Российский журнал боли
2026, т. 24, №1, с. 12–21
https://doi.org/10.17116/pain20262401112

Russian Journal of Pain
2026, vol. 24, no. 1, pp. 12–21
https://doi.org/10.17116/pain20262401112

Чувствуют ли медсестры себя подготовленными? Исследование обезболивания в Восточном регионе Саудовской Аравии

© Mahmoud Abdel Hameed Shahin[1], Sharell Lewis[2], Hanan Al Majed[2], Latha S. Kannan[2], Shainy Daniel[2], Ruby Abraham Anna[2], Suad Ahmed Abdullatif[2], Gufran Ibrahem Allashit[2], Nisha Sivapalan[3], Hanadi Husni Alabed[4], Irfan Ali Bacha[5], Eman M. Gaber Hassan[2, 6]

[1]Кафедра сестринского дела, Военно-медицинский колледж им. принца Султана, Дахран, Восточный регион, Саудовская Аравия;
[2]Кафедра сестринского дела, Медицинский колледж Мохаммеда Аль-Мана, Даммам, Восточный регион, Саудовская Аравия;
[3]Отделение медико-хирургического сестринского дела, Манипальский колледж сестринского дела, Манипальская академия высшего образования, Манипал, Карнатака, Индия;
[4]Швейцарская бизнес-школа, больница Дар Афия, Даммам, Саудовская Аравия;
[5]Национальная больница Кассим, Бурайда, Саудовская Аравия;
[6]Кафедра хирургического сестринского дела, факультет сестринского дела, Каирский университет, Каир, Египет

РЕЗЮМЕ

Цель исследования. Изучить знания и отношение медсестер к купированию боли в больницах Восточного региона Саудовской Аравии.

Материал и методы. Проведено описательное поперечное исследование среди 389 медсестер из трех больниц в июне и июле 2024 г. с использованием валидированного опросника, разработанного исследователями на основе соответствующей литературы. Опросник оценивал социально-демографические данные медсестер, их знания и отношение к купированию боли. Надежность и осуществимость были подтверждены в ходе пилотного тестирования, было получено этическое одобрение. Данные были проанализированы с помощью SPSS v. 25.

Результаты. Хотя большинство медсестер прошли некоторую подготовку по обезболиванию, существовали значительные пробелы в знаниях (средний балл 16,22/30). Отношение в целом было положительным (средний балл 3,76 по 5-балльной шкале Ликерта), при этом опыт и возраст положительно коррелировали со знаниями. Медсестры отделения диализа почек имели самый высокий средний балл знаний, в то время как медицинские и хирургические медсестры характеризовались менее квалифицированным подходом.

Вывод. Несмотря на некоторую подготовку, многим медсестрам не хватает достаточных знаний в области обезболивания. Необходимы расширенные образовательные программы, особенно для менее опытных сотрудников и тех, кто работает в соответствующих отделениях.

Ключевые слова: *медсестры, знания, отношение, обезболивание, Саудовская Аравия.*

КАК ЦИТИРОВАТЬ:
Mahmoud Abdel Hameed Shahin, Sharell Lewis, Hanan Al Majed, Latha S. Kannan, Shainy Daniel, Ruby Abraham Anna, Suad Ahmed Abdullatif, Gufran Ibrahem Allashit, Nisha Sivapalan, Hanadi Husni Alabed, Irfan Ali Bacha, Eman M. Gaber Hassan. Чувствуют ли медсестры себя подготовленными? Исследование обезболивания в Восточном регионе Саудовской Аравии. *Российский журнал боли*. 2026;24(1):12–21. (In Engl.). https://doi.org/10.17116/pain20262401112

Do nurses feel equipped? A study on pain management in Eastern Saudi Arabia

© Mahmoud Abdel Hameed Shahin[1], Sharell Lewis[2], Hanan Al Majed[2], Latha S. Kannan[2], Shainy Daniel[2], Ruby Abraham Anna[2], Suad Ahmed Abdullatif[2], Gufran Ibrahem Allashit[2], Nisha Sivapalan[3], Hanadi Husni Alabed[4], Irfan Ali Bacha[5], Eman M. Gaber Hassan[2, 6]

[1]Nursing Department, Prince Sultan Military College of Health Sciences, Dhahran, Eastern region, Saudi Arabia;
[2]Nursing Department, Mohammed Al-Mana College for Medical Sciences, Dammam, Eastern region, Saudi Arabia;
[3]Department of Medical Surgical Nursing, Manipal College of Nursing, Manipal Academy of Higher Education, Manipal, Karnataka, India;
[4]SBS Swiss Business School, Dar Afia Hospital, Dammam, Saudi Arabia;
[5]Qassim National Hospital, Buraydah, Saudi Arabia;
[6]Medical Surgical Nursing Department, Faculty of Nursing, Cairo University, Cairo City, Egypt

ABSTRACT

Objective. To explore nurses' knowledge and attitudes towards pain management in hospitals in Saudi Arabia's Eastern region.

Material and methods. A descriptive cross-sectional study was conducted among 389 nurses across three hospitals in June and July 2024 using a validated questionnaire. The questionnaire assessed nurses' sociodemographic information, knowledge, and attitudes toward pain management. Reliability and feasibility were confirmed through pilot testing, and ethical approval was obtained. Data were analyzed using SPSS v. 25.

Results. While most nurses had some pain management training, significant knowledge gaps existed (mean score 16.22/30). Attitudes were generally positive (mean score 3.76 on a 5-point Likert scale), with experience and age positively correlating with knowledge. Renal dialysis unit nurses had the highest knowledge mean score, while medical and surgical nurses held the least favorable views.

Conclusion. Despite some training, many nurses lack sufficient knowledge of pain management. Enhanced education programs are needed, particularly for less experienced staff and those in high-demand departments.

Keywords: *nurses, knowledge, attitudes, pain management, Saudi Arabia.*

INFORMATION ABOUT THE AUTHORS:

Mahmoud Abdel Hameed Shahin — https://orcid.org/0000-0001-5145-3702; mshahein@psmchs.edu.sa
Sharell Lewis — https://orcid.org/0000-0003-4997-2639; sharelll@machs.edu.sa
Hanan Al Majed — https://orcid.org/0000-0002-9499-3554; hanana@machs.edu.sa
Latha S. Kannan — https://orcid.org/0000-0002-1002-8459; lathak@machs.edu.sa
Shainy Daniel — https://orcid.org/0009-0006-9135-0090; shainyc@machs.edu.sa
Ruby Abraham Anna — https://orcid.org/0009-0003-7271-079X; rubya@machs.edu.sa
Suad Ahmed Abdullatif — https://orcid.org/0009-0009-4353-0144; suada@machs.edu.sa
Gufran Ibrahem Allashit — https://orcid.org/0009-0002-3868-9862; gufrani@machs.edu.sa
Nisha Sivapalan — https://orcid.org/0000-0001-9627-7300; nisham@machs.edu.sa
Hanadi Husni Alabed — https://orcid.org/0000-0002-4656-6179; hanadi81usa@yahoo.com
Irfan Ali Bacha — https://orcid.org/0009-0003-4253-3729; irfanbacha23@yahoo.com
Eman M. Gaber Hassan — https://orcid.org/0000-0002-2216-4327; emanm@machs.edu.sa
Corresponding author: Mahmoud Abdel Hameed Shahin — tel.: +9(665)07453387; e-mail: mshahein@psmchs.edu.sa, mahmood81us@yahoo.com

TO CITE THIS ARTICLE: To cite this article:
Mahmoud Abdel Hameed Shahin, Sharell Lewis, Hanan Al Majed, Latha S. Kannan, Shainy Daniel, Ruby Abraham Anna, Suad Ahmed Abdullatif, Gufran Ibrahem Allashit, Nisha Sivapalan, Hanadi Husni Alabed, Irfan Ali Bacha, Eman M. Gaber Hassan. Do nurses feel equipped? A study on pain management in Eastern Saudi Arabia. *Russian Journal of Pain*. 2026;24(1):12–21.
https://doi.org/10.17116/pain20262401112

Introduction

Pain is one of the most significant problems for patients in hospitals, particularly those suffering from injury or recovering from surgery [1]. The presence of pain following surgery has implications for optimal recovery. Pain management of hospital patients is a collaborative effort of health care workers, especially nurses [2], who personally suffer various levels of musculoskeletal and low back pain due to their physically demanding profession [3].

Pain is a universal human experience, but it should not be a defining aspect of a hospital stay. Fortunately, effective pain management has become a cornerstone of quality care in hospitals, leading to improved patient outcomes and experiences. This focus on pain control benefits both patients and the health care system as a whole [4].

Pain assessment and reassessment are components of the nurse's role. Nurses' knowledge of and attitude toward pain management affect their ability to manage pain during the patient's hospitalization period [5]. Pain management is the alleviation of pain to a level that is acceptable to the patient [6]. Effective pain management is an important aspect of nursing care to promote healing, prevent complications, and reduce patient suffering [7].

The nurses are crucial in the assessment, recognition, and management of pain. Nurses must understand that pain management plays a vital role in speeding up patient recovery [8]. Given this important role, a study must be conducted to evaluate the knowledge and attitudes of hospital nurses in order to identify any lack of knowledge and to improve the nurses' knowledge and attitude toward pain management using a designed instructional program.

Significance of the study

A recent Saudi study found that nurses in Saudi hospitals had poorer pain-related knowledge than nurses in other regions and globally. The authors emphasized the need to incorporate pain management training into both ongoing education and nursing degree programs [2]. Another Saudi study revealed that clinical experience exerted the strongest influence on nurses' pain management knowledge, particularly regarding analgesic medications. Post-licensure professional education demonstrated the second greatest impact, whereas foundational nursing education showed the least significant effect [9].

The results of this study have the potential to address existing knowledge gaps and serve as a foundation for quality improvement initiatives, as well as encourage further research aimed at enhancing nurses' roles in the pain management of inpatients in the Eastern region of Saudi Arabia. The primary objective of the study was to investigate nurses' knowledge and attitudes regarding pain management in selected hospitals.

Aim of the study

This study aimed to assess nurses' knowledge and attitudes toward pain management and examine the relationship between nurses' knowledge and their attitudes toward pain management in selected hospitals in Saudi Arabia's Eastern region.

Material and methods

Study design

The researchers employed a descriptive, cross-sectional correlational research design for this study, gathering data at a specific point in time between June and July 2024, without any follow-up.

Study sample

The target population of the study was the nursing staff working at all departments of three selected hospitals in the Eastern region of Saudi Arabia. The minimum number of nurses required to participate in the study was 297, based on the proportional sample size estimation by OpenEpi free software (total nurses n=1,300, confidence level = 95%, confidence limit = 5%) [10]. However, 389 nurses from all departments of the selected hospitals were ultimately included in the study with a response rate of 30%.

The convenience sampling technique was used for the sampling procedure to save time, effort, and cost for the research study. Nurses of different experience levels and genders were recruited from different departments, and only participants who were willing to participate in the study were included.

Setting

The research was conducted in three selected hospitals of Al-Mana General Hospitals in the Eastern region of Saudi Arabia (Dammam, AL Khobar, and Al Jubail hospitals).

Study tool

To measure the knowledge and attitudes of nursing staff at the hospitals, the researchers constructed a questionnaire based on recent literature and including many references and websites. One of the essential references used to construct the data collection tool was the KnowPain-50 tool [11]. The tool was used in English as its original reference because the target population included nurses at hospitals, and they all had good English communication skills.

The study tool comprised three parts. Part I collected the sociodemographic data, which contained 10 items. Part II assessed the nurses' knowledge and consisted of 20 multiple-choice questions and 10 true/false questions. These questions were designed to measure the nurses' knowledge levels about pain management and were graded out of 30. Part III assessed the nurses' attitudes using 10 items measured on a 5-point Likert scale (1 for "Strongly Disagree" and 5 for "Strongly Agree"), with items 6, 7, 8, and 10 stated negatively, so the scores were reversed. The higher the attitude score on the scale, the more positive the attitudes of the nurses toward pain management.

Validity and reliability of the tool

The content validity of the study questionnaire was assessed by sending the tool to three pain management experts in clinical and academic settings. The questionnaire was also assessed for test-retest reliability before data collection and was deemed to be reliable (Cronbach's α coefficient was .83). Moreover, a pilot of the survey was done to confirm the feasibility and clarity of the data collection tool and to ensure that the questionnaire was self-explanatory to nursing staff; however, these responses were excluded from the results report.

Procedures and research ethics

Approval to conduct the study was obtained from the institutional review board of Mohammed Al-Mana College for Medical Sciences in Dammam, Saudi Arabia before data collection (Ethical approval No. SR/RP/97 in meeting No. 86 on March 16, 2024). A facilitation letter was sent to the nursing management of the hospitals involved to ensure proper coordination. The survey was disseminated personally and electronically via work emails to all nursing staff during June and July 2024. After obtaining the necessary sample size, data collection was halted, and the analysis phase began.

Participation in the study was completely voluntary, and nurses retained the right to withdraw at any time without consequences. All collected data remained confidential and were password-protected on the researcher's computer. Participants provided electronic consent to participate in the study before completing the questionnaire. The study strictly adhered to all ethical guidelines for research on human subjects in accordance with the Declaration of Helsinki.

Statistical analysis

Data analysis was conducted using both descriptive and inferential statistical methods. Descriptive analysis employed mean, standard deviation, frequency, and percentages, while inferential analysis utilized correlation coefficients and ANOVA tests. The p-value was considered significant at less than 0.05. All statistical analyses were performed using version 25 of the Statistical Package for the Social Sciences (SPSS). No data were missing because all questions were mandatory.

Results

The current study aimed to explore the nurses' knowledge and attitudes toward pain management at selected hospitals in the Eastern region of Saudi Arabia. The study included 389 nurses from three private tertiary hospitals who work in various units and departments. **Table 1** presents the sociodemographic characteristics of the participants. The majority of the participants were female (74.0%), whereas 26.0% were male. Most were married (61.4%), whereas 35.0% were single and 3.6% were widowed or divorced.

In terms of education level, around two-thirds (64.8%) had a bachelor's degree in nursing, whereas the remaining 35.2% had a diploma degree in nursing. Looking at the nurses' distribution across departments, the largest groups worked in labor and delivery (26.0%) and critical care units (21.6%). Smaller percent-

Table 1. **Participant characteristics (*n*=389)**

Data	Variables		*n*	%
Sociodemographic data	Gender	Male	101	26.00
		Female	288	74.00
	Marital Status	Single	136	35.00
		Married	239	61.40
		Widowed/Divorced	14	3.60
	Educational Level	Diploma Degree in Nursing	137	35.20
		Bachelor's Degree in Nursing	252	64.80
	Department	Cath Lab	40	10.30
		Critical Care Unit (bedside ICU, CCU, PICU, NICU, etc.)	84	21.60
		Emergency Department	32	8.20
		Floor (Medical/Surgical)	46	11.80
		Labor and Delivery	101	26.00
		Long-Term Care Unit	5	1.30
		Outpatient Clinic	41	10.50
		Pain Management Unit	5	1.30
		Pediatric Ward	25	6.40
		Renal Dialysis Unit	10	2.60
	Hospital	AGH Jubail	87	22.40
		AGH Dammam	203	52.20
		AGH Khobar	99	25.40
	Age (years)	*Mean*±*SD*	34.83±7.09	
	Experience (years)	*Mean*±*SD*	9.51±6.827	
Pain management-related information	Do you have a pain management unit in your hospital?	No	0	0.00
		Yes	389	100.00
	Did you attend any educational activities regarding pain assessment and management?	No	43	11.10
		Yes	346	89.00
	If yes, how many activities did you attend during your professional work?	I did not attend any activity	43	11.10
		1 activity	116	29.80
		2 activities	94	24.20
		3 activities	77	19.80
		4 activities	8	2.10
		5 activities	5	1.30
		More than 5 activities	46	11.80
	Do you think that you receive enough continuing education about pain assessment and management in your hospital?	No	98	25.20
		Yes	291	74.80

ages were employed in the emergency department (8.2%); pediatric ward (6.4%); and other specialized units like the cath lab, outpatient clinic, and renal dialysis. The participants were drawn from three different hospitals: the largest group (52.2%) was from Al-Mana Dammam, followed by Al-Mana Khobar (25.4%) and Al-Mana Jubail (22.4%).

The participants had a wide range of ages and years of experience in the nursing profession. The ages ranged from 23 to 53 years old, with a mean age of 34.8 years and a standard deviation of 7.09 years. Moreover, nurses' experience ranged from 1 year to 28 years in the nursing profession, with a mean of 9.5 years and a standard deviation of 6.83 years. This distribution indicates a mixture of both relatively new nurses as well as those with substantial experience in the field. The average participant was in their mid-30s with around 9-10 years of nursing experience, although younger and more junior nurses were included in the sample as well.

Table 1 also shows that all (100%) participants worked in hospitals with a dedicated pain management unit. This indicates the hospitals represented in the study were well-equipped to address patients' pain management needs. The majority (88.9%) of participants reported attending at least one educational activity related to pain assessment and management during their professional work. However, a notable minority (11.1%) did not attend any such educational sessions. Looking closer at the frequency of attendance, the most common number of educational activities attended was one activity (29.8% of participants), followed by two activities (24.1%) and three activities (19.7%). A smaller group (11.8%) attended more than five activities.

When asked directly if they received enough ongoing continuing education or training about pain assessment and management, 74.8% felt they did, whereas 25.2% believed they did not receive enough of this critical training. Overall, the data suggest that most nurses had some exposure to pain management education, but a sizable minority lacked sufficient training and development in this important clinical domain. Although the hospitals appeared to have the infrastructure to provide this training, participation could be enhanced to ensure all nurses feel adequately prepared to manage patient pain effectively.

Table 2 presents a series of 30 knowledge assessment items related to various aspects of pain management (20 multiple-choice and 10 true/false questions). Each item was scored on a scale from 0 (incorrect answer) to 1 (correct answer), with a higher score indicating greater knowledge. Overall, the mean total knowledge score across all 30 items was 16.22, with 54.1% of the participants giving correct answers, suggesting there were significant gaps in the nurses' pain management knowledge.

Examining the individual items, the lowest-scoring items (mean scores below .25) indicate areas where nurses lacked understanding. These included the need to proactively administer analgesia rather than waiting for the patient to complain (.11), distinguishing between acute and chronic cancer pain (.15), using vital signs to assess pain severity (.18), the primary reason for routinely assessing patient pain (.20), and the latest update to the World Health Organization (WHO) pain management guidelines (.25).

At the higher end, nurses demonstrated stronger knowledge (mean scores above .70) on topics such as choosing the best pain scale for a seven-year-old with severe abdominal pain (.71), selecting the initial analgesic drug for a patient with severe pain from a fracture (.71), taking the proper actions before administering morphine for postoperative pain (.73), and instructing a patient on managing NSAID-related stomach upset (.76).

Table 2. **Nurses' pain management knowledge**

Pain Management Knowledge Scale	Incorrect answers	Correct answers	Mean	Standard deviation
1. A 45-year-old patient who reports pain in the foot that moves up along the calf says, "My right foot feels like it is on fire." The patient reports that the pain started yesterday, and he or she has no prior history of injury or falls.	50.1%	49.9%	.50	.50
2. Which behavioral therapy is more effective in relieving pain associated with muscle tension and spasm in anxious patients?	36.2%	63.8%	.64	.48
3. The pain management nurse notices a male patient grimacing as he moves from the bed to a chair. The patient tells the nurse that he is not experiencing any pain. What is the nurse's response?	31.4%	68.6%	.69	.46
4. Which of the following is the most recent update in the WHO ladder of pain management?	75.1%	24.9%	.25	.43
5. There are two types of pain: acute and chronic. How long does pain have to remain for it to be considered chronic?	65.0%	35.0%	.35	.47
6. A seven-year-old patient is having severe abdominal pain. What would be the best scale to assess his pain?	29.3%	70.7%	.71	.45
7. Which of the following is the initial analgesic drug of choice for a patient who is in severe pain, with a score of 9 out of 10, due to a fracture?	28.5%	71.5%	.71	.45
8. Cancer pain can be described as acute or chronic. Which type of cancer pain stems from a body organ or muscle?	85.1%	14.9%	.15	.35
9. Pain has been described as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage." Based on this definition, it is obvious that pain is:	45.5%	54.5%	.54	.49
10. Which of the following is the most essential step in providing pain management for an individual?	33.7%	66.3%	.66	.47
11. In which process do peripheral nerves carry the pain message to the dorsal horn of the spinal cord?	39.3%	60.7%	.61	.48
12. When should the nurse assess pain?	62.2%	37.8%	.38	.48
13. A nurse is preparing to administer pain medications to a client. Which statement by the nurse indicates a correct understanding of the guidelines for pain management?	63.5%	36.5%	.37	.48
14. A patient prescribed a nonsteroidal anti-inflammatory drug (NSAID), naproxen, for the treatment of arthritis reports stomach upset. What should the nurse instruct the patient to do?	24.4%	75.6%	.76	.43
15. The nurse is teaching a client who sustained an ankle injury about a cold application. Which instruction should the nurse include in the teaching plan?	47.6%	52.4%	.52	.50
16. A patient is prescribed 4 mg morphine sulfate intravenously for postoperative pain. Which action should the nurse take before administering the medication?	27.0%	73.0%	.73	.44
17. Which expected outcome is best for the patient with a nursing diagnosis of acute pain related to movement postsurgical resection of a ruptured spleen and possible inadequate analgesia?	64.5%	35.5%	.35	.47
18. What is typically the most reliable indicator of pain?	34.4%	65.6%	.66	.47
19. What is the primary reason the nurse incorporates pain assessment as a part of routine care?	80.2%	19.8%	.20	.39
20. A 73-year-old patient admitted after a stroke has expressive aphasia (inability to express words accurately). Which pain intensity scale would be most appropriate to use with this patient?	50.1%	49.9%	.50	.50
I. Patients need to know that the therapeutic effect of tricyclic antidepressant agents may not occur until they have been taking the medication for three weeks.	30.6%	69.4%	.69	.46
II. Care plans must reflect what interventions work for the patient and which ones do not.	16.2%	83.8%	.84	.36
III. Changes in vital signs are reliable in assessing pain severity.	82.3%	17.7%	.18	.38
IV. A placebo can be used in assessing whether the pain is real.	42.2%	57.8%	.58	.49
V. An entry must be made in the nurse's notes each time you give pain medications, with the reason why, the time it was given, and the effectiveness.	2.6%	97.4%	.97	.15
VI. The nurse has to wait for the patient to complain of pain and then administer analgesia if the order is PRN.	89.2%	10.8%	.11	.31
VII. After administering intravenous pain medication, the reassessment of pain is done after one hour.	59.6%	40.4%	.40	.49
VIII. Pain is not influenced by culture and previous experience.	51.4%	48.6%	.49	.50
IX. The nurse's attitude can impact pain management.	14.7%	85.3%	.85	.35
X. Weakness, decreased appetite, weight loss, changes in body posture, sleep pattern disturbance, anxiety, irritability, agitation, or depression may be indicators of chronic pain.	16.5%	83.5%	.84	.37
Total Knowledge Score	45.9%	54.1%	16.22	3.50

Table 3. **Nurses' attitudes toward pain management**

Attitudes toward Pain Management Scale	Strongly disagree	Disagree	Neither	Agree	Strongly agree	Mean	Standard deviation
1. In my opinion, surgical pain is severe pain that needs immediate intervention.	7.2%	3.9%	6.2%	44.2%	38.6%	4.03	1.12
2. A calm patient who complains of moderate pain in the chest tube insertion site should be immediately given pain medication as ordered.	6.2%	13.4%	13.1%	48.3%	19.0%	3.49	1.07
3. I believe that patients who undergo major surgery feel severe pain and need around-the-clock pain medication.	4.9%	7.5%	13.4%	39.6%	34.7%	3.92	1.10
4. I empathize with patients who complain of pain at their postoperative site.	7.2%	5.9%	9.8%	53.5%	23.7%	3.80	1.09
5. I can assess function and activity status in pain assessment with careful questioning.	.0%	10.8%	14.4%	61.2%	13.6%	3.78	.81
6. Frequent high pain scores indicate a patient is exaggerating.	9.5%	20.6%	27.5%	25.7%	16.7%	2.80	1.22
7. I feel irritated with patients who frequently ask for pain medication.	39.1%	40.9%	15.9%	2.8%	1.3%	4.14	.87
8. A patient who is frequently asking for pain medication should just be ignored.	38.3%	43.2%	8.5%	10.0%	0%	4.10	.93
9. I am comfortable assessing pain and giving pain medications as ordered.	8.5%	3.9%	15.7%	42.7%	29.3%	3.80	1.15
10. In my opinion, the best way to calm an aggressive patient who complains of severe pain is to restrain him/her as ordered.	41.6%	20.6%	13.6%	15.9%	8.2%	3.71	1.36
Mean Attitude Score	16.2%	17.0%	14.4%	34.4%	17.9%	3.76	.55

The higher-scoring items also included broader principles, like the importance of care plans reflecting effective interventions (.84), recognizing indicators of chronic pain (.84), the impact of nurses' attitudes on pain management (.85), and the proper documentation of every pain medication administered to patients (.97).

These results highlight significant educational needs around foundational pain management concepts, assessment, and medication administration. Targeted training in these weaker areas could enhance nurses' ability to effectively assess and manage patient pain. Additionally, reinforcing broader pain management principles may further strengthen nurses' overall competence in this critical domain of patient care.

Table 3 presents data on nurses' attitudes toward various aspects of pain management. The responses are measured on a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." Overall, the mean attitude score across all items was 3.76, indicating an average overall positive attitude toward pain management. The higher the mean score, the more positive the attitude of the nurses toward that specific issue or item. However, some items, such as 6, 7, 8, and 10, were stated negatively, so the scores were reversed, and the high score indicated more opposing opinions and attitudes of the nurses to the mentioned issue.

The mean scores for item 7, "I feel irritated with patients who frequently ask for pain medication," and 8, "A patient who frequently asks for pain medication should just be ignored," were 4.14 and 4.10, respectively, suggesting that many nurses oppose these views. Nurses generally believe that surgical and major postoperative pain is severe and requires immediate, around-the-clock intervention (items 1 and 3), with mean scores of 4.03 and 3.92 for these items, respectively.

Nurses also report being comfortable in assessing pain and administering pain medications as ordered, with a mean score of 3.80 for this item. The item "I empathize with patients who complain of pain on their postoperative site" also had a mean score of 3.80, suggesting that nurses are generally empathetic toward patients experiencing postoperative pain.

The item with the lowest mean score (2.80) was item 6, "Frequent high pain scores indicate a patient is exaggerating," suggesting that a high proportion of nurses held this attitude, and they consider frequent high pain scores to be an indication of patient exaggeration and were skeptical of high pain reports. Overall, the results suggest that nurses generally recognize the importance of pain management in their work setting.

Table 4 presents the correlation between nurses' age, experience, knowledge, and attitude toward pain management. The findings revealed a moderate positive correlation (r=.475, p<.001) between nurses' mean knowledge scores and their mean attitude toward pain management. This suggests that nurses with higher levels of knowledge tend to have more positive attitudes toward pain management.

Nurses' knowledge mean scores also had a smaller but significant positive correlation with their age (r=.221, p<.001) and years of experience (r=.260, p<.001), which indicates that older nurses and those with more years of experience tend to have higher levels of knowledge about pain management. As expected, there is a strong positive correlation (r=.815, p<.001) between nurses' age and years of experience, indicating that older nurses tend to have more years of experience.

In summary, the results suggest that nurses' knowledge about pain management is positively associated with their attitudes toward pain management as well as with their age and years of experience. These findings highlight the importance of providing comprehensive pain management education and training to nurses, regardless of their age or years of experience, to promote more positive attitudes and improve patient outcomes.

Table 5 presents the analysis of variance (ANOVA) and post-hoc Scheffé test results to examine the discrepancy in nurs-

Table 4. **Correlation between nurses' age, experience, knowledge, and attitude toward pain management**

Correlations			Mean attitude score	Age (years)	Years of experience
Spearman's rho	Mean knowledge score	Correlation coefficient	.475**	.221**	.260**
		Sig. (two-tailed)	<.001	<.001	<.001
		N	389	389	389
	Mean attitude score	Correlation coefficient	1.000	–.087	–.066
		Sig. (two-tailed)		.088	.196
		N	389	389	389
	Age (years)	Correlation coefficient	–.087	1.000	.815**
		Sig. (two-tailed)	.088		<.001
		N	389	389	389

Note. ** — correlation is significant at the $p<.01$ level (two-tailed).

es' pain management knowledge based on their work department. The ANOVA results show a statistically significant difference in nurses' knowledge scores across different work departments ($F=6.57$, $p<.001$), which indicates that nurses' knowledge about pain management varies significantly depending on the department in which they work.

Renal dialysis unit nurses had significantly higher knowledge scores compared to nurses in the cath lab (mean difference =19.58, $p=.003$), critical care units (mean difference = 18.81, $p=.002$), floors (medical/surgical departments; mean difference =24.78, $p<.001$), and labor and delivery department (mean difference =17.84, $p=.005$). No other statistically significant differences were found between the remaining departments. However, knowledge about pain management was generally higher among nurses who worked in the renal dialysis unit compared to those who worked in all other departments.

This information highlights the need for targeted pain management education and training programs that address nurses' specific needs and challenges in different work settings. Ensuring that all nurses, regardless of their department, have access to comprehensive pain management knowledge can help improve patient care and outcomes.

The results in **Table 6** also showed a statistically significant difference in nurses' mean attitude scores across different work departments ($F=22.05$, $p<.001$), which indicates that nurses' attitudes toward pain management vary depending on the department in which they work.

Nurses working on the floors (medical/surgical departments) had significantly more negative attitudes toward pain management compared to nurses in all other departments: Cath lab (mean difference = –.72, $p<.001$), critical care units (mean difference = –.81, $p<.001$), emergency department (mean difference = –1.11, $p<.001$), labor and delivery (mean difference = –.70, $p<.001$), long-term care unit (mean difference = –1.09, $p=.002$), outpatient clinic (mean difference = –1.06, $p<.001$), pain management unit (mean difference = –1.59, $p<.001$), pediatric ward (mean difference = –.95, $p<.001$), and renal dialysis unit (mean difference = –.64, $p=.048$).

These findings suggest there were significant discrepancies in nurses' attitudes toward pain management based on the department in which they work. Nurses working on the floors (medical/surgical departments) appear to have the most negative attitudes toward pain management. This information highlights the need for targeted interventions to address the specific attitudes and perceptions of nurses in different work settings. By understanding the factors that contribute to these departmental differences, health care organizations can develop tailored training and support programs to promote more positive and consistent attitudes toward pain management across all nursing units.

Discussion

The present research examined the knowledge and attitudes of nurses regarding pain management in selected hospitals in Eastern Saudi Arabia. The results indicate that nurses exhibited inadequate levels of knowledge, achieving an average score of 16.22 out of 30, while their attitudes toward pain management were moderate, with an average score of 3.76 (75.0%). Furthermore, the data revealed that nurses who understood pain management demonstrated a more positive attitude toward addressing patients' pain. This inadequacy in both knowledge and attitude aligns with documented deficiencies in nursing literature.

In concurrence with these findings, a meta-analysis conducted in 2023, which encompassed 10 articles and a total of 1,478 participants, found that nurses possessed acceptable to above-acceptable pain knowledge for acute cases (45.5%) coupled with a positive average attitude (25.7%) [12]. An integrative review of 33 articles published from 2000 to 2019 similarly concluded that nurses exhibited insufficient knowledge and poor attitudes regarding pain management [13]. Likewise, Adams et al. [14] reported that nurses' knowledge and attitudes toward postoperative pain management were subpar, with scores below 70%; specifically, average scores of 59% for knowledge and 52% for attitude were noted. In Saudi Arabia, a study conducted in Al-Medinah revealed that 70% of nurses possessed inadequate knowledge and exhibited poor attitudes, with scores falling below 50% [15]. Additionally, a study in Riyadh that focused on critical care nurses highlighted a widespread lack of knowledge and negative attitudes, with half of the nurses providing correct responses to only 60% of knowledge-based questions and 65% of attitude items [16]. Another recent study in Dammam indicated that despite the presence of an optimal pain management protocol, including a standard tool, 48% of nurses still demonstrated inadequate knowledge [17].

The current study's findings reveal that nurses held particularly negative attitudes when presented with the statement, "Frequent high pain scores indicate a patient is exaggerating." Ap-

Table 5. **Discrepancy in nurses' pain management knowledge based on their work department**

ANOVA Knowledge Score		Sum of squares	df	Mean square	*F*	Sig.
Between Groups		7147.52	9	794.16	6.56	<.001*
Within Groups		45828.71	379	120.92		
Total		52976.23	388			
Scheffe (I) Department		Mean difference (I-J)	Standard error	Sig.	95% confidence interval	
					Lower bound	Upper bound
Renal Dialysis Unit	Cath Lab	19.58	3.88	.003*	3.48	35.67
	Critical Care Unit (bedside ICU, CCU, PICU, NICU, etc.)	18.80	3.67	.002*	3.57	34.03
	Emergency Department	13.43	3.98	.255	−3.05	29.93
	Floor (Medical/ Surgical)	24.78	3.83	<.001*	8.89	40.66
	Labor and Delivery	17.83	3.64	.005*	2.74	32.93
	Long-Term Care Unit	11.66	6.02	.926	−13.26	36.60
	Outpatient Clinic	16.05	3.87	.051	.00	32.11
	Pain Management Unit	15.00	6.02	.719	−9.93	39.93
	Pediatric Ward	13.00	4.11	.355	−4.03	30.03

Note. * — the mean difference is significant at the $p \leqslant .05$ level.

proximately 42% of the nurses agreed with this assertion, while only 30% disagreed. Similarly, research conducted in a tertiary hospital underscored poor attitudes among nurses, who frequently disregarded patients' pain complaints in favor of clinical assessments [16]. Furthermore, a study in Jordan found that 54% of nurses believed patients should endure substantial pain before being administered opioids [18]. The data suggested that the majority of incorrect responses provided by nurses pertained to topics such as pain management timing, the WHO pain ladder, various types of cancer pain, and the relationship between vital signs and pain. These findings indicate a lack of regular and up-to-date training in pain management.

Findings from the current research corroborate previous studies that emphasize the necessity of well-structured training programs to alter nurses' perspectives on pain management. Fekede et al. [19] reported that nurses who underwent pain management training were 2.47 times more likely to belong to the highest category of pain management practices compared to nonparticipants. This finding highlights the critical role of training in enhancing nurses' practices and boosting their confidence in effectively managing pain. Evidence suggests that nurses' knowledge may diminish over time, making continuous in-service training programs vital for improving pain management knowledge and practices [13]. Additionally, any postgraduate education could further enrich nurses' knowledge, keeping them informed about advancements in the field [18].

The results of this study indicate significant variability in nurses' knowledge and attitudes toward pain management based on age, experience, and work department. Notably, older nurses and those with more years of experience tend to possess higher levels of knowledge regarding pain management. This trend may be attributed to the broader exposure to pain management practices and adherence to professional training or hospital protocols experienced by more seasoned nurses. Supporting this finding, some researchers have found that nurses aged 41 to 50 were .86 times more likely to be better informed than their younger counterparts [20], and other studies have corroborated that increased work experience enhances nurses' knowledge [21, 22].

Additionally, the working environment significantly influences nurses' knowledge. The data analysis from the current study reveals that nurses in the renal dialysis unit scored considerably higher in pain management knowledge compared to their counterparts in the catheterization lab, inpatient medical and surgical floors, and maternity departments. Patients with chronic kidney disease or end-stage renal disease frequently experience persistent pain for various reasons, including neuropathy, vascular access complications, and musculoskeletal issues resulting from mineral imbalances. Because these patients undergo dialysis multiple times a week, nurses in this unit develop a profound and repetitive familiarity with pain assessment and management practices. Furthermore, dialysis units are typically structured around strict protocols; pain management is seamlessly integrated into care pathways, ensuring that nurses adhere to evidence-based guidelines rather than relying on ad hoc decisions. The specialized training for nephrology nursing likely encompasses education focused on pain control, reinforcing best practices [23].

In contrast, nurses working on medical and surgical floors displayed significantly more negative attitudes toward pain management compared to their colleagues in other departments. These nurses often balance heavy patient assignments, which leaves little time for comprehensive pain assessments. Over time, this can lead to compassion fatigue, causing pain complaints to be subconsciously dismissed in favor of addressing what are perceived as more urgent medical issues. Moreover, postsurgical pain frequently requires the use of opioids; however, increasing scrutiny regarding addiction risks has made some nurses hesitant to advocate for adequate analgesia. Fear of repercussions or skepticism about patients' pain reports can lead to under-treatment [24]. Unlike nurses in dialysis or other specialized units, those on medical and surgical floors often wait for physician or-

Table 6. **Discrepancy in nurses' pain management attitudes based on their work department**

ANOVA Mean Attitude Score		Sum of squares	df	Mean square	*F*	Sig.
Between Groups		39.99	9	4.44	22.05	<.001*
Within Groups		76.36	379	.20		
Total		116.35	388			
Scheffe (I) Department		Mean difference (I-J)	Standard error	Sig.	95% confidence interval	
					Lower bound	Upper bound
Floor (Medical/ Surgical)	Cath Lab	–.72	.09	<.001*	–1.12	–.32
	Critical Care Unit (bedside ICU, CCU, PICU, NICU, etc.)	–.81	.08	<.001*	–1.15	–.47
	Emergency Department	–1.11	.10	<.001*	–1.54	–.68
	Labor and Delivery	–.70	.07	<.001*	–1.03	–.37
	Long-Term Care Unit	–1.09	.21	.002*	–1.96	–.21
	Outpatient Clinic	–1.06	.09	<.001*	–1.46	–.66
	Pain Management Unit	–1.59	.21	<.001*	–2.46	–.71
	Pediatric Ward	–.95	.11	<.001*	–1.41	–.48
	Renal Dialysis Unit	–.64	.15	.048*	–1.28	.00

Note. * — the mean difference is significant at the $p \leq .05$ level.

ders before administering pain medications. This scenario places them in a difficult position where they witness untreated pain but feel powerless to take action.

Contrary to the findings of the current study, one investigation reported that nurses working in surgical clinics were 1.12 times more likely to possess adequate knowledge compared to those in internal medicine clinics [20]. Additionally, the likelihood of nurses achieving higher levels of pain management practices was found to be 5.648 (95% CI 3.237-9.856) times greater for those administering care to patients undergoing painful interventions compared to the opposing group [19].

Limitations

The limitations of this study are important to note, as the study focused on a few selected private hospitals, which restricts the generalizability of the findings to the broader nursing population. Additionally, the failure to explore cultural influences on nurses' knowledge and attitudes toward pain management introduces another layer of complexity that could significantly affect the study's conclusions.

Conclusions

A considerable minority of nurses reported inadequate training and development in the critical area of pain management, although the data suggest that most have had some exposure to pain management courses. The findings indicate a positive correlation between nurses' knowledge of pain management and their attitudes toward pain treatment, age, and years of experience. This underscores the importance of providing comprehensive pain management education and training to all nurses, regardless of their age or experience, to foster more positive attitudes and improve patient outcomes.

Renal dialysis unit nurses had significantly higher knowledge scores of pain management compared to nurses in other departments. Additionally, the results reveal significant variations in nurses' perspectives on pain management depending on their departmental affiliation. Nurses in the medical and surgical units, in particular, exhibit the most unfavorable attitudes toward pain management.

Recommendations

This study highlights the urgent need for policymakers to prioritize the education and ongoing training of nurses in pain assessment and management while fostering a culture of continuous professional development to enhance knowledge and attitudes in this area. Future research should employ analytical study designs to further investigate the factors that influence nurses' competencies in pain management, emphasizing the need for comprehensive educational initiatives and quality-improvement programs aimed at elevating nursing practice.

Furthermore, enhancing pain management curricula in nursing degree programs and promoting continuous professional development for certified or diploma-holding nurses will contribute to better pain management practices and improved patient care outcomes.

Declarations

Authors' contributions. MAS conceived the research, served as the corresponding author, proofread the manuscript, and submitted the article. SL wrote the original draft of the manuscript. HA conducted the investigation. LSK developed the methodology. NS managed the project administration. SD provided resources for the study. RAA oversaw the research and provid-

ed supervision. SAA validated the study. GIA curated the data. EMGH performed formal analysis. HHA and IAB reviewed and edited the final manuscript. All authors have read the final manuscript and approved it before submission.

Ethical approval and consent to participate. Approval to conduct the study was obtained from the Institutional Review Board of Mohammed Al-Mana College for Medical Sciences in Dammam, Saudi Arabia, before data collection (Ethical approval no. SR/RP/97 in meeting no. 86 on March 16, 2024). Consent forms to participate were granted by all participants. Participants' autonomy and data confidentiality were guaranteed, and all ethical considerations of scientific research were strictly followed in accordance with the Declaration of Helsinki.

Availability of data and materials. All current research data are displayed in the current study.

Conflict of interest. The researchers declare no conflict of interest concerning the current research work.

Funding. The researchers declare they received no financial support to conduct the current research.

REFERENCES

1. Nguyen AT, Dang AK, Nguyen HTT, Nguyen TX, Nguyen TN, Nguyen TTH, Pham T, Nguyen AL, Nguyen TTN, Nguyen Thi H, Nguyen TH, Nguyen SH, Tran BX, Latkin C, Ho RC, Ho CS, Vu HTT. Assessing knowledge and attitudes regarding pain management among nurses working in a geriatric hospital in Vietnam. *Journal of Multidisciplinary Healthcare*. 2021;14:799-807. https://doi.org/10.2147/JMDH.S285044
2. Samarkandi OA. Knowledge and attitudes of nurses toward pain management. *Saudi Journal of Anaesthesia*. 2018;12(2):220-226. https://doi.org/10.4103/sja.SJA_587_17
3. Alharbi AA, Shahin MAH. Low back pain among ICU nurses at a tertiary public hospital in the Qassim region, Saudi Arabia. *Russian Journal of Pain*. 2023;21(4):39-48. https://doi.org/10.17116/pain20232104139
4. Anderson WG, Liao S. Improving pain management for hospitalized medical patients. *An SHM Implementation Guide*. 2018.
5. Salameh B. Nurses' knowledge regarding pain management in high acuity care units: a case study of Palestine. *International Journal of Health Sciences*. 2018;12(3):51.
6. Liyew B, Dejen Tilahun A, Habtie Bayu N. Knowledge and attitude towards pain management among nurses working at University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia. *Pain Research and Management*. 2020;2020(6036575):9. https://doi.org/10.1155/2020/6036575
7. Al-Attar WMA, Sameen FY. Nurse's knowledge and attitudes toward cancer pain management at Baghdad hospitals. *Kufa Journal for Nursing Sciences*. 2015;5(3):1-12.
8. Manwere A, Chipfuwa T, Mukwamba MM, Chironda G. Knowledge and attitudes of registered nurses towards pain management of adult medical patients: a case of Bindura hospital. *Health Science Journal*. 2015;9(4):1-6. https://doi.org/10.4103/sja.SJA_587_17
9. Samarkandi OA. The factors affecting nurses' assessments toward pain management in Saudi Arabia. *Saudi Journal of Anaesthesia*. 2021;15(2):165-173. https://doi.org/10.4103/sja.sja_2_21
10. Dean A, Sullivan K, Soe M. *OpenEpi: Open Source Epidemiologic Statistics for Public Health, Version 2013 (updated 2013/04/06)*. Accessed January 02, 2025. https://www.OpenEpi.com
11. Harris JM Jr, Fulginiti JV, Gordon PR, Elliott TE, Davis BE, Chabal C, Kutob RM. KnowPain-50: a tool for assessing physician pain management education. *Pain Medicine*. 2008;9(5):542-554. https://doi.org/10.1111/j.1526-4637.2007.00398.x
12. McCabe C, Feeney A, Basa M, Eustace-Cook J, McCann M. Nurses knowledge, attitudes and education needs towards acute pain management in hospital settings: a meta-analysis. *Journal of Clinical Nursing* 2023;32(15-16):4325-4336. https://doi.org/10.1111/jocn.16612
13. Achaliwie F, Wakefield AB, Mackintosh-Franklin C. Does education improve nurses' knowledge, attitudes, skills, and practice in relation to pain management? An integrative review. *Pain Management Nursing* 2023;24(3):273-279. https://doi.org/10.1016/j.pmn.2022.12.002
14. Adams SM, Varaei S, Jalalinia F. Nurses' knowledge and attitude towards postoperative pain management in Ghana. *Pain Research and Management*. 2020;2020:4893707. https://doi.org/10.1155/2020/4893707
15. Al-Sayaghi KM, Fadlalmola HA, Aljohani WA, Alenezi AM, Aljohani DT, Aljohani TA, Alsaleh SA, Aljohani KA, Aljohani MS, Alzahrani NS, Alamri AA, Alhousah AH, Khan MF. Nurses' Knowledge and attitudes regarding pain assessment and management in Saudi Arabia. *Healthcare (Basel)*. 2022;10(3):528. https://doi.org/10.3390/healthcare10030528
16. Issa MR, Awajeh AM, Khraisat FS. Knowledge and attitude about pain and pain management among critical care nurses in a tertiary hospital. *Journal of Intensive and Critical Care*. 2017;3(1):12. https://doi.org/10.21767/2471-8505.100071
17. Jamal K, Alameri RA, Alqahtani FM, AlGarni RS, Alamri NA, Elshnawie HA, Badawi SEA, Hussien AM. Knowledge and attitudes of critical care nurses regarding pain management in Saudi Arabia. *Medical Archives*. 2023;77(1):49-55. https://doi.org/10.5455/medarh.2023.77.49-55
18. Khalil H, Mashaqbeh M. Areas of Knowledge Deficit and Misconceptions Regarding pain among Jordanian nurses. *Pain Management Nursing*. 2019;20(6):649-655. https://doi.org/10.1016/j.pmn.2019.02.010
19. Fekede L, Temesgen WA, Gedamu H, Kindie S, Bekele TG, Abebaw A, Baymot A, Difer M. Nurses' pain management practices for admitted patients at the comprehensive specialized hospitals and its associated factors, a multi-center study. *BMC Nursing*. 2023;22(1):366. https://doi.org/10.1186/s12912-023-01528-x
20. Topal Hançer A, Yılmaz M, Yılmaz Eker P. Determination of knowledge and attitudes of nurses about pain management: a cross-sectional study. *Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi*. 2023;6(3):599-607. https://doi.org/10.38108/ouhcd.1228651
21. Bölükbaş N, Şahin B. Knowledge and attitude of nurses about pain management. *ODÜ Tıp Dergisi*. 2021;8(1):1-9. Accessed January 02, 2025. https://dergipark.org.tr/tr/pub/odutip/issue/67801/1062699
22. Ou M, Xu X, Chen Y, Yan Y, Wang K, Zhou L. Factors related to nurses' knowledge and attitudes toward pain in hospitals in low-income areas. *Pain Management Nursing*. 2021;22(3):386-393. https://doi.org/10.1016/j.pmn.2020.06.009
23. Santoro D, Satta E, Messina S, Costantino G, Savica V, Bellinghieri G. Pain in end-stage renal disease: a frequent and neglected clinical problem. *Clinical Nephrology*. 2013;79(Suppl 1):S2-S11. Accessed January 02, 2025. https://www.ncbi.nlm.nih.gov/pubmed/23249527
24. Horn R, Hendrix JM, Kramer J. *Postoperative Pain Control*. 2024 Jan 30. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan–. PMID: 31335018. Accessed April 28, 2025. https://www.ncbi.nlm.nih.gov/pubmed/31335018

Поступила 14.09.25
Received 14.09.2025
Принята к печати 09.12.25
Accepted 09.12.2025