

ARAŞTIRMA / RESEARCH

Factors Affecting the Knowledge Level and Attitudes of Nurses about Pain Management*Hemşirelerin Ağrı Yönetimi Hakkında Davranışları ve Bilgi Seviyelerini Etkileyen Faktörler*Esra ACAR¹ , Yasemin TOKEM² , Yahya Ayhan ACAR³ , Banu KARAKUS YILMAZ⁴ ¹ Department of Neurology, Tire State Hospital, Izmir² Faculty of Health Science, Department of Nursing, Izmir Katip Çelebi University, Izmir³ Department of Emergency Medicine, Gulhane Training and Research Hospital, Ankara⁴ Department of Emergency Medicine, Hamidiye Sisli Etfal Training and Research Hospital, Istanbul**Geliş tarihi/Received:** 12.09.2020**Kabul tarihi/Accepted:** 02. 02.2021**İletişim/Correspondence:****Yasemin TOKEM**, RN, Prof.Dr.
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Fakültesi Hemşirelik Bölümü, Izmir, Türkiye 35620**E-posta:** yasemin.tokem@ikcu.edu.tr**ORCID:** 0000-0001-9140-2846**Esra ACAR**, RN**ORCID:** 0000-0003-4061-9783**Yahya Ayhan ACAR**, MD**ORCID:** 0000-0002-9572-5738**Banu KARAKUS YILMAZ**, MD**ORCID:** 0000-0002-6661-4967**Öz****Amaç:** Tanımlayıcı tipte planlanan bu çalışmanın amacı; ağrı yönetimi konusunda hemşirelerin davranışları ve bilgi düzeylerini etkileyen faktörlerin belirlenmesidir.**Gereç ve Yöntem:** Çalışmanın popülasyonu bir devlet hastanesinin dahili, cerrahi servisleri ve yoğun bakımlarında çalışan hemşirelerdir. Çalışmaya toplam 79 hemşire dahil edilmiştir. Veriler güncel literatürde bulunan "Hemşire Tanımlayıcı Bilgi Formu", "Hemşirelerin Ağrı Üzerine Bilgi ve Tutum Anketi", "Ağrıya Karşı Müdahale Uygulama Formu" formlarından elde edilen standart bir anket ile toplanmıştır.**Bulgular:** Araştırmaya katılan hemşirelerin %48.1'i 31-40 yaş arasındaydı, %41.8'i ön lisans mezunuydu ve %34.2'sinin 16 yıl ve üzeri mesleki deneyimi vardı. Katılımcıların %59.5'i klinik hemşiresi olarak çalışıyordu ve %67.1'i daha önce ağrı yönetimi hakkında bir eğitim veya kursa katılmamıştı. Doğru yanıt puan ortalaması 4.73± 2.09 idi. Bilgi seviyesi ile yaş, eğitim seviyesi, çalışılan birim ve mesleki deneyim arasında istatistiksel olarak anlamlı bir fark yoktu (p>0.05). Ağrıya karşı en sık yapılan uygulama "nöbet sonrası diğer hemşireleri bilgilendirmek (%86.6)" ve "ağrılı bölgeyi saptamak (%73.1)" olarak belirlenirken, hemşirelerin %48.1'i ağrıyı azaltmak için hiç epidural-intratekal kaviteye epidural kateter ile ilaç uygulamadığını ifade etti.**Sonuç:** Hemşirelerin ağrı yönetimi hakkındaki bilgi seviyelerinin yeterli olmadığı sonucuna ulaşılmıştır. Bilgi seviyesinin yaş, eğitim seviyesi, mesleki deneyim ve ağrı yönetimi açısından alınan önceki eğitimler ile ilişkili olmadığı görülmüştür.**Anahtar Kelimeler:** Ağrı, hemşire, ağrı yönetimi, bilgi, tutum.**Abstract****Objective:** The aim of this descriptive study was to determine the factors affecting the knowledge levels and attitudes of the nurses about the pain management.**Material and Methods:** Study population was nurses which work in medical, surgical and intensive care units of a public hospital. A total of 79 nurses were included in the study. Data were collected with a standardized questionnaire extracted from the current literature called "Nurses' Demographics Form", "Nurses' Knowledge and Attitudes Survey Regarding Pain", and "Applying Interventions Against Pain Form".**Results:** 48.1% of the nurses who participated to the study were between 31-40 years old, 41.8% of them had associate's degree, 34.2% of them had +16 years of occupational experience. 59.5% of the nurses were working as clinic nurses and 67.1% of them had not attended any course/training on pain management. There was no statistically significant association between knowledge level and age, educational degree, working department, and occupational experience (p>0.05). The most common interventions used against to pain were determined as "to inform other nurses after duty (88.6%)" and "to locate the pain (73.1%)". 48.1% of the nurses were stated that they had never administered pharmacological agents to the epidural-intratecal cavity with an epidural catheter to reduce pain.**Conclusions:** It was concluded that the knowledge level of the nurses on pain management was inadequate. It was seen that the knowledge level was not related to age, education level, working experience, and previous education status on pain management.**Keywords:** Pain, nurse, pain management, knowledge, attitude.

1. Introduction

Pain is a complicated condition which is affected by many emotional and behavioral factors including the individual's environment, gender, culture, education, and background, varies between individuals, is subjective and hard to define (1). In 1974, pain was defined as "the unpleasant feeling which is caused or not caused by a certain reason, is associated with all past experiences of the individual" by the "International Association for the Study of Pain" (2). The most important aspect of this definition is the unpleasant feeling of the pain. Studies have demonstrated that the decisions of the nurses about pain management and pain problems are more affected by their own attitudes and misunderstanding about pain rather than defining the current condition of the patient (3). Although the importance of the execution of pain control with the multidisciplinary team approach is known by all and the three key members of the team are the patient, the nurse and the physician; only the patient experiences the pain and puts an effort to relieve it (4). Pain which is not solved or eliminated incapacitates the suffering individual and lowers his/her life quality. Unrelieved pain negatively affects the individual's physical activity, harms social relationships, and increases psychological stress. From an ethical perspective, it has been concluded that leaving an individual in relievable pain is against to human rights. Every individual who suffers from pain has the right to be relieved (5).

Pain management is an integral part of nursing and nurses have responsibilities to effectively manage patient's pain. Effective pain management depends on knowledge, behaviors, attitudes, and clinic decision making capacity of the health care team which provides the pain treatment. In this team, the nurse has an essential role in pain control (6,7). Nurses being vested with sufficient information and experience about pain will allow for developing standard pain control methods. Even though the physicians are the primary practitioners at the beginning of pain control, the nurse team informed about possible side effects and complications during monitoring of the patient will play a crucial role in achieving successful results (8,9).

1.1. Objective

The aim of the present study was to describe the factors affecting the knowledge levels and attitudes of the nurses about the pain management.

2. Material and Methods

2.1. Study population

The study was conducted in a secondary state hospital with 250 bed capacity between September 16th, 2014 and January 16th, 2015. The study population was 80 nurses employed in the medical, surgical, and intensive care units. No sampling was performed in the study. All nurses who were accessible during the study and were willing to fill our questionnaire (one nurse did not completed all the surveys) constituted the study sample (n=79).

2.2. Data collection

In current study "Nurses' Demographics Form", "Nurses' Knowledge and Attitudes Survey Regarding Pain", and "Applying Interventions Against Pain Form" surveys were used.

Nurses' Demographics Form: The demographics data form was prepared by the researchers after the literature search and was comprised of seven questions which included data regarding age, education, department, role, employment year and trainings about pain.

The Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP): This questionnaire was prepared by the researchers based on studies regarding knowledge and attitudes of nurses about painful patients and pain management (10, 11). It comprised of 16 true/false questions. Every correct answer was one point. The survey was evaluated over 16 points in total.

Applying Interventions Against Pain Form: The 18-question form was prepared by the researchers based on their literature search. Assessment was made with the 5-point Likert scale which included "Never, When necessary, Sometimes, Usually, Always" (10, 12, 13).

Data collection tools were applied by using face-to-face interview method. Before data collection, the purpose of the study was explained, and verbal informed consent was obtained from each participant. Data collection was performed in an environment where the interview would not be interrupted.

2.3. Ethical Approval

The ethical approval was obtained from local ethical board and the permission was granted by the related hospital (ethical board decision date and number: 28. 08. 2014/ 203).

2.4. Analysis of data

Study data was analyzed with the Statistical Package for Social Sciences version 15.0 (SPSS Inc., Chicago, IL, United States of America) program. In addition to the descriptive statistical methods (mean, standard deviation), One-way Anova test was used to compare the qualitative data and Student's t-test was used to compare two independent groups. Results were in 95% confidence interval and statistical significance was $p < 0.05$.

3. Results

Seventy-nine nurses were included in the study. Most of the nurses were in 31-40 age group (n=38, 48.1%) and had the associate degree (n=33, 41.8%). In terms of employment period in the profession, most of the nurses had 16 year and longer experience (n=27, 34.2%). Regarding to the roles of the nurses, most of them were service nurses (n=47, 59.5%) (Table 1).

The rate of nurses who had been trained about pain management was 32.9% (n=26) and they received this training from the service training nurse (n=4, 5.1%), in-hospital training (n=16, 20.3%), formal education (n=4, 5.1%), and vocational courses (n=2, 2.5%). Considering their knowledge levels, no difference was detected between those who were educated and not ($p=0.683$). No significant differences was found in the counts of correct answers regarding age, education, employment years, roles, departments, and previous education about pain management ($p= 0.835, 0.351, 0.729, 0.843, 0.426, \text{ and } 0.683$; respectively) (Table 1).

Table 1. Demographics of the Nurses and Distribution of the Correct Answers

Age (years)	n	%	Correct answers	Standard deviation	p	
≤20	4	5.1	4.25	1.25	p=.835	
21-30	20	25.3	4.50	2.25		
31-40	38	48.1	4.94	2.20		
41-50	17	21.5	4.64	1.90		
Education						
Vocational School of Health	22	27.8	4.13	1.80	p=.351	
Associate degree	33	41.8	5.18	2.09		
Bachelor's degree	18	22.8	4.66	2.40		
Post-graduate	6	7.6	4.66	2.06		
Employment years						
≤5	24	30.4	4.41	2.01	p=.729	
6-10	8	10.1	4.37	2.26		
11-15	20	25.3	5.00	2.29		
≥16	27	34.2	4.92	2.03		
Role						
Supervisor nurse	10	12.7	5.00	1.94	p=.843	
Service nurse	47	59.5	4.76	2.06		
Critical care nurse	22	27.8	4.54	2.30		
Department						
Critical care	19	24.0	4.63	2.11	p=.426	
Orthopedics	9	11.4	5.44	1.94		
Chest Diseases	6	7.6	4.50	1.97		
Obstetrics and Gynecology	6	7.6	4.83	2.13		
Otolaryngology	6	7.6	5.33	2.16		
/ Ophthalmology	4	6.1	5.75	2.98		
Cardiology/Physical therapy and rehabilitation	5	6.3	3.60	2.07		
Internal medicine	7	8.9	5.85	1.46		
Emergency	5	6.3	5.00	3.08		
General surgery	6	7.6	3.50	1.37		
Urology/ Neurosurgery	6	7.6	3.50	1.87		
Previous education about pain management						
No	53	67.1	4.60	2.14		p=.683
Yes	26	32.9	4.81	2.11		

None of the nurses scored ≥11 over 16 in the NKASRP survey. The mean correct answer count was 4.73±2.09 (min: 1, max: 10). Among the questions which were answered correctly at the highest rate, the statement "Respiratory depression rarely occurs in patients who have been taking opioid for a long time (months)" and it was correctly answered by 82.3% of the nurses (n=65). The second most accurately answered question, the statement "The patient should be encouraged to endure the pain to the extent possible before applying to a pain relief method" was correctly answered by 63.3% (n=50) of the nurses. (Table 2).

The statements "Changes observed in signs of life are important indicators in identifying a patient is in severe

pain" and "Opioids should not be administered for pain in patients with a history of drug addiction because these patients are at a high risk of recurrent addiction" were correctly answered by 5.1% (n=4) of the nurses and these two statements were the least accurately answered statements (Table 2).

Table 2. Distribution of the answers of the Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP)

Item	Content (True/False)	Correct answers	
		No	%
1	Changes observed in the signs of life are important indicators in identifying a patient is in severe pain. (F)	4	5.1
2	The severity of pain should be evaluated by the health care staff, not by the patient. (F)	30	38.0
3	A patient can fall asleep despite medium or severe pain. (T)	14	17.7
4	If the patient's attention can be drawn to something else, it means the patient does not have a severe pain as he states. (F)	23	29.1
5	The patient should be encouraged to endure the pain to the extent possible before applying to a pain relief method. (F)	50	63.3
6	If a patient is relieved with placebo (sterile water injection), the pain is not real. (F)	15	19.0
7	As the neurological system is not fully developed in children younger than 2 years old, the pain sensitivity is low and the pain experience is limited. (F)	20	25.3
8	Aspirin and other NSAID (Non-Steroidal Anti-Inflammatory) agents are not efficient analgesics for chronic pain caused by metastasis. (F)	15	19.0
9	Non-pharmacological interventions (e.g.: hot application, music etc.) are highly efficient for medium pain but not efficient for severe pain. (F)	7	8.0
10	Respiratory depression rarely occurs in patients who have been taking opioid for a long time (months). (T)	65	82.3
11	A single analgesic agent should be used rather than combined drug groups (e.g. opioid+NSAID) in a painful patient. (F)	25	31.6
12	Sedative drugs are efficient in relieving pain. (F)	5	6.3
13	Opioids should not be administered to patients with a history of drug addiction because these patients are at a high risk of recurring addiction. (F)	4	5.1
14	The pain stated by children younger than 11 years old should not be relied upon, nurses should trust in parents about the severity of pain experienced by the child. (F)	39	49.4
15	A patient should be recommended to use non-pharmacological methods solely, not in combination with pain drugs. (F)	36	45.6
16	For efficiency, hot and cold application should only be rendered to the painful area. (F)	22	27.8

"To inform other nurses after duty (88.6%)" and "to locate the pain (73.1%)" were the most common interventions applied by nurses for pain management. "I administer pharmacological agents to the epidural-intrathecal cavity with an epidural catheter to reduce or eliminate pain" item was the least chosen item among the pain management interventions. The distribution of the responses to "Distribution of Answers of the Nurses to the Items in the Implementation of Interventions for Pain Survey" was detailed in Table 3.

Table 3. Distribution of Answers of the Nurses to the Items in the Implementation of Interventions for Pain Survey

Item	Content (n= frequency) *	Never		As required		Sometimes		Usually		Always	
		n	%	n	%	n	%	n	%	n	%
1	I locate the pain (n=78)	-	-	6	7.7	1	1.3	14	17.9	57	73.1
2	I determine the frequency (n=78)	-	-	5	6.4	3	3.8	22	28.2	48	61.5
3	I measure the severity (n=76)	1	1.3	8	10.5	5	6.6	23	30.3	39	51.3
4	I question the type of pain (burning, stinging, compressing etc.) (n=78)	-	-	3	3.8	1	1.3	20	25.6	54	69.2
5	I question past experiences of pain (n=78)	-	-	4	5.1	11	14.1	32	41.0	31	39.7
6	I position the patient accurately (n=79)	-	-	8	10.1	6	7.6	27	34.2	38	48.1
7	I tidy up the surroundings (n=76)	2	2.6	10	13.2	12	15.8	28	36.8	24	31.6
8	I apply hot/cold to the pain area (n=78)	2	2.6	26	33.3	24	30.8	16	20.5	10	12.8
9	I give a massage to boost circulation, comfort and relieve the pain (n=78)	7	9.0	28	35.9	21	26.9	15	19.2	7	9.0
10	I diminish focusing on the pain with various practices (n=78)	2	2.6	17	21.8	12	15.4	32	41.0	15	19.2
11	I administer pharmacological agents to the epidural-intrathecal cavity with an epidural catheter to reduce or eliminate pain (n=77)	37	48.1	22	28.6	5	6.5	8	10.4	5	6.5
12	I prepare and administer oral drugs and monitor the patient's response (n=78)	-	-	16	20.5	3	3.8	31	39.7	28	35.9
13	I follow the parenteral route (intradermal, intramuscular, intravenous) and prepare and administer drugs (n=78)	2	2.6	27	34.6	2	2.6	22	28.2	25	32.1
14	I prepare and administer topical drugs (mucosa membrane and skin) (n=76)	4	5.3	28	36.8	11	14.5	17	22.4	16	21.1
15	I inform the patient about the use and effects of the drugs (n=79)	-	-	10	12.7	4	5.1	28	35.4	37	46.8
16	I collect data about the patient and keep clinic records (n=78)	1	1.3	4	5.1	3	3.8	18	23.1	52	66.7
17	I ensure transfer of data in order to the nurse's patient care plan and documentation system (n=79)	1	1.3	5	6.3	2	2.5	17	21.5	54	68.4
18	I inform my colleague about the interventions I rendered at the end of my shift (n=79)	-	-	1	1.3	-	-	8	10.1	70	88.6

*: The n value after the content in parentheses is the number of nurses who answered.

4. Discussion

In this descriptive study which aimed to evaluate the knowledge levels of the nurses in a secondary health organization about pain management and their interventions against pain, it was determined that the nurses' knowledge levels about pain management and the interventions performed to eliminate the pain were not at a sufficient level.

No statistically significant differences were observed in the nurses' knowledge scores about pain when the nurses were grouped in different ages and education levels, which was compliant with the literature (10, 11).

Most of the nurses (67.1%) in the study declared that they did not receive any training about pain management. Most of those who had received education (20.3%) stated that the education was provided as the in-hospital training. No study was found in the literature which evaluated whether nurses had received any training regarding pain management. Tse et al. demonstrated an eight-week pain management program was important for improving the care quality of adult patients (14). Latcman et al. suggested that teaching pain management to university students was necessary to develop specific strategies (15). Additionally,

it was reported that providing pain training to the patients hospitalized with cancer diagnosis reduced the severity of pain in Turkey (16). It was concluded that training about pain management was insufficient, and it was not discussed in previous studies, therefore, it is necessary to include training at proper standards in nurses' undergraduate education and on the job training and these trainings may improve the quality of care.

In our study, the average score of nurses regarding knowledge about pain was 4.73 over 16 points. In the national literature, this rate was reported to be 8.65 in the study of Ozer et al., 10.76 in the study of Demir et al. and 15.85 in the study Karaman et al. (10,12,17). The scores in our study were lower than the national literature. On the other hand; the average scores of knowledge about pain of our study were consistent with the findings (mean 4.95) of Çelik et al. (18). The 2006-2008 versions of the scale were used in the international literature. Our study intended to use a scale which was used in the national literature and was adapted to our country and compare it to a similar sample.

Eid et al. in their study in Saudi Arabia reported no statistical difference between the accurate answers to the NKASRP between the nurses who attended and did not

attend a pain management class in the last two years (19). Duke et al. investigated nursing students from different grades and reported the accurate answers to NKASRP increased as their grades increased, however, this increase was very small (13). Raimi-Madiseh et.al. also evaluated the nursing faculty students in Iran and reported lower grade students scored higher than those who were about to graduate in their study (5). nursing students' attitudes and knowledge levels about pain management demonstrated that pain knowledge level and pain management attitudes of nursing students were insufficient by a review of 11 studies by Chow et al. (12). Low success levels in our study are parallel to national and international literatures. The fact that education level did not improve knowledge level about pain was interpreted as pain management strategies in national nursing student were insufficient. On the other hand, this may also be interpreted as NKASRP was not efficient, although it commonly employed by many studies in the literature.

5. Conclusion

It is concluded that nurses do not have sufficient knowledge about pain management. It is recommended to plan necessary training in order to eliminate deficiencies in knowledge levels and attitudes of nurses.

6. Contribution to the field

This study demonstrates that knowledge levels of the nurses work at a secondary state hospital are not sufficient for the pain management independently from age and experience. Continuing education programs should be conducted for nurses regarding pain and its management.

Conflict of Interest

This article did not receive any financial fund. There is no conflict of interest regarding any person and/or institution.

Authorship Contribution

Concept: EA, YT; **Design:** EA, YT; **Supervision:** YT; **Funding:** - ; **Materials:-** ; **Data Collection/ Processing:** EA, YT, YA; **Analysis/Interpretation:** EA, YT, YA, BKY; **Literature Review:** EA, YA, BKY; **Manuscript Writing:** EA, YT, YA, BKY; **Critical Review:** YT, YA, BKY

Kaynaklar

1. Richards J, Hubbert AO. Experiences of expert nurses in caring for patients with postoperative pain. *Pain Manag Nurs* 2007;8(1):17-24. doi: 10.1016/j.pmn.2006.12.003
2. Merskey H, Bogduk N. IASP Taxonomy. [Internet]. [cited 2017 Jan 20] Available from: <http://www.iasp-pain.org/Education/Content.aspx?ItemNumber=1698#Pain>.
3. McMillan SC, Tittle M, Hagan S, Laughlin J, Tabler RE. Knowledge and attitudes of nurses in veterans hospitals about pain management in patients with cancer. *Oncol Nurs Forum* 2000 27(9):1415-1423.
4. Aslan FE, Bahadır A. Ağrı kontrol gerçeği: hemşirelerin ağrının doğası, değerlendirilmesi ve geçirilmesine ilişkin bilgi ve inançları. *Ağrı* 2005;17(2): 44-51.
5. Rahimi-Madiseh M, Tavakol M, Dennick RA. Quantitative study of Iranian nursing students' knowledge and attitudes towards pain: implication for education. *Int J Nurs Pract* 2010;16(5):478-483. doi: 10.1111/j.1440-172X.2010.01872.x
6. Ferrel BR, McCaffery M, Grant M. Clinical decision making and pain. *Cancer Nursing* 1991;14(6): 289-297.

7. Karamjeet K. Knowledge and attitude regarding pain management among staff nurses. *Nursing&Care Open Access Journal* 2017;2(1):5-7. Doi:10.15406/ncoaj.2017.02.00024.

8. Çöçelli LP, Bacaksız BD, Ovayolu N. Ağrı tedavisinde hemşirenin rolü. *Gaziantep Tıp Dergisi* 2008;14:53-58.

9. Salameh B. Nurses' knowledge regarding pain management in high acuity care units: A case study of Palestine. *International Journal of Health Science* 2018;12(3):51-57.

10. Dikmen YD, Usta YY, Ince Y, Gel KT, Kaya MA. Determining of nurses' knowledge, behaviour and clinic decision making regarding pain management. *Journal of Contemporary Medicine*, 2012;2(2):162-172.

11. Ozer S, Akyurek B, Basbakkal Z. Hemşirelerin ağrı ile ilgili bilgi, davranış ve klinik karar verme yeteneklerinin incelenmesi. *Ağrı* 2006;18(4):36-43.

12. Chow KM, Chan JCY. Pain knowledge and attitudes of nursing students: A literature review. *Nurse Educ Today* 2014;35(2):366-372 doi: 10.1016/j.nedt.2014.10.019

13. Duke G, Haas BK, Yarbrough S, Northam S. Pain management knowledge and attitudes of baccalaureate nursing students and faculty. *Pain Manag Nurs*, 2013;14(1):11-19. doi: 10.1016/j.pmn.2010.03.006

14. Tse MM, Ho SS. Enhancing knowledge and attitudes in pain management: a pain management education program for nursing home staff. *Pain Manag Nurs* 2014;15(1):2-11. doi: 10.1016/j.pmn.2012.03.009

15. Latchman J. Improving pain management at the nursing education level: evaluating knowledge and attitudes. *J Adv Pract Oncol* 2014;5(1):10-16.

16. Yıldırım YK, Fadiloğlu Ç, Uyar M. Effects of pain education program on pain intensity, pain treatment satisfaction, and barriers in Turkish cancer patients. *Pain Manag Nurs* 2009; 10(4):220-228. doi: 10.1016/j.pmn.2007.09.004

17. Karaman E, Vural Doğru B, Yıldırım Y. Knowledge and attitudes of nursing students about pain management. *Agri* 2019;31(2):70-78.

18. Çelik S, Baş BK, Korkmaz ZN, Karaşahin H, Yıldırım S. Hemşirelerin ağrı yönetimi hakkındaki bilgi ve davranışlarının belirlenmesi. *Bakırköy Tıp Dergisi* 2018;14:17-23.

19. Eid T, Manias E, Bucknall T, Almazroo A. Nurses' knowledge and attitudes regarding pain in saudi arabia. *Pain Manag Nurs*, 2014;15(4):e25-36. doi: 10.1016/j.pmn.2014.05.014