

Clinical Stress Levels of Senior Nursing Students in The Operating Room And Surgical Inpatient Practices

Hemşirelik Dördüncü Sınıf Öğrencilerinin Ameliyathane ve Cerrahi Klinik Uygulamalarına Yönelik Klinik Stres Durumlarının İncelenmesi

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ABSTRACT

Clinical practices, which have an important place in nursing education, are also a source of stress for the student. To examine the clinical stress levels of senior nursing students in the operating room and surgical clinics. It was descriptive and cross-sectional study and conducted at a university in Turkey, in 2019-2020. In the study, 89 of the senior nursing students took part in the operating room and 81 in the surgical clinics. Quantitative data were collected by sociodemographic clinical characteristics form and the Pagana Clinical Stress Questionnaire. The operating room stress score of the senior nursing students was 27.41 ± 8.75 . According to the clinics, there was a significant difference between the clinical stress score of the first day. The highest clinical stress score belonged to the students who practiced in the neurosurgery clinic on the first day and in the ED on the last day. The clinical stress level of students on the last day was higher than the first day. We found that the senior nursing students' stress levels were low on the surgical clinics and the OR. The findings showed that the clinical stress level experienced by the students at the end of their surgical clinical practices was higher than the first day. When planning the clinical placements of nursing students, planning according to the clinics they have applied before and determining the practice goals according to the clinics that students will apply for the first time can reduce the clinical stress of students.

Key words: Nursing Education, Nursing Students, Clinical Stress, Clinical Skills, Operating Room

ÖZ

Hemşirelik eğitiminde önemli bir yere sahip olan klinik uygulamalar öğrenci için de stres kaynağıdır. Bu çalışmada hemşirelik son sınıf öğrencilerinin ameliyathane ve cerrahi kliniklerindeki klinik stres düzeylerinin incelenmesi amaçlanmıştır. Tanımlayıcı ve kesitsel bir araştırma olup, 2019-2020 yıllarında Türkiye'de bir üniversitede yapılmıştır. Araştırmada hemşirelik son sınıf öğrencilerinin 89'u ameliyathanede, 81'i ise cerrahi kliniklerinde yer almıştır. Nicel veriler sosyodemografik klinik özellikler formu ve Pagana Klinik Stres Anketi ile toplanmıştır. Hemşirelik son sınıf öğrencilerinin ameliyathane stres puanı 27.41 ± 8.75 idi. Kliniklere göre ilk gün klinik stres skorları arasında anlamlı bir fark vardı. En yüksek ilk gün klinik stres puanı beyin cerrahisi kliniğinde ve son gün acil serviste uygulanan öğrencilere aitti. Öğrencilerin son günlük klinik stres düzeyi ilk güne göre daha yüksekti. Hemşirelik son sınıf öğrencilerinin cerrahi kliniklerde ve ameliyathanede stres düzeylerinin düşük olduğunu bulduk. Bulgular, öğrencilerin cerrahi klinik uygulamalarının sonunda yaşadıkları klinik stres düzeyinin ilk güne göre daha yüksek olduğunu göstermiştir. Hemşirelik öğrencilerinin klinik yerleşimleri planlanırken daha önce başvurdukları kliniklere göre planlama yapılması ve uygulama hedeflerinin belirlenmesi öğrencilerin ilk kez başvuracakları kliniklere göre öğrencilerin klinik stresini azaltabilir.

Anahtar Kelimeler: Hemşirelik Eğitimi; Hemşirelik Öğrencileri, Klinik Stres, Klinik Beceriler, Ameliyathane

Ethics committee approval was obtained from Dokuz Eylül University Non-Invasive Clinical Research Ethics Committee with the number (File No: 5242-GOA, Decision No: 2020/03-02, Date: 03.02.2020)

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INTRODUCTION

Nursing undergraduate education consisting of theoretical and clinical education has a complex structure. Students use the knowledge gained in theoretical lessons while providing care to patients in clinical practice.¹ However, nursing students experience stress in clinical practice for many reasons.^{2,3,4,5,6} This stress experienced by students may be more in the learning environment in the surgical clinics that they experience it for the first time. Because surgical clinics are complex units with intense care of the patient. In this environment, learning activities can be faster due to the nature of surgical clinics. The reasons such as excessive procedures requiring clinical skills, rapid patient circulation, rapid change of physiological status of patients and nurses being stressed in surgical clinics also create stress for the student.^{7,8} There are only a few studies in our country on how nursing students were affected in the Operating Room (OR). It was determined that students experienced mild to moderate stress related to OR practice⁹ and they experienced fear/anxiety in the OR, especially being alone.¹⁰ Raji et al. (2016) found that the Iran students experienced moderate stress in there.¹¹

Failure to control the clinical stress of nursing students may affect their clinical learning negatively. While low stress level motivates learning; high stress levels can cause health problems and learning difficulties, negatively affect education performance.^{12,13,14} In order to teach stress management in nursing education, the stress levels, stress sources and stress reactions of student nurses should be determined.^{1,15} The clinical stress level of senior nursing students who are at the transition to professional life should be one of the primary issues of instructors.

Most of the studies were focused on the first clinical experiences of students.^{16,17,18} A study examining the stress levels of the senior nursing students regarding OR and surgical clinic practices could not be reached. Senior nursing students also experience stress in clinics.^{13,19} We aimed to examine the clinical stress levels of senior nursing students in the OR and surgical clinicals. It was thought that these research results would contribute to the pre-clinic preparations of nurse educators, and improving clinical learning of students.

METHODS

This quantitative research was designed in a descriptive and cross-sectional type.

Settings and participants

The research was conducted in Nursing Faculty at Dokuz Eylül University (DEU). The research population consisted of senior nursing students studying in Nursing Faculty at DEU in the spring semester of 2019-2020, and taking the Nursing Care Management course from the Department of Surgical Nursing. The number of students taking this course was 99. It was aimed to include all students who took this course in the research. The sample included volunteer students aged 18 and over who speak Turkish, have no hearing problems. Stress levels of 89 out of

99 students in the OR and 81 in the surgical inpatient clinics were determined.

Variables

While the dependent variable of the study was the mean CSS (Clinical Stress Scale) of the senior nursing students, the independent variables were age, gender, the clinical practice, taking the OR elective course, and the practicing in the same clinic previously.

Instruments

Sociodemographic-Clinical Features Form, which was prepared by the researchers, consisted of 6 questions: age, gender, clinic, previous elective course in the OR, and clinical practicing in the same place.

Clinical Stress Questionnaire (CSQ), is a Likert-type self-assessment scale consisting of 20 items developed by Pagana in 1989 to determine the initial value of student nurses' stress that threatens or requires them to struggle in their first clinical practice experiences. The items of the survey; it is gathered under 4 scales consisting of threat, struggle, harm and benefit emotions. In the CSQ, the threat scale is "6" (I was sad, worried, I was overwhelmed, I was emotional, my eyes were scared / scared, I was scared), the struggle scale was "7" (I was warned, cheered, I was hoped, I liked, I was enthusiastic, I was excited, I was happy), hurt The scale includes "5" (I was angry, sad, felt guilty, disgusted / disgusted, disappointed) and the utility scale "2" (I relieved, I trusted). Each item is evaluated as 5-grade; it is requested to mark one of the options 0- "none", 1- "a little", 2- "medium", 3- "excess", 4- "too much". Based on the score given for each item between 0-80 score can be obtained from CSQ. Low score indicates that the stress level is low, and a high score indicates it's high.²⁰ The scale can be applied in 5-6 minutes. The study of validity and reliability of the scale for Turkey, the internal consistency coefficient was found to be 0.70.¹²

Data Collection Process

OR nursing practice was the 8-hour observation in which students experienced the OR environment for the first time. Before the clinical practice in the operating room, a two-hour informative presentation about the operating room was given to our students. The implementation of Nursing Care Management course from the Department of Surgical Nursing. was completed in three months. They had done 280 hours of practice in their inpatient clinics. Students completed a one-day (8 hours) OR practice firstly. Then, they continued their practice in the inpatient clinics. Each student had practiced in only one inpatient clinic. Surgical clinical practices were performed in General Surgery, Orthopedics and Traumatology, Neurosurgery, Thoracic and Cardiovascular Surgery clinics and Emergency Department

(ED), Anesthesia and Reanimation Intensive Care units for one semester. The stress level of the students in the OR was collected at the end of the day when they went to the OR, and the stress level in the surgical inpatient clinics was collected at the end of the first day when they started clinical practice and after the clinical practice was completed. The data were collected by the researchers using face-to-face interview method using the sociodemographic clinical features form and Pagana Clinical Stress Questionnaire (CSQ).

Data analysis

The data of the research were analyzed in SPSS 21.0 statistics program. Data on sociodemographic characteristics were analyzed by number, percentage and mean. The difference between the CSS on the first and last days of the students' clinical practices was evaluated with the significance test of the difference between the two means in the dependent groups. Mann Whitney U test was used to examine the difference between the stress scores of the students in the OR and on the first and last days of the surgical clinics. According to the clinics, CSS on the first and last days of the clinical practice were examined with Kruskal-Wallis. Mann Whitney U test was used to determine the difference between CSS according to the condition of taking elective OR course and practicing in the previous clinic.²¹

Ethical considerations

Written permission was obtained from the Dean of Nursing Faculty at the DEU for the research and approval from the university's noninvasive research ethics committee (File No: 5242-GOA, Decision No: 2020/03-02, Date: 03.02.2020). Written/verbal consent was obtained from the students.

Limitation of Research

The limitation of this study was that it was conducted with students who took the 4th year surgical nursing course of a university. This course was carried out in the form of internship in the institution where the research was conducted. The number of

students reached is limited as the course had 99 students. Therefore,

these results cannot be generalized.

RESULTS AND DISCUSSION

The mean age of students was 21.93±0.90 years; 82.02% (n=73) of the students practicing in the OR and 80.24% (n=65) of them in the surgical inpatient clinics were women. The OR stress score of the senior nursing students was 27.41±8.75. There was no difference between the students' CSS levels according to gender (U= 519.50, p =0.490) and status of taking the OR elective course (U=324.500, p=0.629) (Table 1).

The stress level of students on the last day of clinical practice (40.03±12.20) was higher than the first day (27.69±8.84), and the difference between the first and last day's CSS was statistically significant (t=-7.89, p=0.00) (Table 2).

Table 1. Investigating the clinical stress levels of students regarding operating room practice (n = 89)

Stress Level Related to Operating Room				
Variables		Mean±SD	Min-Max	
Age		21.93±0.90	21-25	
	n (%)	Mean±SD	Test value	p
Gender				
Female	73 (82.02)	27.68±8.96	U=519.50	0.490
Male	16 (17.98)	26.18±7.91		
Status of Elective operating room course				
Yes	9 (10.12)	28.44±10.40	U=324.500	0.629
No	80 (89.88)	27.30±8.62		
Total	89 (100)	27.41±8.75		

U= Mann-Whitney U test

Table 2. Investigating the clinical stress levels of students on the first and last days of clinical practice (n = 81)

Variables	n (%)	Stress level on the first clinical practice day			Stress level on the last clinical practice day		
		Mean±SD	Test value	p	Mean±SD	Test value	p
Gender							
Female	65 (80.24)	27.64±8.77	U= -503.00	0.84	39.76±12.99	U=477.00	0.61
Male	16 (19.76)	27.87±9.40			41.12±8.55		
Practiced clinic							
General Surgery	19 (23.45)	23.42±7.20	KW=20.56	0.001	39.05±12.14	KW=2.901	0.71
Thoracic and Cardiovascular Surgery	10 (12.34)	25.50±6.50			37.60±9.96		
Orthopedics	20 (24.69)	24.60±8.45			39.05±9.97		
Neurosurgery	9 (11.11)	37.11±7.54	35.55±10.97	42.63±15.18			
Anesthesia Intensive Care	11 (13.58)	29.81±8.12					
Emergency Department	12 (14.83)	32.41±8.33	46.25±14.75				
Previously practicing in their clinics							
Yes	14	26.42±8.99	U=0.464	0.49	34.00±9.88	U=3.975	.046
No	67	27.95±8.85			41.29±12.33		
Total	81 (100)	27.69±8.84	40.03±12.20		t=-7.89	0.00	

The stress level of students on the last day of clinical practice (40.03±12.20) was higher than the first day (27.69±8.84), and the difference between the first and last day's

CSS was statistically significant (t=-7.89, p=0.00) (Table 2).

According to the clinics, there was a significant difference between the CSS of the

first day (KW=20.56, $p=0.001$), but the difference between the CSS of the last day was not significant (KW=2.901, $p=0.715$). When investigated according to the clinics, the highest CSS belonged to the students who practiced in the neurosurgery clinic (37.11 ± 7.54) on the first day and in the ED (Emergency Department) (46.25 ± 14.75) on the last day (Table 2). The first (26.42 ± 8.99) and last (34.00 ± 9.88) day CSS of the students who previously practiced in the same clinic were lower than the first (27.95 ± 8.85) and last (41.29 ± 12.33) day scores of students who practiced different clinics. While there was no difference between groups in terms of CSS on the first day ($U = 0.464$, $p = 0.49$), there was a significant difference between groups in terms of CSS on the last day ($U=3.975$, $p = 0.046$) (Table 2).

In nursing education, clinical practices are extremely important in ensuring the competence and professional improvement of students.²² Clinical practices, which provide the transfer of theoretical knowledge into practice and are an important component of nursing education, can also be an important source of stress for nursing students.^{3,9,15} As a result of a recent study conducted in our country, 92.0% of nursing students experience stress during clinical practices.²³ The fact that the majority of the students in this study were women in terms of age and gender was similar to the characteristics of the participants in studies conducted with senior nursing students in our country.²⁴ As a result of this study, it was observed that gender and elective OR nursing course did not affect the student's clinical stress level in the OR practice (Table 1). ORs are places with their unique structure and functioning and are the focus of attention for nursing students due to their characteristics.^{25,26} It was thought that the attractive features in the learning environments were similar for the students regardless of their taking the OR nursing course or gender differences, and it did not affect the clinical stress in the OR. The OR team's supportive attitude towards nursing students and well-structured clinical practice organization may also be a factor

that reduces stress experienced by the student in a new learning environment.^{22,27} There may not be a significant difference due to factors such as informing our students before clinical practice, making presentations to facilitate their adaptation to the OR, and the practice being based on observation.

In this study, it was determined that the senior nursing students' stress levels were low on the first day in surgical inpatient clinics and the OR. Unlike our findings, researches about OR practice show that students experience mild to moderate and high levels of stress.^{9,10,11} Research on the level of stress experienced by nursing students specific to surgical inpatient clinics has not been reached. However, in many studies including surgical inpatient clinics, nursing students were reported to experience moderate or high levels of stress in clinical practice.^{3,15,23} These studies might include changing the clinical stress causes of the students, conducting the research in different countries and evaluating the stress levels of the students in different classes. The reason for the low level of clinical stress in the students on the first day in this study might be due to the fact that our students experienced the surgical inpatient clinics beforehand, the clinical expectations were explained before the practice and the students voluntarily practiced in these clinics.

Our research findings showed that the clinical stress level experienced by senior nursing students at the end of their surgical clinical practices was higher than the first day, and there was a significant difference between the clinical stress levels of the first and last days (Table 2). Sharif and Masoumi (2005) emphasized that students experience more stress as their grade level increases.¹ It has been stated that clinical experiences cause stress and the stress level increases in the last years of education.^{4,19} Unlike the results we obtained, some studies in the literature determined that nursing students' stress levels during clinical practice decreased over time.^{5,15} Our research result might be related to the reality shock experienced by the nursing students who

have reached the graduation stage, as the time spent in the clinic increases as the students perceive the real world in the clinical setting. As a matter of fact, the separation of nursing students from the safe and supportive teaching environments of their schools and their placement in a clinical environment that is perceived as unusual and complex and that requires dealing with various human relationships may have contributed to their increased stress level.²⁸ It was emphasized that as the nursing students gain experience in the clinical environment, they may have difficulties in care and feel the lack of knowledge and professional skills related to patient care, and this will increase the stress of the students, and the tasks and workload undertaken by the students are also a source of stress.²⁹ It is a known fact that the positive climate in the clinical environment positively affects the learning of the student. However, situations such as the fact that the employees in the clinic can postpone the learning of the students in intensive work pace, are not cooperative or do not see them as part of the team may also be effective in achieving this result.³⁰ The anxiety of passing/succeeding the student at the end of the term might also be a factor that increases stress.³¹

In in this study, there was no difference between the stress scores in the first and last clinical days according to the gender of the students. Our result differs from other studies in which clinical stress was evaluated regardless of the clinical practice day, and it was determined that the CSS of female students were higher in these studies.^{9,23} As Akman et al. (2019) emphasized, similarity of nursing students' perceptions of the clinical learning environment may not have made a difference in clinical stress levels by gender.³² Considering that the clinical learning environment had the same characteristics for both male and female students, it was not surprising to achieve this result.

As a result of in this study, the students with the highest stress level on the first day of clinical practice in the surgical inpatient

clinics were in the neurosurgery clinic (Table 2). Students who practicing in neurosurgery clinic may have experienced more stress in this clinic where they saw the general characteristics of the patients and team for the first time. The difficulties experienced by the patients in the neurosurgery clinic in carrying out the care of patients with a general condition, bed-dependent and intensive care needs might be a cause of stress for the students. It was thought that the clinical stress levels were also high due to the situations that students could not explain, such as being a laughing stock or the attitude of healthcare professionals. In a study with senior nursing students, the students stated that they had the fear of making mistakes or saying something stupid. In a study was conducted in senior nursing students, they explained that the effects of patients not seeing them as members of the team, their clinical instructors not being able to support them sufficiently, being inexperienced in that clinic, not knowing the procedures sufficiently, and having insufficient knowledge and being in an unusual environment.²⁸ The difference between the CSS on the first clinical practice day in the surgical inpatient clinics could be explained by the fact that each surgical clinic had different dynamics.

On the last day of clinical practice, it was the clinical ED that created the highest stress. In the literature, it has been stated that nursing students have less satisfaction and high clinical stress levels due to reasons such as heavy workload, increased responsibilities, unpleasant feelings and team attitude in clinics such as pediatric clinics, intensive care units, ED and OR.^{11,33} On the basis of the student's stress in the ED; it has been thought that many factors such as patient diversity, frequent encounters with rapidly developing situations in the ED, the need for complex management skills, majority of invasive interventions, high potential to encounter risks, and rapid intervention to events may have complicated the students' adaptation process.³³ Students might experience stress in encountering unusual situations in the clinical

environment, harming patients, fear of making mistakes, learning clinical procedures and managing technical equipment.⁴

It was determined that the clinical stress level of the students on the last day was higher in all clinics except for the neurosurgery clinic compared to the first day, but the difference between the CSS was not significant compared to the clinics. The reasons such as the students' continuing learning processes in different surgical inpatient clinics, undertaking different tasks, the wrong procedures or fear of giving wrong information to the patient, the attitude of educators, nurses and peers, excessive homework and workload, trying to be a member of the team and being evaluated at the end of the clinical practice day might have increased CSS.^{4,19} Studies showed that clinical evaluation was also an important source of stress for students.³¹ Also, the fact that they encountered the facts waiting for them in professional life after graduation might be a factor that increases the stress level.²⁸

In this study, it was determined that students' surgical nursing practice in their previous clinic did not affect the CSS on the first day, but it made a significant difference

in the CSS on the last day. The learning environment in the clinics for the first time can be complex at different levels for each student, and students might experience different levels of stress.²⁴ The students' positive perception of the clinic they knew before and the fact that they learned to cope with stress may have caused the students to experience less stress on the first day in the clinics they were in before.^{2,15,24}

The clinical practice of the students in an environment where they knew the patients' characteristics and dynamics, and with a familiar team may have reduced the fear of harming the patient and experiencing uncertainty by facilitating for the students to cope effectively with the new situations they encountered in the clinical practice on the first day.^{2,4,15} However, on the last day of clinical practice may be a factor in the high stress level in the clinics where the students did not practice before. It had been stated that factors such as the conditions of patients in the clinical learning environments, lack of time, less interaction with the clinical nurse, difficulty in managing emergencies, being in a new environment and high risk of infectious disease were closely related to students' stress.⁶

CONCLUSION AND RECOMMENDATIONS

Nursing undergraduate education consisting of theoretical and clinical education has a complex structure. Students use the knowledge gained in theoretical lessons while providing care to patients in clinical practice. However, nursing students experience stress in clinical practice for many reasons. In this study found that the clinical stress levels of the nursing students changed according to the clinics and increased on the last day of the surgical nursing practice. Also, it was determined that the highest clinical stress score was in the

neurosurgery clinic on the first day, and the highest clinical stress score was in the emergency department on the last day. Nurse educators can be recommended to identify strategies to reduce the stress of students in order to achieve their clinical learning goals. When planning the clinical placements of nursing students, planning according to the clinics they have applied before and determining the practice goals according to the clinics that students will apply for the first time can reduce the clinical stress of students.

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