ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

DOI: 10.5336/nurses.2024-107461

Investigation of Nursing Students' Perceived Competencies Regarding Preoperative Nursing Care: Descriptive Research

Hemşirelik Öğrencilerinin Ameliyat Öncesi Hemşirelik Bakımına İlişkin Algılanan Yetkinliklerinin İncelenmesi: Tanımlayıcı Araştırma

Gülseren MARAŞ BAYDOĞAN[a]

[a]Erciyes University Faculty of Health Sciences, Department of Nursing, Department of Surgical Nursing, Kayseri, Türkiye

ABSTRACT Objective: This study was designed as a descriptive study to evaluate nursing students' perceived competence in preoperative nursing care. **Material and Methods:** A descriptive quantitative study. The research was conducted with 507 2nd, 3rd, and 4th-year nursing students from Erciyes University Faculty of Health Science in Türkiye during the 2023-2024 academic year. The study employed a "Descriptive Questionnaire" and the "Perceived Competence Scale for Preoperative Nursing Care in Student Nurses". Descriptive analyses and multiple regression were utilized. Strengthening the Reporting of Observational Studies in Epidemiology checklist has been followed in this study. **Results:** It was determined that the total score obtained from the Perceived Competence Scale for Preoperative Nursing Care was 93.382±14.258. The highest total score was in the sub-dimension of "ability to fulfill legal responsibilities and adherence to ethical principles", while the lowest total score was in the sub-dimension of "research and professional development". Statistically significant differences were observed between the total scores of the Perceived Competence Scale for Preoperative Nursing Care and variables such as age, class level, mother's education level, father's education level, economic status, and place of residence. According to the multiple linear regression model, sociodemographic data explained 10% of the total scale scores. **Conclusion:** It was observed that the students' scores on the Perceived Competence Scale for Preoperative Nursing Care were high and at a sufficient level.

Keywords: Competence; nursing care; nursing students; preoperative care

ÖZET Amaç: Hemşirelik öğrencilerinin ameliyat öncesi hemşirelik bakımına ilişkin algılanan yetkinliklerinin değerlendirilmesi amacıyla tanımlayıcı desende planlanmıştır. **Gereç ve Yöntemler:** Çalışma, tanımlayıcı nicel araştırma deseni kullanılarak yürütülmüştür. Araştırma, 2023-2024 eğitim-öğretim yılında Türkiye'deki Erciyes Üniversitesi Sağlık Bilimleri Fakültesi'nde öğrenim gören 507 2., 3. ve 4. sınıf hemşirelik öğrencisi ile yürütülmüştür. Çalışmada "Tanıtıcı Soru Formu" ve "Öğrenci Hemşirelere Yönelik Ameliyat Öncesi Hemşirelik Bakımına İlişkin Algılanan Yetkinlik Ölçeği" kullanılmıştır. Tanımlayıcı analizler ve çoklu regresyon kullanılmıştır. **Bulgular:** Ameliyat Öncesi Hemşirelik Bakımına İlişkin Algılanan Yetkinlik Ölçeği'nden alınan toplam puanın 93.382±14.258 olduğu belirlenmiştir. En yüksek toplam puan "yasal sorumlulukları yerine getirme becerisi ve etik ilkelere bağlılık" alt süreçlerin en düşük toplam puan ise "araştırma ve mesleki gelişim" alt kuralların almışlardır. Hemşirelik öğrencilerinin Ameliyat Öncesi Hemşirelik Bakımına İlişkin Algılanan Yetkinlik Ölçeği toplam puanları ile yaş, sınıf düzeyi, anne eğitim düzeyi, baba eğitim düzeyi, ekonomik durumu ve nerede kaldığı arasında istatistiksel olarak anlamlı fark olduğu görülmüştür. Çoklu doğrusal regresyon modeline göre sosyodemografik veriler ölçek toplam puanlarının %10'unu açıklamaktadır. **Sonuç:** Öğrencilerin Ameliyat Öncesi Hemşirelik Bakımına İlişkin Algılanan Yetkinlik Ölçeği puanlarının yüksek ve yeterli düzeyde olduğu görülmüştür.

Anahtar Kelimeler: Yetkinlik; hemşirelik bakımı; hemşirelik öğrenci; ameliyat öncesi bakım

Surgery is one of the most commonly applied treatment methods. Globally, it is estimated that approximately 4,511 surgeries are performed per 100,000 people each year.[1] Over time, surgical techniques and imaging methods have advanced, making surgical processes increasingly complex.[2] Surgical nurses, who play an active role throughout the perioperative period, are crucial in the care and treatment

TO CITE THIS ARTICLE:
Maraş Baydoğan G. Investigation of nursing students' perceived competencies regarding preoperative nursing care: Descriptive research. Turkiye Klinikleri J Nurs Sci. 2025;17(3):702-9.

Correspondence: Gülseren MARAŞ BAYDOĞAN
Erciyes University Faculty of Health Sciences, Department of Nursing, Department of Surgical Nursing, Kayseri, Türkiye
E-mail: gulserenmaras@erciyes.edu.tr

Peer review under responsibility of Turkiye Klinikleri Journal of Nursing Sciences.

Received: 12 Dec 2024 ***Received in revised form:*** 10 Apr 2025 ***Accepted:*** 23 May 2025 ***Available online:*** 12 Aug 2025

of patients at various stages of the surgical process.[3] The preoperative care of a surgical patient begins when the patient arrives at the clinic and decides to undergo surgery, and it ends with the transfer to the operating room. The purpose of preoperative care is to prepare the patient physically, psychologically, physiologically, emotionally, spiritually, and legally for surgery, as well as to identify and prevent risk factors that could lead to complications.[4]

Nurses are a crucial part of the preoperative process. Their key roles during the preoperative period include assessing patients' needs, identifying risk factors for surgery, managing patients' expectations, and understanding their sensitivities.[5] Effective preoperative preparation enhances patients' adaptation to the surgical process and positively contributes to the recovery phase. Additionally, it helps reduce anxiety, minimizes the use of analgesia and anesthesia, shortens hospital stays, lowers costs, and ultimately increases patient satisfaction.[6]

The orientation process for hiring nurses to work in perioperative settings is more comprehensive and complex compared to other nursing specialties due to the lengthy periods required to adapt to the complexity of surgical processes and environments like the operating room. Efforts to retain nurses in perioperative settings are crucial for maintaining patient safety, ensuring the quality of care, and meeting economic needs.[7] Additionally, it has been reported that the intensive, complex, and challenging nature of clinical environments during nursing education, combined with insufficient experience in perioperative processes-sometimes limited to just a few hours of observation-can deter nursing students from considering employment in perioperative nursing.[7,8]

The management of surgical processes, which are becoming increasingly complex and demanding, necessitates administration by nurses and nursing candidates equipped with professional knowledge, skills, and competence to ensure safe healthcare delivery.[8] Today, the nursing profession requires lifelong learning, evidence-based practice, and the provision of patient-centered care. These changes are critically important for understanding the relationship between the concept of competence and the delivery of quality care.[9] Surgical nursing, due to its comprehensive, hands-on nature and the critical need for rapid decision-making in clinical settings, requires nursing students to reach a level of professional nursing competence.[10,11] The World Health Organization also emphasizes the importance of training skilled health professionals capable of providing quality care with the necessary knowledge, skills, and competencies. Furthermore, it highlights the role of educators in ensuring that nursing students acquire the knowledge, skills, and competencies needed to practice nursing effectively in the 21st century.[12]

Enhancing the awareness of nursing students about preoperative nursing care during their education is crucial, as it is directly related to patient safety and the quality of care. Identifying and addressing their needs, and instilling a culture of care during their student years, are believed to significantly contribute to improving patient care quality in their professional lives post-graduation.[8,13] In light of this, the study was designed as a descriptive study to evaluate nursing students' perceived competence in preoperative nursing care.

MATERIAL AND METHODS

DESIGN

The study was designed as a descriptive study to evaluate nursing students' perceived competence in preoperative nursing care.

POPULATION AND SAMPLE

The study population consisted of 2nd, 3rd and 4th year nursing students studying at Erciyes University Faculty of Health Sciences in Türkiye in the 2023-2024 academic year. The department has a total of 525 students in these academic years. Instead of selecting a sample, the study aimed to reach the entire population. In the institution where the research was conducted, the nursing undergraduate program is implemented with an integrated education program. The integrated education program is carried out within the framework of human, health/disease, environment and nursing paradigms from simple to complex, from health to disease. The theoretical subjects related to surgery continue from the 2nd year to

the end of the 3rd year. In the 4th year, an intern program is implemented, and students continue to practice in surgical clinics throughout the year. At the same time, 2nd- and 3rd-year students are involved in one-on-one surgical practice with faculty members/staff in skill laboratories and clinical field practices. After explaining the purpose of the research to the nursing students, the study was completed with 507 students who agreed to participate. The inclusion criteria for the study were: (1) being a 2nd, 3rd, or 4th-year nursing student; (2) having participated in surgical clinical practice; (3) having completed at least one surgical clinical practice; and (4) agreeing to participate in the study. First-year nursing students were excluded from the study due to their lack of clinical practice experience.

DATA COLLECTION TOOLS

The study utilized a "Descriptive Questionnaire" that includes sociodemographic characteristics and the "Perceived Competence Scale for Preoperative Nursing Care in Student Nurses".

DESCRIPTIVE QUESTIONNAIRE

The descriptive questionnaire was created by the researcher based on a review of relevant literature and includes 9 questions related to students' gender, age, academic year, the longest residence location, mother's education level, father's education level, employment status, economic status, and place of residence.[4,8,10,11]

PERCEIVED COMPETENCE SCALE FOR PREOPERATIVE NURSING CARE FOR NURSING STUDENTS

This scale, developed by Şimşek et al. consists of 22 items and uses a 5-point Likert format.[8] In this Likert-type scale, each statement is rated on a scale from 1-5: strongly disagree (1), disagree (2), undecided (3), agree (4), and strongly agree (5). The minimum score that can be obtained from the scale is 22, while the maximum score is 110. A higher score on the scale indicates an increased perceived level of competence in providing preoperative nursing care among nursing students. The scale does not include reverse items. The reliability coefficient of this scale was found to be 0.96.

DATA COLLECTION PROCESS

The research was conducted during the fall semester of the 2023-2024 academic years with 507 nursing students who participated in clinical practice and volunteered for the study. Data were collected after the researchers explained the purpose of the study to the students and obtained their verbal and written consent. The questionnaire was introduced to the students and distributed collectively during breaks after classes, taking approximately 10 minutes to complete.

ETHICAL CONSIDERATION

For the study to be conducted, approval was obtained from the Academic Committee of the Department of Surgical Nursing at the Faculty of Health Sciences of Erciyes University (2024/10), ethical approval from the Social and Human Sciences Ethics Committee of Erciyes University (date: August 27, 2024; 347), institutional permission from the Faculty of Health Sciences where the study was conducted, and written and verbal consent from students who voluntarily participated, obtained through an informed consent form. The study was conducted in accordance with the Declaration of Helsinki.

DATA ANALYSIS

The data collected in the study were analyzed using the IBM SPSS Statistics for Windows, Version 21.0 (IBM Corp., Armonk, NY, USA) software. Descriptive statistics were reported in terms of frequency and percentage. Data were evaluated at a significance level of $p<0.05$ with a 95% confidence interval. Initially, the normality of the descriptive data was assessed. Normality tests were conducted to determine whether the data followed a normal distribution. For comparing the data of 2 groups that were normally distributed, an independent samples t-test was used; for comparisons involving more than 2 groups, one-way analysis of variance was employed. Additionally, arithmetic mean, standard deviation, mean, Kurtosis, and Skewness values of the data were examined. Multiple linear regression analysis was utilized to identify significant variables that predict the independent variables.

TABLE 1: Descriptive characteristics (n=507)

	n (%)
Age (X̄±SD)	21.078±1.690
Gender	
Female	413 (81.5)
Male	94 (18.5)
Class levels	
2nd grade	143 (28.2)
3rd grade	252 (49.7)
4th grade	112 (22.1)
Place of residence	
Province	339 (66.9)
District	118 (23.3)
Village	50 (9.9)
Mother's educational level	
Primary school and below	182 (35.9)
Middle school	132 (26.0)
High school	158 (31.2)
Higher education	35 (6.9)
Father's education level	
Primary school and below	106 (20.9)
Middle school	107 (21.1)
High school	186 (36.7)
Higher education	108 (21.3)
Employment status	
Employed	35 (6.9)
Unemployed	472 (93.1)
Economic status	
Excellent	53 (10.5)
Good	144 (28.4)
Average	287 (56.7)
Poor	23 (4.5)
Living status	
With family	207 (40.8)
With relatives, friends, or alone	25 (4.9)
In a dormitory	275 (54.2)
Total	507 (100.0)

SD: Standard deviation

RESULTS

The distribution of the students' descriptive characteristics is presented in Table 1. The average age of the nursing students participating in the study was found to be 21.078±1.690 years, with 81.5% identifying as female. Among the students, 49.7% were 2nd-year students, and 66.9% resided in urban centers. It was found that 35.9% of the students had mothers with an education level of primary school or lower, and 36.7% had fathers with a high school education. A significant majority of the students, who were identified as not working anywhere, reported their economic status as "moderate" (56.7%). Additionally, it was determined that more than half of the participants resided in dormitories.

Table 2 presents the scores of nursing students on the Perceived Competence Scale for Preoperative Nursing Care. The average total score on the scale was found to be 93.382±14.258. Specifically, the sub-dimensions of the scale showed the following scores: "Ability to fulfil legal responsibilities and adherence to ethical principles" had a total score of 22.073±3.645; "evaluation and follow-up of the patient" had a total score of 20.049±4.002; "preoperative patient preparation" had a total score of 17.311±3.039; "communication" had a total score of 17.272±2.879; and "research and professional development" had a total score.

Table 3 compares the students' descriptive characteristics with the total scores on the Perceived Competence Scale for Preoperative Nursing Care. It was found that there were statistically significant dif-

TABLE 2: Perceived Competence Scale (n=507)

	X±SD	Minimum-maximum scores obtained from the study	Minimum-maximum scores from the scale
Ability to fulfill legal responsibilities and adherence to ethical principles	22.073±3.645	5-25	5-25
Evaluation and follow-up of the patient	20.049±4.002	5-25	5-25
Preoperative patient preparation	17.311±3.039	4-20	4-20
Communication	17.272±2.879	4-20	4-20
Research and professional development	16.674±3.048	4-20	4-20
Total	93.382±14.258	26-110	22-110

SD: Standard deviation

TABLE 3: Comparing students' descriptive characteristics with scale total scores (n=507)

Descriptive Characteristics	X̄±SD	Test	p value
Age			
17-22	92.968±14.558	t=-2.453	**0.000***
23-30	99.147±6.998		
Gender			
Female	93.038±14.445	t=-1.139	0.548
Male	94.893±13.373		
Class levels			
2nd grade	87.608±16.007[a]		
3rd grade	94.551±13.345[b]	F=20.191	**0.000***
4th grade	98.125±11.290[b]		
Place of residence			
Province	93.135±14.972		
District	93.779±13.700	F=0.163	0.850
Village	94.120±10.169		
Mother's educational level			
Primary school and below	93.64±13.72[a]		
Middle school	93.42±14.00	F=3.142	**0.026***
High school	98.58±11.46[b]		
Higher education	97.15±13.18		
Father's education level			
Primary school and below	94.73±13.54[a]		
Middle school	91.43±14.41[a]	F=2.159	**0.050***
High school	96.39±13.72[a]		
Higher education	97.34±12.04[b]		
Employment status			
Employed	94.857±12.714	t=0.634	0.951
Unemployed	93.273±14.372		
Economic status			
Poor	98,600±7,079[ab]		
Average	94,871±12,390[a]	F=2.764	**0.042***
Good	94,473±15,364[a]		
Excellent	105,545±5,592[b]		
Living status			
With family	91.149±16.005[a]		
With relatives, friends, or alone	92.080±8.878[ab]	F=4.906	**0.008***
In a dormitory	95.181±12.990[b]		

a, b: Different superscript letters indicate statistically significant differences between groups (post-hoc test, p < 0.05).
*p<0.05. F: One-way analysis of variance; t: Independent samples t-test

ferences in the total scale scores concerning age, academic years, mother's education level, father's education level, economic status, and place of residence (p<0.05). Competence scores increased with higher academic year and higher levels of parental education. Differences were observed among students with poor, moderate, and good economic conditions, with those in very good economic conditions having higher scale scores. Additionally, there was a difference between students living with their families and those residing in dormitories, with dormitory residents having higher scale scores.

Table 4 examines the impact of variables such as age, academic year, mother's education level, father's education level, economic status, and place of residence on the total score of the Perceived Competence Scale for Preoperative Nursing Care. According to the multiple linear regression model, these variables explain 10% of the variance in the total scale scores. The Durbin-Watson (DW) statistic was assessed and indicated that no variable in the model caused autocorrelation (DW<2.5).

DISCUSSION

One of the fundamental goals of nursing education is to ensure that students possess the professional knowledge, skills, and competencies required before graduation. The educational and practical stages of nursing, which are essential components of the profession, play a crucial role in advancing nursing students' competencies to a professional level.[9] In this context, nursing care in surgical clinics-which involves a complex array of processes including leadership, decision-making, conflict management, human, material, and financial resource management,

TABLE 4: Evaluation of factors affecting nursing students' Perceived Competence Scale scores for preoperative nursing care using multiple linear regression analysis

Independent variable	B†	SE†	β†	t value	p value	95% CI†	
Age	2.668	3.235	0.048	0.410	0.410	-3.700-9.036	R^2=0.108
Class levels	4.066	1.085	0.216	0.747	**0.000***	1.930-6.202	F=6.977
Mother's educational level	1.596	0.888	0.121	1.798	0.073	-0.151-3.444	DW=1.838
Father's education level	0.506	0.808	0.041	0.626	0.5532	-1.084-2.096	**p=0.000***
Economic status	0.517	1.236	0.025	0.418	0.676	-1.916-2.950	
Living status	2.915	0.762	0.212	3.825	**0.000***	1.415-4.415	

*p<0.05; †B: Unstandardized regression coefficient; SE: Standard error; β: Standardized regression coefficient; CI: Confidence interval; DW: Durbin-Watson

and continuous education-requires significant clinical competencies.[14]

In the study, it was determined that the total scores of students on the perceived competence scale for preoperative nursing care averaged 93.382± 14.258. The highest score was obtained in the sub-dimension "ability to fulfill legal responsibilities and adherence to ethical principles", while the lowest score was recorded in the sub-dimension "research and professional development". The scores indicated a high and adequate level of competence in preoperative nursing care. In a study examining the knowledge levels of nursing and midwifery students regarding preoperative nursing care, it was concluded that students' levels of care competence were sufficient. Students achieved the highest average score in "fulfilling legal responsibilities and adherence to ethical principles" and the lowest in "research and professional development" skills.[4] Similar results were observed in this study, indicating a consistency in findings. The acquisition of competencies is completed by applying of knowledge, skills, attitudes, and values acquired during nursing education.[15] Although not all institutions have the resources, simulation methods that provide repeated practice opportunities during nursing education are among the effective techniques for gaining competencies, especially for safe practices in acute care environments.[16]

The students' scores for the sub-dimensions "preoperative patient preparation", "communication", and "research and professional development" were 17.311±3.039, 17.272±2.879, and 16.674±3.048, respectively. In the study by Şimşek et al. the scores for the sub-dimensions "preoperative patient preparation", "communication", and "research and professional development" were 22.14±2.01, 17.43±2.01, and 25.71±3.10, respectively.[13] It is important for nursing students to acquire knowledge and skills about preoperative patient preparation before graduation.[17] In a study examining the knowledge levels of nursing and midwifery students about preoperative nursing care, it was stated that the students had sufficient knowledge about preoperative nursing care. It was suggested that preoperative nursing care be developed by using different education methods to increase competence in preoperative care. In the study, it was stated that the students' average scores were lowest in the "communication" and "research and professional development" sub-dimensions. It was stated that this situation may be related to the students' lack of participation in scientific research.[4] In a study evaluating the communication skills of nursing students who went to practice in surgical clinics, it was determined that their communication skills were at a moderate level. In the study, it was shown that the communication skills of senior intern students were better and that this was due to spending more time and interaction with patients. It was emphasized that students' communication skills should be strengthened in order to provide quality care with a holistic approach to care.[18]

The study found that nursing students' scores on the perceived competence scale for preoperative nursing care increased with age, class level, maternal and paternal education levels, and economic status. Additionally, students residing in dormitories had higher scale scores. The study revealed age and class level positively correlated with increased competence scores. Competence is a concept related to time and experience.[4] In a study evaluating nursing students' self-efficacy, perceived competence, and resilience, it was concluded that class level was associated with these concepts, with final-year students exhibiting the highest scores in competence, resilience, and self-efficacy.[18] In another study, it was reported that final-year nursing students have higher self-efficacy scores compared to lower-class students, with these differences being statistically significant.[19] A study examining the academic self-efficacy levels of nursing students found that students residing in dormitories had higher scale scores compared to their peers.[19] Dormitories, as collective living environments, provide opportunities for information sharing among peers and reflect the interplay of personal, cognitive, and environmental factors in an individual's world. It has been noted that academic self-efficacy and competence levels can be influenced by various factors such as education received, past life experiences, parental education level, number of siblings, place of residence, and economic status.[20,21]

The study revealed that the total scores on the perceived competence scale for preoperative nursing

care among nursing students were significantly influenced by variables such as age, academic year, parental education level, economic status, and place of residence. A similar study indicated that demographic characteristics accounted for 8.1% of the variance in the preoperative nursing care model among nursing and midwifery students.[4]

LIMITATIONS

The study's strengths include its large sample size, comprehensive coverage of the population, and high response rate. However, it is limited by being conducted within a single institution and the absence of other factors that could influence preoperative competence. Further research employing mixed methods and qualitative approaches is recommended to provide a deeper understanding of nursing students' perceived competence in preoperative care.

CONCLUSION

The results of the study indicate that nursing students' perceived competence levels in preoperative nursing care are generally satisfactory. The highest scores were achieved in the subdimension of "ability to fulfill legal responsibilities and adherence to ethical principles". However, improvements are needed in the areas of "preoperative patient preparation", "communication", and "research and professional development" through the use of diverse educational methods. This is crucial as nursing students must attain a high level of professional competence and academic education prior to graduation. Addressing the complexities inherent in the surgical process requires adequate knowledge, skills, professionalism, critical thinking, problem-solving, decision-making, and mastery of individualized care and the professional nursing process. To this end, developing undergraduate nursing curricula, creating clinical practice environments, and designing assessment tools are essential tasks.

Acknowledgements

We express of gratitude to the students who participated in our study. We would like to thank the Proofreading & Editing Office of the Dean for Research at Erciyes University for copyediting and proofreading service for this manuscript.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

REFERENCES

1. Mukhopadhyay S, Ojomo K, Nyberger K, Meara JG. Lancet commission on global surgery. Iranian Journal of Pediatrics. 2017;27(4):e11273. [Crossref] [PubMed]
2. Gündoğdu RH. Cerrahi sonrası iyileşmenin hızlandırılması perioperatif bakımda değişiklik. Alkış N, Gündoğdu RH, editörler. ERAS Kitabı-Kanıta Dayalı Cerrahi. 1. Baskı. Ankara: Bayt Yayınevi; 2023. p.1-5.
3. Gürel B, Koçaşlı S. Ameliyat sonrası hastaların derlenme kalitesi ve hemşirelik bakımı [Recovery quality and nursing care of postoperative patients]. Türkiye Sağlık Bilimleri ve Araştırmaları Dergisi. 2022;5(1):12-30. [Crossref]
4. Alnjadat R, Etoom M. Factors affecting nursing and midwifery students knowledge regarding preoperative nursing care. Advances in Medical Education and Practice. 2024;15:161-71. [Crossref]
5. Ruiz Hernández C, Gómez-Urquiza JL, Pradas-Hernández L, Vargas Roman K, et al. Effectiveness of nursing interventions for preoperative anxiety in adults: a systematic review with meta-analysis. J Adv Nurs. 2021;77(8):3274-85. [Crossref] [PubMed]
6. Aydal P, Uslu Y, Ulus B. The effect of preoperative nursing visit on anxiety and pain level of patients after surgery. J Perianesth Nurs. 2023;38(1):96-101. [PubMed]
7. Nash J, Kamel TC, Sherer J, Nauer K. Implementing a perioperative nursing student summer internship. AORN J. 2018;107(1):83-90. [PubMed]
8. Seyhan-Ak E, Kandemir D, Ayoğlu T, Ayhan MK. Hemşirelik öğrencilerinin ameliyat öncesi hasta güvenliğine ilişkin görüşleri ve uygulamaları [The opinions and practices of nursing students about preoperative patient safety]. Florence Nightingale Hemsire Derg. 2019;27(1):26-37. Turkish. [Crossref] [PubMed] [PMC]
9. Church CD. Defining competence in nursing and its relevance to quality care. J Nurses Prof Dev. 2016;32(5):E9-E14. [Crossref] [PubMed]
10. Immonen K, Oikarainen A, Tomietto M, Kääriäinen M, Tuomikoski AM, Kaučič BM, et al. Assessment of nursing students' competence in clinical practice: a systematic review of reviews. Int J Nurs Stud. 2019;100:103414. [Crossref] [PubMed]
11. Ozcelik R, Ayhan H. The effect of standardized patient use in teaching preoperative care practices on students' knowledge, skills, and anxiety in clinical practice. Clinical Simulation in Nursing. 2021;61(6):54-64. [Crossref]
12. World Health Organization [Internet]. Nurse educator core competencies. © 2025 WHO [Cited: July 17, 2024]. Available from: [Link]
13. Şimşek P, Özmen GÇ, Kemer AS, Aydin RK, Bulut E, Çilingir D. Development and psychometric testing of Perceived Preoperative Nursing Care Competence Scale for Nursing Students (PPreCC-NS). Nurse Educ Today. 2023;120:105632. [PubMed]
14. Leal LA, Henriques SH, Castro FFS, Soares MI, Bragança C, Silva BRD. Construction of the matrix of individual nursing competences in surgical units. Rev Bras Enferm. 2020;73(6):e20190584. English, Portuguese. [Crossref] [PubMed]
15. Flinkman M, Leino-Kilpi H, Numminen O, Jeon Y, Kuokkanen L, Meretoja R. Nurse Competence Scale: a systematic and psychometric review. J Adv Nurs. 2017;73(5):1035-50. [PubMed]
16. Craig SJ, Kastello JC, Cieslowski BJ, Rovnyak V. Simulation strategies to increase nursing student clinical competence in safe medication administration practices: a quasi-experimental study. Nurse Educ Today. 2021;96:104605. [Crossref] [PubMed]
17. Gustafsson UO, Scott MJ, Hubner M, Nygren J, Demartines N, Francis N, et al. Guidelines for perioperative care in elective colorectal surgery: enhanced recovery after surgery (ERAS®) society recommendations: 2018. World J Surg. 2019;43(3):659-95. [PubMed]
18. Özpınar EP, Özyürek P. Cerrahi birimlerde klinik uygulamaya çıkan hemşirelik öğrencilerinin terapötik iletişim becerilerinin belirlenmesi [Assessment of therapeutic communication skills of nursing students engaged in clinical practice in surgical units]. Yükseköğretim ve Bilim Dergisi. 2024;14(3):394-402. [Crossref]
19. Orkaizagirre Gómara A, Sánchez De Miguel M, Ortiz de Elguea J, Ortiz de Elguea A. Testing general self-efficacy, perceived competence, resilience, and stress among nursing students: an integrator evaluation. Nurs Health Sci. 2020;22(3):529-38. [Crossref] [PubMed]
20. Cengiz Z, Gürdap Z, Karaca E, Acun M. Hemşirelik öğrencilerinin öz yeterlilikleri ile mesleki güdülenmeleri arasındaki ilişki [The relationship between nursing students' self-efficiency and vocational motivation]. Sağlık ve Hemşirelik Yönetimi Dergisi. 2021;8(1):12-20. [Crossref]
21. Yüzer Alsaç S, Öztaş G. Hemşirelik öğrencilerinin akademik öz yeterlik düzeyleri ve etkileyen etmenler [The factors affecting the academic self-efficacy levels of nursing students]. Sağlık ve Hemşirelik Yönetimi Dergisi. 2023;10(3):301-9. [Crossref]