34                           | 15.5                       |
| Fourth class                                         | 79                           | 36.1                       |
| <b>Employment Status</b>                             |                              |                            |
| Yes                                                  | 11                           | 5                          |
| No.                                                  | 208                          | 95                         |
| <b>CGPA</b>                                          |                              |                            |
| 0,50-1,00                                            | 2                            | 0.9                        |
| 1,01-2,00                                            | 7                            | 3.2                        |
| 2,01-3,00                                            | 159                          | 72.6                       |
| 3,01-4,00                                            | 51                           | 23.3                       |
| <b>Experience of performing physical examination</b> |                              |                            |
| Yes                                                  | 208                          | 95                         |
| No.                                                  | 11                           | 5                          |
| <b>Age</b>                                           | <b>X <math>\pm</math> SD</b> | <b>Median (min.- max.)</b> |
|                                                      | 21.35 $\pm$ 1.65             | 21(19-28)                  |

X: Mean, SD: Standard deviation; Min: Minimum; Max: Maximum; CGPA: Cumulative Grade Point Average

**Table 2.** Descriptive Statistics of the Scales (n=219)

|                              | X±SD         | Min.-Max.<br>Values | Median (Min.- Max.)<br>Values | Cronbach's<br>Alpha |
|------------------------------|--------------|---------------------|-------------------------------|---------------------|
| ATCPS                        |              |                     |                               |                     |
| Belief and expectation       | 35.03±5.01   | 8.00-40.00          | 36.00(8.00-40.00)             | 0.952               |
| Positive approach            | 24.79±5.99   | 7.00-35.00          | 25.00(7.00-35.00)             |                     |
| Negative (negative) approach | 28.61 ± 6.41 | 7.00-35.00          | 29.00(7.00-35.00)             |                     |
| Personal development         | 16.25±2.90   | 4.00-20.00          | 16.00(4.00-20.00)             |                     |
| ATCPS Total                  | 104.68±16.85 | 26.00-130.00        | 107.00(32.00-130.00)          |                     |
| PPSES                        |              |                     |                               |                     |
| Face and neck                | 2.48±0.65    | 1.00-4.00           | 2.33(1.00-4.00)               | 0.947               |
| Eye                          | 2.32±0.61    | 1.00-4.00           | 2.20(1.00-3.80)               |                     |
| Cardiovascular               | 2.52±0.55    | 1.00-4.00           | 2.57(1.00-3.71)               |                     |
| Ear-Nose-Throat              | 2.05±0.67    | 1.00-4.00           | 2.00(1.00-4.00)               |                     |
| Chest                        | 2.50±0.66    | 1.00-4.00           | 2.50(1.00-4.00)               |                     |
| Other skills                 | 2.66±0.55    | 1.00-4.00           | 2.67(1.00-3.86)               |                     |
| PPSES Total                  | 2.52±0.47    | 1.00-4.00           | 2.54(1.13-3.69)               |                     |

X: Mean, SD: Standard deviation; Min: Minimum; Max: Maximum

**Table 3.** Comparison of the Scores of the ATCPS and PPSES According to Sociodemographic Characteristics (219)

|                                                      | ATCPS Total Score |       | PPSES total score    |        |
|------------------------------------------------------|-------------------|-------|----------------------|--------|
|                                                      | X                 | SD    | X                    | SD     |
| <b>Gender</b>                                        |                   |       |                      |        |
| Woman                                                | 103.72            | 16.98 | 2.49                 | 0.48   |
| Male                                                 | 107.77            | 16.21 | 2.61                 | 0.44   |
| <b>Test/p</b>                                        | -1.518/0.130*     |       | -1.673/0.096*        |        |
| <b>Marital Status</b>                                |                   |       |                      |        |
| Married                                              | 99.33             | 25.74 | 3.03                 | 0.59   |
| Single                                               | 104.75            | 16.78 | 2.51                 | 0.47   |
| <b>Test/p</b>                                        | -0.552/0.581*     |       | 1.906/0.058*         |        |
| <b>Classroom</b>                                     |                   |       |                      |        |
| Second class                                         | 103.33            | 16.06 | 2.49                 | 0.46   |
| Third class                                          | 110.76            | 17.07 | 2.47                 | 0.56   |
| Fourth class                                         | 103.87            | 17.44 | 2.57                 | 0.45   |
| <b>Test/p</b>                                        | 2.687/0.070**     |       | 0.830/0.437**        |        |
| <b>Employment Status</b>                             |                   |       |                      |        |
| Yes                                                  | 107.73            | 20.88 | 2.43                 | 0.47   |
| No                                                   | 104.52            | 16.66 | 2.52                 | 0.47   |
| <b>Test/p</b>                                        | 0.614/0.540*      |       | -0.634/0.527*        |        |
| <b>CGPA</b>                                          |                   |       |                      |        |
| 0,50-1,00                                            | 99.00             | 7.07  | 2.52                 | 0.89ab |
| 1,01-2,00                                            | 89.43             | 30.22 | 2.04                 | 0.58a  |
| 2,01-3,00                                            | 105.57            | 16.01 | 2.49                 | 0.43ab |
| 3,01-4,00                                            | 104.22            | 16.78 | 2.67                 | 0.55b  |
| <b>Test/p</b>                                        | 2.183/0.091**     |       | <b>4.448/0.005**</b> |        |
| <b>Experience of performing physical examination</b> |                   |       |                      |        |
| Yes                                                  | 104.96            | 16.81 | 2.52                 | 0.48   |
| No                                                   | 99.00             | 18.64 | 2.37                 | 0.36   |
| <b>Test/p</b>                                        | 1.090/0.277*      |       | 0.992/0.322*         |        |

\*Independent groups t test, \*\*One-way anova test, a-b: No difference between groups with the same letter (Tukey test), CGPA: Cumulative Grade Point Average

**Table 4.** The Relationship Between Scale Scores (n=219)

|                       |   | Belief and expectation | Positive approach | Negative approach | Personal development | ATCPS total score |
|-----------------------|---|------------------------|-------------------|-------------------|----------------------|-------------------|
| Face and neck         | r | 0.088                  | 0.073             | 0.013             | 0.128                | 0.079             |
|                       | p | 0.194                  | 0.280             | 0.849             | 0.058                | 0.243             |
| Eye                   | r | 0.098                  | 0.137*            | 0.044             | 0.104                | 0.112             |
|                       | p | 0.150                  | <b>0.043</b>      | 0.520             | 0.124                | 0.098             |
| Cardiovascular system | r | 0.157*                 | 0.108             | 0.135*            | 0.167*               | 0.165*            |
|                       | p | <b>0.020</b>           | 0.111             | <b>0.046</b>      | <b>0.013</b>         | <b>0.014</b>      |
| Ear, nose and throat  | r | 0.009                  | 0.132             | 0.024             | 0.134*               | 0.082             |
|                       | p | 0.897                  | 0.050             | 0.728             | 0.048                | 0.229             |
| Chest                 | r | 0.107                  | 0.170*            | 0.117             | 0.195*               | 0.170*            |
|                       | p | 0.114                  | <b>0.012</b>      | 0.085             | <b>0.004</b>         | <b>0.012</b>      |
| Other skills          | r | 0.144*                 | 0.208*            | 0.123             | 0.247*               | 0.206*            |
|                       | p | <b>0.034</b>           | <b>0.002</b>      | 0.069             | <b>&lt;0.001</b>     | <b>0.002</b>      |
| PPSES total score     | r | 0.147*                 | 0.205*            | 0.123             | 0.242*               | 0.205*            |
|                       | p | 0.209                  | 0.002             | 0.069             | <b>&lt;0.001</b>     | <b>0.002</b>      |

\*Pearson correlation

#### 4. Discussion

The purpose of this study is to examine the relationship between undergraduate nursing students' attitudes towards clinical practice and their perceived self-efficacy in physical examination. The findings of the study indicated that the students' attitudes toward clinical practice and their perceived self-efficacy in physical examination were above average. Additionally, the students' self-efficacy in physical examination increased as a result of their positive attitudes toward clinical practice.

It was observed that students' attitudes towards clinical practice were above average. In the relevant literature, there are study results reporting that students have positive [23] and negative [24-26] attitudes towards clinical practices. Nursing students' attitudes towards clinical practice are affected by many factors, such as individual differences depending on the clinical educator, clinical education planning, and clinical environment [27, 28]. Negative experiences have been demonstrated to have a detrimental impact on students' self-confidence in making decisions and applying knowledge in a clinical setting, which in turn can give rise to feelings of anxiety [29]. It is thought that the clinical environments in which the students participating in our research practice, their communication with team members, and their individual differences positively affect their attitudes towards clinical practice.

Students' perceived self-efficacy in physical examination was found to be above the average. A review of the literature reveals conflicting findings regarding students' perceived self-efficacy levels in physical examination. Some studies indicate that students' self-efficacy levels are below average [21], while others suggest that they are above average [16]. Many factors, such as adaptation to the clinical environment, training received, team and patient communication, equipment availability, and equipment use skills, affect students' ability to perform physical examination and their self-confidence in this field [8, 9]. Considering the differences in the study results, it is thought that the individual differences of the students who participated in our study, the clinical environment they were in, and being supported by clinical nurses and clinical educators increased their self-efficacy levels in physical examination. In our study, as the CGPA increased, the perceived self-efficacy level in physical examination also increased. In similar studies, it has been observed that students' academic achievement has a positive effect on their clinical practice skills and clinical self-efficacy [30-32].

In this study, it is thought that students with high academic achievement have more comprehensive knowledge of the literature on physical examination, and at this point, their self-confidence in performing physical examinations is thought to increase.

In this study, it was observed that as students' attitudes towards clinical practice were positive, their perceived self-efficacy in physical examination increased. This finding suggests that students' clinical attitudes may affect their self-confidence in performing a critical skill such as physical examination. However, the weak relationship indicates that the perception of self-efficacy in physical examination is shaped not only by attitudes but also by other factors.

There are no studies in this field, but it is parallel to similar studies in the literature. In a study conducted by Levett-Jones et al. [33], it was determined that nursing students' positive attitudes toward clinical practice increased their clinical performance and self-confidence in patient care. It is suggested that the structure of the clinical environment, mentoring support, and personal characteristics of students may also be effective in improving self-efficacy [34]. In our study, it is thought that different factors such as individual differences, physical examination knowledge, and communication skills affect the perceived self-efficacy levels of students in physical examination, in addition to their attitudes towards clinical practice.

#### 5. Conclusion

In this study, it was found that students' attitudes towards clinical practice and perceived self-efficacy levels in the physical examination were above the average. As students' attitudes towards clinical practice and academic achievement increased, their perceived self-efficacy levels in physical examination also increased.

#### Recommendations

In line with these results, in order to increase the clinical adaptation and self-efficacy levels of nursing students, it is recommended to focus more on clinical practices in nursing education, to increase mentoring support, and to personalize educational strategies by considering individual differences.

#### Abbreviations

ATCPS: Attitudes Towards Clinical Practice Scale for Nursing Students

PPSES: Perceived Self-Efficacy in Physical Examination Scale for Undergraduate Nursing Students

CGPA: Cumulative Grade Point Average

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**Author contributions**

AG, participated in the study design, data collection, data analysis, and writing. SS, made significant contributions to the design of the study and the writing of the article. All authors read and approved the final manuscript.

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**Data availability**

Not publicly available due to privacy: The datasets generated and analyzed during the current study are not publicly available due to participant confidentiality, but are available from the corresponding author on reasonable request.

**Declarations****Ethical approval**

Approval was obtained from Necmettin Erbakan University Health Sciences Scientific Research Ethics Committee (Decision Number: 2024/665, Application No: 17884), and institutional permission was obtained from Necmettin Erbakan University Faculty of Nursing Dean's Office (Date: 12.03.2024/No: 121698). Scale use permissions were obtained from the authors who developed the scale. There is no conflict of interest between the authors within the scope of the study.

**Consent for publication**

A voluntary informed consent form prepared in accordance with the principles of the Declaration of Helsinki was used to obtain the written consent of the participants.

**Competing interests**

The authors declare that they have no competing interests.

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