



KNOWLEDGE OF SENIOR NURSING STUDENTS ABOUT PAIN MANAGEMENT IN INTENSIVE CARE UNIT

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ABSTRACT

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Nurses' knowledge and experience in pain management have an essential role in preventing the patient from suffering pain and maintaining comfort. This study aimed to evaluate the knowledge level of senior nursing students about pain management in the intensive care unit. It is a descriptive and cross-sectional study. Necessary consent and permissions were obtained for the study. The study was based on the STROBE checklist and complied with the principles of the Declaration of Helsinki. The research data were collected face-to-face between 26.04.2018 and 31.04.2018. The data were collected through the "Form for Measuring the Level of Knowledge on Pain Management in Intensive Care Unit-PICU" prepared by the researchers. The data was analyzed using descriptive statistical analyses (frequency, arithmetic mean, standard deviation, percentage). For difference analysis, a t-test was used for two independent variables, and a One-way ANOVA test was used for the analysis of more than two independent variables. The number of participants was 128. It was observed that the students included in the study were between the ages of 20 and 32. The total scores of the PICU ranged between 16 and 57 (form score range 0-60), and the mean score was 46.46 ± 7.428 . It was observed that the difference between the participants' academic achievement and willingness to choose the profession and the total scores of the PICU was statistically significant ($p < 0.05$). The results of the study were similar to the literature, and it was determined that the knowledge level of senior nursing students regarding pain management in intensive care units was not at the desired level. There is a need for strategies, including education and practice, to increase the knowledge level of student nurses about pain management.

Keywords:

Intensive care units, Nursing students, Pain

BACKGROUND

Intensive Care Units (ICU) are units where care is provided to patients with severe and unstable general conditions, requiring advanced technology, knowledge, and skills, and many complex devices are used (Aytop et al., 2021).

Pain is an unpleasant emotional and sensory experience that accompanies or is caused by actual or potential tissue damage (Deldar et al., 2018). Pain refers to the totality of all experiences that the patient states to exist (Hysten et al., 2020).

Pain is one of the most common complications in the ICU. Many factors, such as frequent use of invasive devices, dressing changes, positioning, aspiration, and immobility, lead to pain in the ICU (Gill et al., 2020). It is known that 40-77% of patients receiving treatment in the ICU experience pain (Deldar et al., 2018). In addition, studies have shown that 71% of patients remember their pain experiences after they recover and are discharged from the ICU (Gill et al., 2020).

Although evaluating the patient's expressions is accepted as the most valid method in pain assessment, it is not always possible for intensive care unit (ICU) patients to communicate their pain levels because they are usually intubated or sedated due to their condition. (Hysten et al., 2020).

Pain management is one of the patients' primary rights. Being the healthcare professional who spends the most time with patients, knowing the patient's past pain experiences and coping methods gives nurses a vital place in pain control compared to other healthcare team members. For the patient to receive complete care, nurses with great importance and responsibilities in pain management should be equipped in this field and have sufficient knowledge and practice skills (Çelik et al., 2018). Nurses acquire basic knowledge, attitudes, and skills during nursing education and transform them into professional practices. For this reason, it is crucial to determine the level of knowledge of nursing students about the pain management process before they start their professional life. In this way, it will be possible to identify the students' pain management deficiencies, overcome them during the education process, and make the necessary curriculum arrangements (Hroch et al., 2019).

Many studies evaluate nursing students' knowledge levels regarding pain management. Additionally, numerous studies assess the knowledge levels of nurses concerning pain management, particularly in intensive care patients. However, there is a

need for studies that evaluate nursing students' knowledge levels regarding pain management in ICU. This study was planned to evaluate the knowledge levels of senior nursing students about pain management in intensive care patients.

METHODS

This was a cross-sectional and descriptive study. It was conducted between 26.04.2018 and 31.04.2018 at a nursing school of a private university in Istanbul.

The study population consisted of senior-year students studying at the nursing school (N=143). No sample selection method was used. The study was completed with the individuals who met the inclusion criteria and agreed to participate (n=128). The inclusion criteria were determined as being 18 years or older, being a senior nursing student at the time of the study, and agreeing to participate. The exclusion criteria were determined for individuals who chose not to participate.

The data were collected using the "Form for Measuring the Level of Knowledge about Pain Management in Intensive Care Unit- PICU" prepared by the researchers in light of the relevant literature (Çelik, 2016; Erden, 2015; Sapulu Alakan et al., 2017; Yilmaz & Atay, 2014).

The PICU Form consists of two main sections. The first part includes 14 questions to determine the students' sociodemographic characteristics. The second part of the form contains 60 questions with four subheadings: pain, causes of pain, factors affecting pain, and pain assessment and management in intensive care. For each question, "true," "false," and "don't know" options were presented, and students were asked to mark only one of them. When scoring the form, each question was assigned 1 point. The score range of the form is between 0-60. It is accepted that the higher the score, the higher the student's knowledge level. Data were collected using a questionnaire in the classroom environment.

Data analyses were performed using the IBM Statistical Package for Social Sciences (IBM SPSS) program. In the study, the item total score correlation coefficient was calculated. The data was analyzed using descriptive statistical analyses (frequency, arithmetic mean, standard deviation, percentage). For difference analysis, a t-test was used for two independent variables, and a One-way ANOVA test was used for the analysis of more than two independent variables.

Permission was obtained from the Ethical

Committee (date: 20.04.2018, decision number: 2018-03-13) before the data collection to conduct the research. Necessary written permissions were also obtained from the head of the nursing school where the research would be conducted. The students participating in the study were explained that their data would be kept confidential, and an "Informed Consent Form" was filled out. The Declaration of Helsinki was taken as a basis throughout the research.

RESULTS

It was observed that the study participants were between the ages of 20 and 32. It was found that 82% of the students were female, and 96.9% were single. It was observed that 71% of the participants were not working (Table 1).

According to the findings in Table 2, the mean scores of the students' sub-dimensions of the PICU form were determined as "pain" 8.19 ± 1.546 , "causes of pain" 7.98 ± 1.922 , "factors affecting pain" 8.01 ± 1.812 , "pain assessment and management" 22.47 ± 4.463 , respectively. It was determined that the total scores of the PICU form ranged between 16 and 57.

It is seen that most of the participants willingly preferred the profession. There are three missing responses to the question "willingly choosing the profession. The sample size is 128, while for only this question, it has been calculated as 125. When the scores of the PICU were examined, a statistically significant difference was observed between their willing preference for the profession and their academic achievement and the total scores of the PICU ($p < 0.05$) (Table 3).

The questions with the lowest rates of correct answers were determined according to the PICU. Responses indicate that students have pain assessment and management gaps (Table 4).

DISCUSSION

The age, gender, and marital status of the students were not found to be related to the PICU scores. A similar result was obtained in a study in Spain in which the knowledge levels of senior nursing students about pain were evaluated (Zuazua-Rico et al., 2022). Our study is similar to the literature in this aspect.

When the 5 questions with the lowest correct response rates of the students were examined, it was observed that there were questions related to pain assessment and pain management. In addition, when the number of students answering the ques-

tions correctly in the sub-dimensions of the PICU is examined, it is seen that a maximum of 28 of the 30 questions in the "pain assessment and management" section were answered correctly, although there were students who answered all questions completely in the other 3 sections. A study found that the questions to which nursing students gave the least correct answers were related to medication management (Karaman et al., 2019). In a study conducted by Shdaifat in Saudi Arabia in 2020 on pain management of nursing students, it was found that the questions with the most correct answers were related to drug management and administration, and the questions with the least correct answers were related to pain assessment and pharmacologic interventions (Shdaifat, 2020). In another study, pain assessment and opioid analgesics were found to be the subjects that senior nursing students lacked the most knowledge (Okubai et al., 2023). In a study conducted in Jordan, it was observed that students lacked knowledge about the use, duration of action and side effects of analgesic drugs and the clinical pain assessment process (Al-Khawaldeh et al., 2015). When the study results are reviewed, it is observed that our study is compatible with the literature. Within the scope of the undergraduate nursing education program, pain should be addressed with a broad approach, including pain diagnosis, monitoring, care planning for pain, pharmacological and nonpharmacological practices to control pain, and pain assessment (HUÇEP, 2022). In addition, it is stated that the time allocated for pain management should be sufficient, the trainer should be competent, and the theoretical education should be supported with cases with appropriate content (Abd El-Aziz Gadallah et al., 2017).

According to the results of our study, it is observed that there is a significant association between the students' willing preference for the nursing profession and the scores of the PICU. Based on the literature reviewed, no results were found in previous studies examining this variable. However, it is an expected result that preferring the profession willingly has an important role in both academic success and professional success.

Our study result shows that there is a significant association between students' academic achievement and their scores on the PICU. A similar study found that students' grade point averages were related to their knowledge and attitude point averages (Okubai et al., 2023).

In our study, the form is scored in the range of 0-60 points. The student with the highest score

Table 1. Sociodemographic findings of students

Variables	n	%
Age	mean:22.79 ± 1.687 (age range: 20-32)	
Gender	female	105
	male	23
Marital status	married	4
	single	124
Occupational status	yes	37
	no	91

Table 2. Distribution of PICU scores

	Potential distribution	Rerata	±SD	Min	Maks
Pain	0-10	8.19	1.546	4	10
Causes of pain	0-10	7.98	1.922	2	10
Factors affecting pain	0-10	8.01	1.812	0	10
Pain assessment and management	0-30	22.47	4.463	5	28
PICU total score	0-60	46.46	7.428	16	57

Table 3. Comparison of the findings related to the scores of the PICU and the students' education and preference for the profession

	N	Rerata	±SD	Zmwu	p	
PICU total score	Willingly choosing the profession:					
	Yes	87	47.62	6.018	-2.148	0.032
	No	38	43.58	9.562		
PICU total score	Academic success:					
	a. excellent	5	48.60 ^(d)	7.503	9.749	0.021
	b. good	75	47.60 ^(d)	6.282		
	c. fair	44	45.41 ^(d)	8.205		
	d. poor	4	34.00	7.703		

Zmwu: Mann-Whitney U Test

Table 4. The 5 questions with the lowest rate of correct answers

Items	n	%
Monitoring of eye movements is sufficient for pain diagnosis of intubated and sedated patients in intensive care.	55	43
There is no need for pain diagnosis for unconscious intensive care patients.	59	46.1
The most effective method in pain management is nonpharmacologic treatment.	64	50
Blood gas values provide meaningful information in pain monitoring of intensive care unit patients.	69	53.9
Frequent positioning of the unconscious intubated patient causes an increase in pain.	74	57.8

received 57 points. The average score was 46.46. The average score corresponds to 77.4% of all questions. Considering this rate, it is seen that students' level of knowledge about pain management is at a different targeted level. In one study, the average

correct response of the students was 34.1% (Al-Khawaldeh et al., 2015). Upon reviewing the relevant research, similar results are observed (Al-Khalaileh et al., 2013; Erol Ursava? and Karayurt, 2021; Fang et al., 2017; Hroch et al., 2019; Karaman et al., 2019).

When the studies in the literature are examined, studies conducted to evaluate the knowledge levels of student nurses regarding pain management are found, but when the studies evaluating pain management in ICU are examined, it is observed that the focus is on nurses rather than student nurses. It is not an unexpected result that the knowledge levels of student nurses and nurses are different from each other, but when these studies are examined, it is seen that they are in parallel with our study. Studies have found that the knowledge levels of nurses working in the ICU regarding pain management need to be improved (Almutairi et al., 2022; Jamal et al., 2023). In another study, it was observed that 55.1% of the nurses working in the ICU had moderate knowledge of pain management (Aytop et al., 2021).

Many studies evaluate the knowledge levels of nurses and nursing students regarding pain management. However, the literature assessing the knowledge levels of student nurses on pain management in intensive care patients is limited. However, the literature assessing the knowledge levels of student nurses on pain management in intensive care patients is limited. Additionally, identifying the knowledge needs of student nurses and implementing the necessary improvements is crucial for enhancing the quality of life of the patients they will care for after graduation. These two significant outcomes constitute the strengths of the study. This study has limitations. First, the study was conducted in a single private university, and the sample size needed to be more significant to be generalized to the whole population. More studies on the subject are needed. Second, no sampling method was adopted in the study, and a cross-sectional design was employed.

CONCLUSION

It is seen that nursing students have deficiencies in pain management. When the studies are evaluated, similar results are found in all of them. Pain management is an important concept that closely affects the patient's comfort and recovery. For this reason, nurses must be competent in pain management. It is thought that increasing the time allocated to the subject of pain in the vocational education process, emphasizing cases related to pain management in clinical practice, especially in specialized areas such as ICU, and gaining the habit of following scientific publications during the student period will be beneficial in increasing the knowledge level of students about the pain management.

REFERENCES

- Abd El-Aziz Gadallah, M., Mohammed Hassan, A., & Abd El-Hamied Shargawy, S. 2017. Undergraduate nursing students' knowledge and attitude regarding children's pain management in Upper Egypt. *Journal of Nursing Education and Practice*, 7(6), pp.100-107. <https://doi.org/10.5430/jnep.v7n6p100>
- Al-Khalaileh, M., Al-Qadire, M., 2013. Pain management in Jordan: Nursing students' knowledge and attitude. *British Journal of Nursing*, 22(21), pp.1234-1240.
- Al-Khawaldeh, O.A., Al-Hussami, M., Darawad, M., 2013. Knowledge and attitudes regarding pain management among Jordanian nursing students. *Nurse Education Today*, 33(4), pp.339-345. <https://doi.org/10.1016/j.nedt.2013.01.006>
- Almutairi, A.M., Pandaan, I.N., Alsufyani, A.M., Almutiri, D.R., Alhindi, A.A., Alhusseinan, K.S., 2022. Managing patients' pain in the intensive care units. *Saudi Medical Journal*, 43(5), pp.514-521.
- Aytop, S., Kuran, ?, Oral, E., Do?an, F., Karg?n, M., 2021. Yo?un bak?m hem?irelerinin a?r?l? hastada a?r?yla ba? etmede kulland?klar? y?ntemler ve a?r?ya y?nelik bilgi ve davran??lar?. ?n?n? ?niversitesi Sa?l?k Hizmetleri Meslek Y?ksekokulu Dergisi, 9(2), pp.672-683. <https://doi.org/10.33715/inonusaglik.818816>
- Çelik, S., 2016. Yo?un Bak?m Seçilmi? Semptom ve Bulgular?n Y?netimi. In: F. Eti Aslan, N. Olgun (Eds.), A?r?. Ankara: Akademisyen Kitabevi, pp. XX-XX.
- Çelik, S., Ba?, B.K., Korkmaz, Z.N., Kara?ahin, H., Y?ld?r?m, S., 2018. Hem?irelerin a?r? y?netimi hakk?ndaki bilgi ve davran??lar?n belirlenmesi. *Bak?rk?y T?p Dergisi*, 14, pp.17-23.
- Deldar, K., Froutan, R., Ebadi, A., 2018. Challenges faced by nurses in using pain assessment scale in patients unable to communicate: A qualitative study. *BMC Nursing*, 17(11), pp.1-8. <https://doi.org/10.1186/s12912-018-0281-3>
- Erden, S., 2015. Yo?un bak?mda a?r? y?netiminde hem?irenin anahtar rolleri. *Van T?p Dergisi*, 22(4), pp.332-336.
- Erol Ursava?, F., Karayurt, Ö., 2021. The effects of pain management education on knowledge, attitudes, and beliefs in nursing students in Turkey: A quasi-experimental study. *Perspectives in Psychiatric Care*, 57, pp.499-506. <https://doi.org/10.1080/13632476.2021.1988816>

- doi.org/10.1111/ppc.12685
- Fang, L., Xu, Y., Lin, D., Jin, J., Yan, M., 2017. Attitude and intention regarding pain management among Chinese nursing students: A cross-sectional questionnaire survey. *Pain Management Nursing*, 18(4), pp.250-259. <https://doi.org/10.1016/j.pmn.2017.01.001>
- Gill, A.R., Hussain, M., Afzal, M., Gilani, M.A., 2020. Pain assessment using the critical care pain observational tool in intensive care unit: An observational study. *Journal of Nursing and Healthcare*, 5(2), pp.1-8.
- Hroch, J., VanDenKerHof, E.G., Sawhney, M., Sears, N., Gedcke-Kerr, L., 2019. Knowledge and attitudes about pain management among Canadian nursing students. *Pain Management Nursing*, 20, pp.382-389. <https://doi.org/10.1016/j.pmn.2018.12.005>
- HUÇEP, 2022. Nursing National Core Education Program 2022. Retrieved January 10, 2024, from https://www.hemed.org.tr/wp-content/uploads/2023/10/hemsirelik_cekirdek_egitim_programi.pdf
- Hylen, M., Akerman, E., Idvall, E., Alm-Roijer, C., 2020. Patients' experiences of pain in the intensive care: The delicate balance of control. *Journal of Advanced Nursing*, 76, pp.2660-2669. <https://doi.org/10.1111/jan.14503>
- Jamal, K., Alameri, R.A., Alqahtani, F.M., Al Garni, R.S., Alamri, N.A., Elshnawie, H.A., Badawi, S.E.A., Hussien, A.M., 2023. Knowledge and attitudes of critical care nurses regarding pain management in Saudi Arabia. *Medical Archives*, 77(1), pp.49-55. <https://doi.org/10.5455/medarh.2023.77.49-55>
- Karaman, E., Bural Do?ru, B., Y?ld?r?m, Y., 2019. Knowledge and attitudes of nursing students about pain management. *A?r?*, 2, pp.70-78. <https://doi.org/10.5505/agri.2018.10437>
- Shdaifat, E., 2020. Saudi nursing students' pain management knowledge and attitudes. *Nursing Open*, 7, pp.1833-1839. <https://doi.org/10.1002/nop2.570>
- Okubai, T., Fessehaye, S., Gebray, A.Y., Kabsay, D.T., 2023. Final-semester nursing students' knowledge and attitude regarding pain management in a resource-limited setting. *International Journal of Africa Nursing Sciences*, 18, p.100542. <https://doi.org/10.1016/j.ijans.2023.100542>
- ?apulu Alakan, Y., Ünal, E., 2017. Yo?un bak?m hem?ireli?inde a?r? de?erlendirmesi ve a?r? Bilimleri Fakültesi Dergisi, 2(4), pp.12-28.
- Y?lmaz, F., Atay, S., 2014. Hem?irelik ö?rencilerinin klinik a?r? yönetimi. *Hacettepe Üniversitesi Hem?irelik Fakültesi Dergisi*, pp.32-41.
- Zuazua-Rico, D., Mosterio-Diaz, M.P., Collado-Boira, E., Casal-Angulo, M.C., Cobo-Cuenca, A.I., Fernandez-Garrido, J., Lavado-Garcia, J.M., Maestro-Gonzalez, A., 2022. Knowledge about pain in Spanish nursing students. *Pain Management Nursing*, 23, pp.871-877. <https://doi.org/10.1016/j.pmn.2022.03.006>