

# Nursing Competence of Students: Congruence Between the Perceptions of Nursing Students' and Their Preceptors' Assessment

## Öğrencilerin Hemşirelik Yeterliği: Hemşirelik Öğrencilerinin Algıları ile Rehberlerinin Değerlendirmeleri Arasındaki Uyum

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### ABSTRACT

**Objective:** This study aimed to evaluate the congruence between nursing students' self-assessments and their preceptors' assessments of nursing competence at graduation.

**Methods:** This cross-sectional, descriptive study was conducted with a purposeful sample of 382 participants, including 191 nursing students and 191 nurses serving as student preceptors in the west of Türkiye. A descriptive characteristics form and the Holistic Nursing Competence Scale were used to collect data. The data were analyzed utilizing descriptive statistics, paired t-tests, and standardized mean differences. The study was documented according to the STROBE checklist.

**Results:** At the group level, the nursing students' self-assessment for overall nursing competence ( $5.60 \pm 0.88$ ) was higher than the assessment by preceptors ( $5.37 \pm 1.32$ ) and significantly different ( $t = 2.277$ ,  $P = .024$ , Cohen's  $d = .165$ ). When congruence between students' and preceptors' assessments was examined at the single student-preceptor level, in comparison to their preceptors, students rated their nursing competence higher on every sub-scale and the overall competence scale.

**Conclusion:** The present study revealed a lack of congruence between student self-assessments and preceptor assessments. Students rated their own competencies higher than the preceptors compared to the preceptors' evaluations. The findings suggest that it is important to be careful when evaluating students' competence levels, and that it is necessary to use different assessment methods, such as rubrics, in addition to self-assessment.

**Keywords:** Competence, compliance, nursing students, nurses

### ÖZ

**Amaç:** Bu çalışma, hemşirelik öğrencilerinin öz değerlendirmeleri ile rehberlerinin mezuniyet aşamasında hemşirelik yeterliğine ilişkin değerlendirmeleri arasındaki uyumu değerlendirmeyi amaçlamıştır.

**Yöntemler:** Bu kesitsel, tanımlayıcı çalışma, Türkiye'nin batısında 191 hemşirelik öğrencisi ve onlara rehberlik yapan 191 hemşire dâhil olmak üzere 382 katılımcıdan oluşan amaçlı bir örnekleme gerçekleştirildi. Verilerin toplanmasında tanımlayıcı özellikler formu ve Bütünsel Hemşirelik Yeterlik Ölçeği kullanıldı. Veriler tanımlayıcı istatistikler, eşleştirilmiş t-testi ve standartlaştırılmış ortalama fark kullanılarak analiz edildi. Çalışma STROBE kontrol listesine göre yazılmıştır.

**Bulgular:** Hemşirelik öğrencilerinin genel hemşirelik yeterliğine ilişkin öz değerlendirmeleri ( $5,60 \pm 0,88$ ), rehberlerin değerlendirmesinden ( $5,37 \pm 1,32$ ) grup düzeyinde daha yüksekti ve anlamlı derecede farklıydı ( $t = 2,277$ ,  $P = ,024$ , Cohen  $d = ,165$ ). Öğrencilerin ve rehberlerin değerlendirmeleri arasındaki uyum tek öğrenci-rehber düzeyinde incelendiğinde, rehberlerle karşılaştırıldığında öğrenciler hemşirelik yeterliklerini her alt boyutta ve toplam yeterlilik ölçeğinde daha yüksek puanladılar.

**Sonuç:** Bu çalışma, öğrencilerin öz değerlendirmeleri ile rehber değerlendirmeleri arasında uyum eksikliği olduğunu ortaya çıkarmıştır. Rehberlerin değerlendirmeleriyle karşılaştırıldığında öğrenciler kendi yeterliklerini rehber hemşirelerden daha yüksek değerlendirmişti. Bulgular, öğrencilerin yeterlilik düzeylerini değerlendirirken dikkatli olunması gerektiğini, öz değerlendirmenin yanı sıra rubrik gibi farklı değerlendirme yöntemlerinin de kullanılması gerektiğini ortaya koymaktadır.

**Anahtar Kelimeler:** Yeterlik, uyum, hemşirelik öğrencileri, hemşireler

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## INTRODUCTION

Nurses, the largest group of healthcare professionals worldwide, play a key role in providing ethical, efficient, and secure healthcare services tailored to the community's needs. The goal of nursing education is to produce a nursing workforce capable of meeting the population's health needs in terms of quantity, quality, and distribution.<sup>1</sup> Furthermore, with global health challenges such as pandemic diseases,<sup>2</sup> environmental risks like climate change,<sup>3</sup> and the rising prevalence of chronic illnesses due to the aging population, technological advancements are changing healthcare services and reshaping the workforce.<sup>4</sup> The constant changes in society and the workplace guide the development of instruction in higher education.<sup>5</sup> High-quality education is essential in developing nurses with the necessary knowledge, attitudes, and skills to deliver optimal care. As a result, the primary responsibility of education is to ensure the competencies of graduating nursing students.<sup>6</sup>

Nursing competence is described as a set of skills, knowledge, attitudes, values, and abilities that demonstrate a person's overall capacity or ability to perform a task successfully.<sup>7</sup> Nursing competence is essential for ensuring patient safety and maintaining high standards of nursing care.<sup>8</sup> It is considered to be an outcome of comprehensive nursing education.<sup>9</sup> Identifying nursing students' competence is crucial to providing information on learning outcomes for educational evaluation and improvement.<sup>10</sup>

The World Health Organization (WHO), the American Association of Colleges of Nursing, and the International Council of Nurses (ICN, 2006) emphasize that all nursing students must achieve clinical competencies, considering them the gold standard of nursing and both theoretical and clinical competence as essential for the future of the profession.<sup>1,11</sup> They also have independently established core competencies as fundamental standards to validate the nursing profession. However, there is no global consensus on the specific competencies required for nursing students, and a gap remains between the expected level of competence and students' self-perceived competency.<sup>12</sup> The document published by the American Association of Colleges of Nursing defines the domains essential to nursing practice, outlines the competencies expected at each level of nursing, and explains how these domains and competencies distinguish nursing from other health professions and how they relate to them. In Türkiye, the competencies required of undergraduate students have been defined within the framework of the National

Qualifications Framework for Higher Education [Türkiye Yükseköğretim Yeterlilikler Çerçevesi (TTC)].<sup>13</sup> Accordingly, it is expected that the core elements of the competency framework will be systematically incorporated into the foundational curricula of all professional education programs. The Nursing National Core Education Program [Hemşirelik Ulusal Çekirdek Eğitim Programı (HUÇEP)] is the framework within which the fundamental competencies of nursing education in Türkiye are established. Nevertheless, the Nursing Education Association-Association for Evaluation and Accreditation of Nursing Education Programs (2025-2029) action plan [Hemşirelik Eğitimi Derneği-Hemşirelik Eğitim Programları Değerlendirme ve Akreditasyon Derneği (HEMED-HEPDAK)] addressing nursing education problems specifies that HUÇEP should be revised based on competence and that the essential competencies expected from graduates should be defined and updated.<sup>14</sup> Furthermore, given that the HEPDAK program outcomes are established in alignment with the National Qualifications Framework, it is imperative that the learning outcomes of institutional undergraduate programs are consistent with these nationally defined qualifications.<sup>15</sup>

In nursing, there are two frequently used types of competence assessments: self-assessment and assessment by others, such as administrators, instructors, or preceptors.<sup>16</sup> Nursing competence assessments frequently rely on self-assessment, and the results show that nursing students perceive their own competencies as good.<sup>9,17</sup> However, since it is a subjective evaluation, there are concerns about whether the current assessment reflects reality.<sup>18</sup> Compared to preceptors' assessments, students tends to overestimate their nursing competence.<sup>9</sup> Nevertheless, both assessments still provide valuable insights into students' competence and help to understand their strengths and developmental needs.<sup>19</sup> Hence, it is essential to evaluate the congruence between two assessments; however, the literature on the concordance between self-assessments and assessments by preceptors is limited.<sup>9,20</sup> Previous studies focused on the competence perceptions of nursing students and new graduate nurses, as well as the influencing factors.<sup>21</sup>

Regarding the impact of preceptor nurses on students' competence, it is critical to determine if there is a disparity between the assessments provided by preceptors and students, and if these assessments are mutually supportive. When competence assessments of preceptor nurses and students are not comparable, it becomes challenging to deliver suitable and sufficient interventions to enhance the student's competence.<sup>17,20</sup>

## AIM

This study aimed to investigate the congruence between the perceptions of nursing students' self-assessments and their preceptors' assessments of nursing competence at graduation.

## Research Questions

- How do nursing students self-assess their nursing competence?
- How do preceptors evaluate students' nursing competence?
- What is the congruence between the perception of nursing students' self-assessments and their preceptors' assessments of nursing competence?

## METHODS

### Study Design

A descriptive and cross-sectional study design was used. The study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) criteria.<sup>22</sup>

### Setting

This research was conducted at the faculty of nursing of a university with a national accreditation certificate from the Association for Evaluation and Accreditation of Nursing Education Programs in Türkiye.<sup>15</sup> Many countries conduct preceptorship programs as part of nurse education. Traditionally, in these programs, nurse preceptors are responsible for guiding nursing students, novice nurses, and skilled nurses to adapt to new clinical environments.<sup>23</sup> Since the 1999-2000 academic year, this faculty has implemented an internship program, and students work with experienced preceptor nurses in practice. Students' clinical assignments are carried out in accordance with the decisions of the curriculum committee. This nursing faculty has clinical objectives for senior-year students. These objectives are shared with the responsible and preceptor nurses. Preceptors' practice for senior-year students is in line with these objectives. Researchers inquired of the preceptors regarding the duration of their collaboration with the student and their capacity to assess the student. According to the American Association of Colleges of Nursing (2021), a minimum of 500 hours of practical experience in nursing beyond entry-level education is required to demonstrate advanced-level sub-competencies. Therefore, students were asked to evaluate their own competence at the point of graduation.<sup>11</sup> In this study, data collection forms were administered following the completion of approximately 600 hours of clinical practice by the students, allowing for the evaluation of their competencies based on this experience.

## Participants

A purposive sampling method was used in the study. Purposive sampling is used to align the sample with the research objectives better, thereby improving the study's rigor and the reliability of the results.<sup>24</sup> The study sample consists of final-year nursing students (4<sup>th</sup> grade, n: 191) and nurses working at the university hospital who are students' preceptors (n: 191). Preceptorship is a widely used method to assist new graduate nurses and nursing students in adjusting to hospitals and provide them with education. A nurse who guides students during their internships and facilitates learning is referred to as a preceptor in this study. Within the scope of the faculty-hospital collaboration, nurses who exhibit effective communication skills, willingly support students, possess sufficient professional knowledge and competencies, have a minimum of one year of clinical experience, and are formally approved by the nursing services management are assigned the role of preceptors. Following this designation, they participate in preceptorship training programs.

The inclusion criteria for students included being 18 years and older, participating voluntarily in the study, and taking a nursing care management course (for senior-year students). The exclusion criteria for students were previously working as clinical nurses (vocational high school graduates who are currently working). The research sample consisted of a total of 382 participants (nursing students: 191, their preceptors: 191). The students and nurses in the sample are participants who are matched exactly and work together. Owing to nursing staffing shortages, students are not consistently afforded the opportunity to engage in one-on-one preceptorship throughout their internship practice. Consequently, to facilitate a more precise assessment of competencies, it was ensured that students worked with a consistent preceptor for the majority of their internship hours, exceeding half of the total duration. The post hoc analysis conducted in the G-Power 3.1.9.4 program revealed an effect size of  $d = .165$ , a significance level of less than .05, 382 samples, and a power of 89.5% in the paired-t test analysis.

## Data Collection

The research data was collected face-to-face between May and June 2022. The descriptive characteristics form of students and their preceptors, as well as the Holistic Nursing Competence Scale, were employed to collect the data for the study. Students and their preceptors were informed of the study's objectives and methodology, and those who offered to participate were requested to complete the data collection tools.

## Outcome Measures

**Descriptive Characteristics Form:** This form consists of questions about students' and their preceptors' descriptive information according to literature.<sup>9,20,21</sup> It consists of six questions such as age, sex, and income level for each student and their preceptors.

**Holistic Nursing Competence Scale (HNCS):** Holistic Nursing Competence Scale measures nurses' self-assessment as well as others' assessment of the nursing competence levels. The scale, which consists of 36 Likert-type (7-point) items, was developed by Takase and Teraoka<sup>25</sup> in 2011. The scale consists of two parts, A and B. The first part (A), called general aptitude (7 items), asks how often participants generally engage in behaviors such as critical thinking, reflection on oneself, and compassion as a person. The questions in this section are graded from not at all (1) to always (7). Part B assesses individuals' abilities and attitudes necessary to determine competent nursing practice. This section consists of 4 sub-scales: staff education and management (9 items), ethically-oriented practice (9 items), nursing care in a team (7 items) and professional development (4 items). Questions in this section are graded from not competent at all (1) to very competent (7). The scale and sub-scales do not contain any reverse-scored items or cut-off points. When calculating the sub-scales, the average score is divided by the number of items. The total score of the scale is obtained by adding the subscale score average obtained from section A and the four subscale score averages obtained from section B. The nurses' overall nursing competence increases as the scale score increases. Cronbach's alpha coefficients of the subscales of the HNCS developed by Takase and Teraoka ranged from .86 to .93, and the whole scale is .96.<sup>28</sup> Aydın and Hicdurmaz<sup>26</sup> adapted the scale to Turkish culture in 2019. The Cronbach's alpha coefficients of the subscales ranged from .89 to .94, and the whole scale is .97 in its Turkish version. In this study, Cronbach's alpha coefficients for the subscales ranged from .94 to .97, while the alpha coefficient for the overall scale was .98.

## Data Analysis

The research data were analyzed by the researchers using the SPSS (IBM SPSS Corp., Armonk, NY, USA) 24.0 statistical package program. Since three students and one preceptor did not complete the forms, they were excluded from the analysis. Data regarding descriptive characteristics are given as numbers, percentages, averages, and standard deviations. Skewness and kurtosis were used to determine whether the variables were normally distributed.<sup>27</sup> The difference between students' and preceptors' assessments of nursing competence was evaluated with paired t-tests

and standardized mean difference (Cohen's d). Reference values for Cohen's d were evaluated as 0.2 (small), 0.5 (medium), and 0.8 (large).<sup>28</sup> Statistical significance was accepted as  $P < .05$ .

## Ethical Considerations

For the conduct of the study, written permission from Dokuz Eylül University Faculty of Nursing (Date: May 13, 2022, Number: E-51688696-799-256586) and Dokuz Eylül University Hospital (Date: May 18, 2022, Number: E-99577370-100-259875) has been obtained. Ethical approval for the study was received from the Dokuz Eylül University Non-Interventional Research Ethics Committee (Date: May 25, 2022, Decision no: 2022/19-06). Informed consent was obtained from the students in the study. Written permission was received from Aydın via e-mail for the scale used in the study.

## RESULTS

The average age of the nursing students is  $22.43 \pm 1.10$  years (min-max: 20-27), 62.8% of them are female, and 68.1% stated that they chose their own profession choice willingly. Nursing students' descriptive characteristics are shown in Table 1.

**Table 1. Descriptive characteristics of nursing students (n = 191)**

Characteristics		Mean±SD	Range
Age		22.43±1.10	20-27
Academic Achievement		79.66±7.30	60-95
Sex	<b>Variables</b>	<b>n</b>	<b>%</b>
	Female	120	62.8
	Male	71	37.2
Income level	Income less than expenses	73	38.2
	Income equals expense	105	55.0
	Income more than expenses	13	6.8
Selection of the own profession choice	Yes	130	68.1
	No	61	31.9
Frequency of coping with problems	Always	29	15.2
	Often	113	59.2
	Sometimes	40	20.9
	Rarely	6	3.1
	Never	3	1.6

SD, Standard Deviation

The mean age of preceptors is  $34.19 \pm 7.02$  years (min-max: 23-53). Most nurses had a bachelor's degree (81.7%), were female (94.2%), and worked in a medical ward (46.7%). Descriptive characteristics regarding preceptors are shown in Table 2.

**Table 2. Descriptive characteristics of preceptors (n=191)**

Characteristics	Mean±SD	Range
Age	34.19±7.0 2	23-53
Years of clinical experience	10.68±7.6 4	1-39
Sex	<b>Variables</b>	<b>n</b> <b>%</b>
	Female	180      94.2
	Male	11      5.8
Marital status	Married	128      67.0
	Single	63      33.0
Educational Level	Undergraduate	156      81.7
	Postgraduate	35      18.3
Income level	Income less than expenses	74      38.7
	Income equals expense	108      56.5
	Income more than expenses	9      4.8
Clinical specialty	Medical ward	89      46.7
	Surgical ward	52      27.2
	Medical/surgical ward	16      8.4
	Gynaecology/Obstetric	13      6.8
	Paediatrics	21      10.9

SD, Standard Deviation

The nursing students' self-assessment for overall competence ( $5.60 \pm 0.88$ ) was higher than the assessment by preceptors ( $5.37 \pm 1.32$ ) and significantly different ( $t = 2.277, P = .024$ , Cohen's  $d = .165$ ). In addition, significant difference existed between students and preceptors in sub-scale scores for ethically-oriented practice ( $5.86 \pm 0.93$  versus  $5.48 \pm 1.38$ ,  $t = 3.437, P = .001$ , Cohen's  $d = .249$ ), nursing care in a team ( $5.89 \pm 0.94$  versus  $5.47 \pm 1.35$ ,  $t = 3.853, P < .001$ , Cohen's  $d = .279$ ), professional development ( $5.73 \pm 1.04$  versus  $5.42 \pm 1.45$ ,  $t = 2.673, P = .008$ , Cohen's  $d = .193$ ). However, scores were not significantly higher for students' assessment than their preceptors for competencies in general aptitude ( $5.63 \pm 0.85$  versus  $5.49 \pm 1.20, P = .152$ ) and staff education and management ( $5.05 \pm 1.19$  versus  $5.06, P = .152$ ) (Table 3).

Table 4 shows the congruence between student's and preceptor's assessments at the single student-preceptor level. Only two congruent assessments (1.0%) were identified in evaluating total competence at a single student-preceptor level. A few congruent assessments were found in the sub-scales of ethically-oriented practice (n: 14, 7.3%), nursing care in a team (n: 14, 7.3%) and professional development (n: 19, 9.9%). Compared to their preceptors, students rated their nursing competence higher on every sub-scale and the overall competence scale (Table 4).

**Table 3. Congruence in nursing competence between students and their preceptors (n = 382)**

Subscales	Students (n=191)	Preceptors (n=191)	Mean difference (student-preceptor)	Paired t-test		
	Mean±SD	Mean±SD		t	P	d
General aptitude	5.63±0.85	5.49±1.20	0.14	1.440	.152	.104
Staff education and management	5.05±1.19	5.06±1.52	-0.01	-0.855	.932	-.006
Ethically-oriented practice	5.86±0.93	5.48±1.38	0.38	3.437	.001	.249
Nursing care in a team	5.89±0.94	5.47±1.35	0.42	3.853	<.001	.279
Professional development	5.73±1.04	5.42±1.45	0.31	2.673	.008	.193
<b>Nursing Competence Total</b>	5.60±0.88	5.37±1.32	0.23	2.277	.024	.165

SD, Standard Deviation; d, Cohen's d

**Table 4. Congruence between student's and preceptor's assessments at single student-preceptor level (n = 382)**

Subscales	Student's assessment higher		Congruent assessment		Preceptor's assessment higher	
	n	%	n	%	n	%
General aptitude	90	47.1	12	6.3	89	46.6
Staff education and management	98	51.3	8	4.2	85	44.5
Ethically-oriented practice	92	48.2	14	7.3	85	44.5
Nursing care in a team	95	49.7	14	7.3	82	42.9
Professional development	87	45.5	19	9.9	85	44.5
<b>Nursing Competence Total</b>	99	51.9	2	1.0	90	47.1

## DISCUSSION

Self-assessment is commonly employed to evaluate the clinical competence of nursing students. There is debate regarding whether self-assessment alone will be adequate for assessing the competencies of nursing students. Thus, it is essential to measure the agreement between students' self-assessment of their nursing competence and the evaluation by their preceptors. However, the literature on the congruence between self-assessment and preceptor assessment is limited.<sup>9,20</sup> This study aimed to ascertain the

congruence between students' self-assessments and preceptors' assessments at the point of graduation. Our findings indicate that there are differences between student assessments and preceptor assessments at both the group and individual student-preceptor levels. The discrepancy between the two assessments has also been previously demonstrated in similar studies that evaluated the competence of nursing students<sup>9,20</sup> and nurses.<sup>29,30</sup> The disagreement between two competence assessments may occur due to the fact that students and preceptors have to do subjective assessments and utilize different knowledge.<sup>31</sup> This is partly due to the lack of consensus and the complexity of the concept of "adequate". There is also a mixed-method study indicating that preceptors hold varying perspectives regarding the level of competence that a student should acquire in order to be considered acceptable. It revealed the complexity of the scale's language and the preceptors' use of subjectivity, intuition, and observation in recognizing competence.<sup>32</sup> The lack of clear and objective standards or assessment tools for evaluating students' competencies not only affects the reliability of their self-assessments but also hinders how preceptors provide effective and constructive feedback.<sup>32,33</sup>

The evaluation of competence necessitates the ability to think abstractly and understand the duties and responsibilities of nurses.<sup>7,10</sup> In nursing education, the emphasis may be on skill-based learning rather than a holistic competence encompassing knowledge, skills, attitudes, and values. Preceptors may have prioritized nursing skills instruction and evaluation because of clinical practice goals and expectations. Hence, the differences in student-preceptor assessment may also arise from a different reference point regarding competence.<sup>34</sup> Moreover, the preceptors' expectations in their respective clinical settings may also serve as a basis for an assessment of the student's clinical competence. It is also important to acknowledge that nursing care in university institutions is highly specialized, and preceptors' evaluations may suggest that a high level of competence is necessary for these specialized services.<sup>35</sup> This study, which was conducted in a university hospital, shows that our findings are similar to the literature.

The findings of the present study indicate that students rated their competence higher in comparison to the evaluations of the preceptors.<sup>17,36</sup> However, prior studies have suggested that preceptor evaluations may also be problematic.<sup>9,32,33</sup> Although students' self-assessments and their preceptors' assessments provide specific insight and valuable information about nursing competence, the

subjective character of both assessments frequently results in disagreements between them.<sup>20</sup> On the other hand, a previous study that compared self-assessment with preceptor assessment did not reveal a significant difference, suggesting that self-assessment may be a reliable approach for measuring competence.<sup>37</sup> Therefore, the evaluations from both groups can provide valuable insights into the competence assessment process. The competence evaluation process deserves special attention. Nurse educators may use rubrics during students' self-assessments. Using rubrics in competence assessments gives students the opportunity to understand their expectations and evaluation criteria. This may support agreement between the two groups when making an evaluation. Before clinical practice, nurse educators can share rubrics with students both verbally and in writing.<sup>38</sup>

Nursing students should be self-directed learners because they will be accountable for their lifelong learning after graduation. Hence, in order to keep nursing knowledge current and be able to practice it safely, self-assessment skills should also be developed.<sup>9</sup> Preceptors should provide realistic and constructive feedback, and students should have opportunities to use self-assessment skills during nursing education.<sup>34</sup> Nurse educators should provide preceptors with information regarding the learning objectives and competencies expected from students during the assessment process. It may also be possible to combine self-assessment with a more objective measure of competence, such as a knowledge test or observation. This will assist students in developing a realistic understanding of their level of competence.

### Limitations and Strengths

There were certain limitations in the current research. Firstly, a descriptive, cross-sectional study design did not provide direct information on how the relationship evolves over time; it only revealed it during a certain time period. In this study, evaluation was conducted using only one scale. However, assessments such as a board exam, objective structured clinical exam, and/or performance exam can be used to determine nursing competence. It is recommended that multiple assessment methods such as board exam, performance exam, etc. be used in future studies. It should be acknowledged that the low response rate could impede the capacity to apply the findings to a broader population. Thus, it is necessary to repeat this study using diverse nursing student populations to strengthen the study's conclusions. In conclusion, further investigation is necessary to ascertain the level of agreement or disagreement between the students and preceptors. One

of the study's strengths is that, to our knowledge, similar studies with students are rare, and this study has a larger sample size compared to previous studies. Moreover, the findings of this study offer crucial insights for both self-evaluation and evaluation by preceptors.

This study revealed a lack of congruence between student self-assessments and preceptor assessments, both at the group level and when considering single student-preceptor pairs. Assessments from both groups are acceptable. Nevertheless, when evaluating students' competence levels through self-assessment, it is critical to avoid relying solely on one evaluation method and instead explore objective methods. It is necessary to conduct research and develop new measurement methods for objectively evaluating students' competence. Future studies should investigate similar subjects with longitudinal or time-series designs better to understand potential interactions in students' nursing competence and identify influencing factors.

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**Yazar Katkıları:** Konsept - CA, MAA ve ŞŞİ; Tasarım - CA, MAA ve ŞŞİ; Denetim - CA, MAA ve ŞŞİ; Kaynaklar - CA ve MAA; Malzemeler - CA ve MAA; Veri Toplama ve/veya İşleme - CA ve MAA; Analiz ve/veya Yorum - CA ve MAA; Literatür Taraması - CA ve MAA; Yazma - CA ve MAA; Eleştirel İnceleme - CA, MAA ve ŞŞİ.

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