Annals of Clinical and Analytical Medicine

Evaluating Pain Management Skills and Attitudes among the Emergency Nurses in Najran, Saudi Arabia

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Received 13/10/2023; revised 6/11/2023; accepted 27/12/2023

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Abstract

Introduction: Poorly managed pain in emergency departments can lead to various negative consequences, impacting patients, healthcare professionals, and society at large. Nurses' ignorance about managing patients' reported pains is identified as a key contributor to subpar pain management in the emergency department. This study aimed to contribute valuable insights to promote enhanced pain management practices in Najran, Saudi Arabia's emergency departments.

Methods: The study employed a cross-sectional design to investigate nursing attitudes and perspectives on pain management in the emergency department in Najran, Saudi Arabia, focusing on nurses from Najran MOH Hospitals. The research, aiming to address a literature gap, examined variables related to pain management attitudes, barriers, and potential solutions. A convenient sample size of 353 participants was determined, utilizing unique identifiers for streamlined data collection, and SPSS version 26 was employed for analysis, incorporating descriptive and inferential statistics. Ethical considerations, including IRB approval and informed consent, were integral to the study, ensuring participant rights, confidentiality, and ethical data handling.

Results: A total sample of 353 nurses were included with a balanced gender distribution (55.5% female, 44.5% male) and an age concentration in the 26-35 range (51.7%) were observed, contextualizing the distribution of pain management skills. The majority of nurses fell into the low skills category (92.8%), while only a minority (7.2%) demonstrated high skills. The analysis revealed misconceptions among nurses, such as the reliability of vital signs (80.2%), decreased pain sensitivity in children under two (48.4%), and the association of distraction with the absence of severe pain (65.9%). Certain factors showed significant associations with pain management skills, as married nurses, those dealing with both male and female patients, and those with higher educational attainment exhibiting more positive attitudes and advanced knowledge in pain management.

Conclusions: The study reveals a low level of pain management skills among nurses in Saudi Arabia, necessitating training programs for skill enhancement. Significant associations are identified, with married nurses, those handling both genders, and individuals with higher education exhibiting better attitudes and advanced knowledge in pain management, emphasizing the need for nuanced educational interventions to improve patient care outcomes.

Keywords: Pain Management, Nurses, Skills, Knowledge, Attitudes, Saudi Arabia.

Introduction

Pain, characterized as a distressing sensory and emotional experience linked to actual or potential tissue damage, remains a significant barrier to quality healthcare and a primary reason for seeking medical attention [1]. Its intricate nature, varying among individuals with similar injuries or illnesses, underscores the complexity of pain management. In emergency departments worldwide, including Saudi Arabia, pain represents a pervasive issue, contributing substantially to nurses' workload [2]. However, research highlights inadequacies in acute pain management, often attributed to delayed administration and under-treatment of painkillers, with patients prioritized based on their primary disease rather than their reported pain [3, 4]. Poorly managed pain in emergency departments can lead to various negative consequences, impacting patients, healthcare professionals, and society at large [5]. Patients may experience insomnia, anxiety, and unusual behaviors, while suboptimal analgesia increases the risk of complications and longer hospital stays. The societal burden extends to financial and emotional strains on families and the allocation of resources for healthcare costs. Notably, nurses' ignorance about managing patients' reported pains is identified as a key contributor to subpar pain management in the emergency department [6, 7]. To address this challenge, this study aims to assess the perspectives and attitudes of emergency nursing staff in Saudi Arabia regarding pain management. Recognizing the limited existing literature on this topic, the study intends to fill this research gap and provide evidence to understand nurses' perspectives comprehensively. The research objectives include examining current perspectives and attitudes among emergency department nurses, exploring how these influence pain management practices, identifying strategies to positively influence negative attitudes, and recognizing barriers to effective pain management and proposing solutions. By delving into nurses' perspectives, this study aims to contribute valuable insights to promote enhanced pain management practices in Najran, Saudi Arabia's emergency departments.

Methods

The study adopted a cross-sectional design to investigate nursing attitudes and perspectives concerning pain management in the emergency department within the Najran region of Saudi Arabia. The research targeted nurses employed in the emergency department at Najran MOH Hospitals, acknowledging them as the population whose practices the study aimed to explore and contribute valuable insights to. The study variables encompassed nursing attitudes and perspectives related to pain management, identification of barriers hindering effective pain management, and the exploration of potential solutions to enhance pain management practices in emergency departments. These variables were specifically chosen to address the identified gap in the literature concerning nursing attitudes and perspectives in Najran, Saudi Arabia, aiming to improve the implementation of effective solutions.

The sample size was determined through a convenient sampling approach, considering a minimum of 350 participants as necessary based on a previous assessment of knowledge and pain management skills. The researchers utilized a unique identifier for each questionnaire to streamline data collection, subsequently inputting the gathered information into SPSS version 26. Descriptive and inferential statistical techniques were employed for data analysis, involving Pearson's correlation coefficients and confidence intervals to examine potential connections between participants' demographic information and their performance on the knowledge and perceived obstacles exam.

Ethical considerations played a crucial role in the research process. Prior to initiating the study, approval from the Institutional Review Board at the General Directorate of Health Affairs in the Najran region was obtained, ensuring alignment with ethical standards. Informed consent was secured from all participants after presenting the research proposal and consent process. The consent process included a comprehensive explanation of the study's purpose, procedures, and safeguards to protect participants' anonymity, confidentiality, privacy, and overall rights. Participants were assured that their involvement was voluntary, and their decision not to participate would not result in any negative consequences. The study prioritized the ethical handling of data, emphasizing its use solely for the intended research purpose. Participants were provided with written documentation detailing the types of data collected and the measures in place to safeguard their data privacy. Overall, ethical considerations were integral to the study's design and implementation, ensuring the well-being and rights of the participating nurses.

Results

A total of 353 nurses were included in the study. In evaluating the pain management skills, attitudes, and perceived barriers among nurses, the study comprises a fairly balanced gender distribution, with 55.5% being female and 44.5% male. The age distribution reveals a concentration of nurses in the 26-35 age range (51.7%), while those aged >55 constitute the smallest group at 0.7%. Marital status varies, with 37.1% being married and 36.0% single. A significant proportion of the nurses are Saudi nationals (78.5%), and the majority hold a bachelor's degree or equivalent (55.5%). Work experience shows that 51.0% have over 10 years of experience, while 27.2% have ≤ 4 years of experience. There is a notable difference in the number of co-workers, with 60.9% working with more than 10 colleagues. The gender of patients attended by nurses is evenly distributed, with 75.4% encountering both male and female patients. Regarding the workplace, hospitals are predominant (76.9%), followed by health centers (9.2%) and private clinics (7.5%). These trends underscore the diverse demographics and work environments of the nurses, highlighting the importance of tailoring pain management interventions to suit these varied contexts (Table 1). In examining nurses' knowledge and attitudes toward pain management skills, several notable trends emerge from the analysis of the distribution of responses to specific items (Table 2). A substantial majority (80.2%) of nurses incorrectly answer the question that vital signs as always reliable indicators of a patient's pain intensity. Similarly, a significant portion (48.4%) answered incorrectly the question that children under two years of age have decreased pain sensitivity due to an underdeveloped nervous system. Furthermore, a noteworthy number (65.9%) of nurses incorrectly associate the ability to be distracted from pain with the absence of severe pain. Additionally, a substantial majority (67.3%) answered incorrectly the question of patients may sleep despite experiencing severe pain. Misconceptions also extend to the efficacy of nonsteroidal anti-inflammatory agents (NSAIDs), with 70.5% of nurses answered incorrectly the question related to NSAIDs effectiveness for musculoskeletal pain. Despite a correct understanding (65.2%) of the benefits of combining analgesics with different mechanisms for improved pain control, there is a notable misjudgment regarding the duration of analgesia with 1-2 mg morphine IV, with 55.0% providing an incorrect response. Misunderstandings persist in the belief (71.6%) that opioids should not be used in patients with a history of substance abuse and the perception (61.8%) that elderly patients cannot tolerate opioids for pain relief. These findings underscore the importance of targeted educational interventions to rectify misconceptions and enhance nurses' knowledge and attitudes in pain management.

Table 3 also continued to describe the nurses' knowledge and attitudes toward pain management skills. A considerable proportion (66.0%) of nurses holds a misconception about the question that patients should endure as much pain as possible before resorting to opioid use. Similarly, a noteworthy group (58.9%) incorrectly the question that clinicians should rely solely on the parent's assessment for pain intensity in children under 11 years old, as these children cannot reliably report pain themselves. Moreover, a substantial majority (69.3%) of nurses correctly acknowledges that patients' spiritual beliefs may influence their perception of pain and suffering as

necessary. In terms of opioid administration, a significant portion (64.8%) correctly responded to a question about that subsequent doses should not be adjusted based on the individual patient's response after an initial opioid dose. Misconceptions also extend to diagnostic practices, with 66.6% of nurses incorrectly answered the question about injection of sterile water (placebo) as a useful test to determine the authenticity of a patient's pain. Furthermore, a notable number (34.3%) mistakenly answered the question regarding opioids should not be used during the pain evaluation period when the source of pain is unknown, as it may mask the ability to diagnose the cause accurately. In terms of specific drugs, a majority (68.3%) incorrectly responded to the question about anticonvulsant drugs like Carbamazepine provide optimal pain relief after a single dose, while 55.8% mistakenly believe that benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regimen. There is a clear understanding among (67.7%) of nurses regarding narcotic/opioid addiction that characterized by specific behaviors, indicating recognition of its definition as a chronic neurobiological disease. Similarly, a majority (71.0%) correctly identifies the term 'equianalgesia' as referring to approximately equal analgesia in doses of various analgesics. Finally, nurses generally correctly understand the importance of sedation assessment during opioid pain management, with 64.3% said that excessive sedation precedes opioid-induced respiratory depression.

The analysis of correct answers for multiple-choice questions (MCQs) related to nurses' knowledge and attitudes toward pain management skills reveals noteworthy trends in their understanding of specific aspects (Table 4). A majority (58.1%) of nurses correctly identifies the recommended route of administration for opioid analgesics in patients with brief, severe pain of sudden onset, such as trauma or postoperative pain, as intravenous (IV). In terms of dosage equivalency, a minority (32.6%) correctly associates a 50-mg dose of IV pethidine with approximately equivalent doses of Morphine (10 mg IV). Regarding postoperative pain management, a significant proportion (49.1%) of nurses correctly recognizes the timing of initial administration of analgesics. There is a varied understanding of the factors influencing a patient's request for increased doses of pain medication. While 47.3% correctly attribute it to the patient experiencing increased pain, 52.7% consider other factors such as increased anxiety, depression, or requests for more staff attention. In determining the most accurate judge of the intensity of a patient's pain, a substantial number (41.6%) correctly identifies the patient as the most reliable source, as opposed to other healthcare professionals or family members. Cultural considerations in pain management are appropriately acknowledged by a minority (28.7%) of nurses, recognizing the need for individual assessments to determine cultural influences rather than making broad generalizations based on ethnicity or socioeconomic status. Regarding the association between pain and substance abuse, a significant portion (42.6%) correctly perceives the percentage of patients who develop pain already have an alcohol and/or drug abuse problem. Understanding the pharmacokinetics of morphine, 49.6% of nurses correctly identifies the time to peak effect for morphine given IV. When assessing physical dependence following abrupt discontinuation of opioids, only 34.8% of nurses correctly recognizes manifestations such as sweating, yawning, diarrhea, and agitation, indicating a nuanced understanding beyond merely impaired control, compulsive use, and craving. Lastly, in understanding opioid-induced respiratory depression, only 23.8% correctly identifies that obstructive sleep apnea is an important risk factor, illustrating a potential gap in knowledge.

The linear regression model findings offer valuable insights into the predictors influencing nurses' knowledge and attitudes regarding pain management skills. Among the examined predictors, marital status emerges as a significant factor, with married nurses demonstrating a considerable difference compared to their widowed counterparts in their management skills of pain ($p = 0.01$). This suggests that being married is associated with a substantially higher level of knowledge and more positive attitudes regarding pain management skills. Gender of patients with also a significant predictor, as those who deal with only patient had less knowledge than those who deal with both genders ($p=0.002$). Additionally, educational

level stands out as a notable predictor, as nurses with higher educational levels exhibit a significant difference compared to those with lower levels ($p = 0.014$). The risk difference of 1.24 indicates that nurses with higher educational attainment have a more positive attitude and enhanced knowledge regarding pain management skills (Table 5).

Discussion

Evaluating the pain management skills, attitudes, and perceived barriers among nurses, the examination of various demographic and workplace characteristics has provided valuable insights into the factors influencing nurses' knowledge and attitudes regarding pain management. Notably, the analysis of nurses' demographics has revealed diverse representations in terms of gender, age, marital status, nationality, education, and work experience. These demographic nuances are critical to understanding the context in which pain management practices are situated and emphasize the need for tailored interventions. Additionally, the exploration of nurses' responses to specific knowledge and attitude-related items has unveiled both commendable understanding and concerning misconceptions within the nursing cohort.

The identification of these knowledge gaps and misconceptions is pivotal for guiding targeted educational strategies aimed at fortifying nurses' capabilities in providing effective pain management. In this context, the linear regression model further delves into predicting factors that significantly influence nurses' knowledge and attitudes, shedding light on specific aspects such as marital status, educational level, and experience. These findings will be instrumental in guiding future interventions and training programs tailored to address identified gaps and enhance the overall quality of pain management practices among nurses. The observed distribution of pain management skills among nurses, with 92.8% falling into the category of low skills (defined as having less than 60% correct answers) and only 7.2% categorized as having high skills (defined as having 60% or more correct answers), aligns with existing literature highlighting challenges and disparities in pain management competencies among nursing good professionals. Several studies have documented variations in nurses' knowledge and proficiency in pain management. A study by Herr et al. identified gaps in nurses' understanding of pain assessment and management, emphasizing the need for targeted educational interventions [8]. Similarly, Coker et al. reported suboptimal pain management practices

Table (1): Demographic and workplace characteristics of the included nurses

Characteristics	Frequency	Percent (%)
Gender		
Male	157	44.5
Female	196	55.5
Age		
18-25	38	8.5
26-35	231	51.7
36-45	150	33.6
46-55	25	5.6
>55	3	0.7
Marital status		
Single	127	36.0
Married	131	37.1
Separated	80	22.7
Widowed	15	4.2
Nationality		
Saudi	277	78.5
Non-Saudi	76	21.5
Educational level		
Diploma	45	12.7
Bachelor	196	55.5
Master	66	18.7
PhD	18	5.1
Others	28	7.9
Work experience		
1-4	96	27.2
5-10	77	21.8
>10	180	51.0
Number of co-workers		
1-4	138	39.1
>10	215	60.9
Gender of patients		
Male	42	11.9
Female	45	12.7
Both	266	75.4
Type of workplace		
Hospital	266	75.4
Health center	32	9.2
Private clinic	26	7.5
NGOs	13	3.8
Others	9	2.6

among nurses, indicating the existence of knowledge deficits in this critical aspect of patient care [9]. The overwhelming prevalence of low skills in pain management within the current study underscores the urgency of addressing educational gaps and enhancing training programs. Educational interventions have proven effective in improving nurses' pain management knowledge and skills. For instance, a study by Ekim et al. demonstrated the positive impact of an educational intervention on nurses' pain assessment and management practices [10]. Moreover, the limited percentage of nurses categorized as having high skills emphasizes the persistent nature of the challenge. This aligns with findings from a meta-analysis by Grommi et al. (2021), which highlighted the need for continuous professional development to sustain and improve pain management skills among nursing professionals [10]. The current distribution of pain management skills among nurses, with a predominant majority falling into the low skills category, aligns with existing literature emphasizing the need for targeted educational interventions and ongoing professional development. Addressing these knowledge gaps is crucial for ensuring optimal pain management practices and improving patient outcomes in healthcare settings. The findings of our study on pain management skills among nurses reveal a nuanced landscape, reflective of both strengths and weaknesses in their knowledge and attitudes.

Our observation that a substantial majority (80.2%) of nurses incorrectly consider vital signs as consistently reliable indicators of a patient's pain intensity aligns with existing research emphasizing the multifaceted nature of pain assessment [8]. Similarly, the prevalent misconception (48.4%) regarding decreased pain sensitivity in children under two years old echoes findings by Coker et al. [9], indicating a need for enhanced understanding in pediatric pain management. Our study further identified a significant number (65.9%) of nurses associating distraction with the absence of severe pain, resonating with the literature's emphasis on addressing misconceptions in pain management education programs [11]. The misconception that patients may sleep despite experiencing severe pain, observed in 67.3% of nurses, aligns with prior research [12], that underscores the importance of rectifying misunderstandings to improve pain assessment practices. Additionally, our findings regarding the misjudgment (70.5%) of the effectiveness of nonsteroidal anti-inflammatory agents (NSAIDs) for musculoskeletal pain align with literature indicating knowledge gaps related to pain medication efficacy [13]. On a positive note, our study revealed a correct understanding (65.2%) among nurses regarding the benefits of combining analgesics with different mechanisms for improved pain control indicating that nurses recognize the advantages of multimodal approaches in pain management. However, our study also identified a notable misjudgment (55.0%) regarding the duration of analgesia with 1-2 mg morphine IV, suggesting a need for clearer education on opioid pharmacokinetics, as seen in the research by Nikuze et al[14]. Moreover, persistent beliefs (71.6%) that opioids should not be used in patients with a history of substance abuse and the perception (61.8%) that elderly patients cannot tolerate opioids align with existing studies emphasizing biases and misconceptions influencing pain management decisions [15]. Our study's discussion of the findings reveals a dynamic interplay of strengths and weaknesses in nurses' pain management knowledge and attitudes, necessitating targeted educational interventions.

The identified misconceptions underscore the imperative need for ongoing efforts to enhance overall competence in pain management practices among nurses. The findings of our study on nurses' knowledge and attitudes towards pain management reflect a nuanced understanding of various aspects within the broader context of pain assessment and treatment. The observed misconception, with 66.0% of nurses believing that patients should endure as much pain as possible before resorting to opioid use, aligns with existing literature emphasizing the persistence of conservative attitudes towards opioid administration [16]. This highlights the need for targeted educational interventions to address potential barriers to appropriate pain management. Similarly, the substantial number (58.9%) of nurses incorrectly endorsing sole reliance on parent assessment for pain intensity in children under 11 years old resonates with prior studies emphasizing the challenges in pediatric pain assessment [17]. It underscores the necessity of

comprehensive training to ensure accurate pain evaluation in pediatric populations. On a positive note, the significant proportion (69.3%) of nurses acknowledging the influence of patients' spiritual beliefs on their perception of pain and suffering aligns with a growing recognition in the literature regarding the multidimensional nature of pain [18]. This awareness indicates a positive trend towards holistic patient-centered care. In terms of opioid administration, the majority (64.8%) correctly responding to the need for adjusting subsequent doses based on individual patient response aligns with best practices advocated in pain management guidelines [16]. This finding reflects a positive aspect of nurses' understanding in optimizing opioid therapy. However, the observed misconception (66.6%) regarding the injection of sterile water (placebo) as a useful test for determining the authenticity of a patient's pain highlights potential gaps in understanding regarding evidence-based pain assessment practices. Similarly, the notable number (34.3%) of nurses mistakenly believing that opioids should not be used during the pain evaluation period when the source of pain is unknown indicates potential misconceptions in diagnostic considerations. This finding emphasizes the need for ongoing education on the judicious use of opioids in pain management [16].

In terms of specific drugs, the majority's (68.3%) incorrect response regarding anticonvulsant drugs like Carbamazepine providing optimal pain relief after a single dose reflects potential misconceptions in drug efficacy. Likewise, the mistaken belief (55.8%) that benzodiazepines are not effective pain relievers corresponds with existing literature emphasizing the need for clarity in drug selection for pain management [19]. The clear understanding among the majority (67.7%) of nurses regarding the definition of narcotic/opioid addiction as a chronic neurobiological disease aligns with contemporary perspectives on addiction [20]. This indicates a positive trend in recognizing addiction as a complex medical condition rather than a moral failing. The findings from the linear regression model in our study provide valuable insights into the predictors that influence nurses' knowledge and attitudes concerning pain management skills. Marital status emerges as a significant factor, revealing that married nurses exhibit a substantial difference compared to their widowed counterparts in pain management skills ($p = 0.01$). This aligns with existing literature highlighting the potential impact of marital status on healthcare professionals' perspectives and practices, although specific associations with pain management skills may require further exploration [21]. The gender of patients also emerges as a noteworthy predictor, indicating that nurses dealing with both male and female patients have higher knowledge levels compared to those dealing with only one gender ($p = 0.002$). This finding underscores the importance of diverse patient exposure in enhancing nurses' pain management skills, aligning with previous research emphasizing the role of varied clinical experiences in improving healthcare professionals' competence [22]. Educational level stands out as a significant predictor, with nurses holding higher educational degrees demonstrating a substantial difference compared to those with lower levels ($p = 0.014$). This aligns with the existing literature, which consistently emphasizes the positive correlation between higher education levels and enhanced clinical knowledge and skills. The risk difference of 1.24 suggests that nurses with higher educational attainment have more positive attitudes and advanced knowledge regarding pain management skills.

Our study's regression model provides valuable insights into the predictors influencing nurses' knowledge and attitudes related to pain management skills. The significant associations with marital status, patient gender, and educational level underscore the importance of considering these factors in designing targeted interventions to enhance nurses' competence in pain management. The current study demonstrates several strengths in its approach to understanding nurses' knowledge and attitudes toward pain management skills. Firstly, it employs a comprehensive methodology, considering a diverse array of demographic and workplace characteristics among nurses. This inclusivity enhances the study's generalizability, allowing for a broader understanding of the factors influencing pain management skills. The quantitative analysis, particularly the use of a linear regression model, adds a layer of statistical robustness, facilitating the identification of significant predictors and their impact. Moreover, the study's relevance to clinical practice, focusing on a crucial aspect of patient

care, underscores its practical implications for nursing education and training programs. Finally, the alignment of findings with existing literature enriches the study by providing context and contributing to the ongoing discourse on nurses' pain management skills. While the study holds notable strengths, it also faces some limitations. The cross-sectional design restricts the establishment of causal relationships, suggesting the potential benefit of future longitudinal investigations. Reliance on self-reported data introduces the possibility of response bias, as participants may provide socially desirable responses.

Conclusions

The level of pain management skills is low among the studies nurses and there is a need for training programs to improve pain management skills in Saudi Arabia. Certain factors showed significant associations with pain management skills, as married nurses, those dealing with both male and female patients, and those with higher educational attainment exhibiting more positive attitudes and advanced knowledge in pain management. The identified predictors highlight areas for targeted interventions, emphasizing the need for nuanced approaches in nursing education to enhance competence and ensure optimal patient care in the realm of pain management. As we navigate the complexities of healthcare, addressing these findings can foster a more informed and proficient nursing workforce, ultimately benefiting patient outcomes and quality of care.

Conflict of interests

The authors declared no conflict of interests.

References

1. Linton, S.J., Understanding pain for better clinical practice: a psychological perspective. 2005.
2. Woodman, A., et al., Low back pain among healthcare personnel in Saudi Arabia: A systematic review. Ibnosina Journal of Medicine and Biomedical Sciences, 2020. 12(02): p. 108-117.
3. Sampson, F.C., How can the management of pain in adult UK emergency departments be improved?(IMPEDE study). 2018, University of Sheffield.
4. Matthews, E. and C. Malcolm, Nurses' knowledge and attitudes in pain management practice. British Journal of Nursing, 2007. 16(3): p. 174-179.
5. Hoot, N.R. and D. Aronsky, Systematic review of emergency department crowding: causes, effects, and solutions. Annals of emergency medicine, 2008. 52(2): p. 126-136. e1.
6. King, L.K., Emergency Medical Services Providers' Perceptions of Nursing Homes, Assisted Living Facilities, and Older Adult Patients. 2018: University of Maryland, Baltimore County.
7. Gorawara-Bhat, R., et al., Nurses' perceptions of pain management for older-patients in the Emergency Department: A qualitative study. Patient Education and Counseling, 2017. 100(2): p. 231-241.
8. Herr, K., et al., Evidence-based assessment of acute pain in older adults: current nursing practices and perceived barriers. The Clinical journal of pain, 2004. 20(5): p. 331-340.
9. Coker, E., et al., Nurses' perceived barriers to optimal pain management in older adults on acute medical units. Applied Nursing Research, 2010. 23(3): p. 139-146.
10. Ekim, A. and A.F. Ocakcı, Knowledge and attitudes regarding pain management of pediatric nurses in Turkey. Pain Management Nursing, 2013. 14(4): p. e262-e267.
11. Parvizy, S., et al., The effect of pain management training in workshop on the knowledge, attitude and self-efficacy of pediatric nurses. Journal of family medicine and primary care, 2020. 9(6): p. 2880.
12. Germossa, G.N., Reorganising In-hospital Pain Management: Evaluation of a Novel Nurse-Based Pain Management Programme in an Ethiopian University Medical Centre. 2023.
13. Stein, C.M., et al., Educational program for nursing home physicians and staff to reduce use of non-steroidal anti-inflammatory drugs among nursing home residents: a randomized controlled trial. Medical care, 2001: p. 436-445.
14. Nikuze, B., Nurses' knowledge, attitudes and practices towards cancer pain management in

University Teaching Hospital of Kigali. 2017, University of Rwanda.

15. Craig, J.A., Nursing knowledge and attitudes toward pain management. 2014: Gardner-Webb University.

16. Dowell, D., T.M. Haegerich, and R. Chou, CDC guideline for prescribing opioids for chronic pain—United States, 2016. Jama, 2016. 315(15): p. 1624-1645.

17. Friedel, M., et al., Instruments to measure outcomes in pediatric palliative care: a systematic review. Pediatrics, 2019. 143(1).

18. Puchalski, C.M., et al., Improving the spiritual dimension of whole person care: reaching national and international consensus. Journal of palliative medicine, 2014. 17(6): p. 642-656.

19. Kongkaew, C., P.R. Noyce, and D.M. Ashcroft, Hospital admissions associated with adverse drug reactions: a systematic review of prospective observational studies. Annals of Pharmacotherapy, 2008. 42(7-8): p. 1017-1025.

20. Volkow, N.D., G.F. Koob, and A.T. McLellan, Neurobiologic advances from the brain disease model of addiction. New England Journal of Medicine, 2016. 374(4): p. 363-371.

21. Ghadirian, F., M. Salsali, and M.A. Cheraghi, Nursing professionalism: An evolutionary concept analysis. Iranian journal of nursing and midwifery research, 2014. 19(1): p. 1.

22. Kaddoura, M.A., New graduate nurses' perceptions of the effects of clinical simulation on their critical thinking, learning, and confidence. The Journal of Continuing Education in Nursing, 2010. 41(11): p. 506-516.

Table (2): Distribution of the items related to knowledge and attitudes of nurses towards pain management skills

Items	Frequency	Percent (%)
Pain management skills among nurses		
Low skills (<60% correct answers)	320	92.8
High skills (≥ 60% correct answers)	25	7.2
1. Vital signs are always reliable indicators of the intensity of a patient's pain		
Correct answer	70	19.8
Incorrect answer	283	80.2
2. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences		
Correct answer	182	51.6
Incorrect answer	171	48.4
3. Patients who can be distracted from pain usually do not have severe pain.		
Correct answer	120	34.1
Incorrect answer	232	65.9
4. Patients may sleep in spite of severe pain		
Correct answer	115	32.7
Incorrect answer	237	67.3
5. Aspirin and other Nonsteroidal anti-inflammatory agents are Not effective analgesics for musculoskeletal pain		
Correct answer	104	29.5
Incorrect answer	249	70.5
6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months		
Correct answer	201	57.3
Incorrect answer	150	42.7
7. Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent.		
Correct answer	230	65.2
Incorrect answer	123	34.8
8. The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.		
Correct answer	159	45.0
Incorrect answer	194	55.0
9. Opioids should not be used in patients with a history of substance abuse.		
Correct answer	100	28.4
Incorrect answer	252	71.6
10. Elderly patients cannot tolerate opioids for pain relief		
Correct answer	135	38.2
Incorrect answer	218	61.8

Table (3): Distribution of the items related to knowledge and attitudes of nurses towards pain management skills

Items	Frequency	Percent (%)
11. Patients should be encouraged to endure as much pain as possible before using an opioid		
Correct answer	120	34.0
Incorrect answer	233	66.0
12. Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity		
Correct answer	145	41.1
Incorrect answer	208	58.9
13. Patients' spiritual beliefs may lead them to think pain and suffering are necessary.		
Correct answer	244	69.3
Incorrect answer	108	30.7
14. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.		
Correct answer	228	64.8
Incorrect answer	124	35.2
15. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.		
Correct answer	118	33.4
Incorrect answer	235	66.6
16. If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.		
Correct answer	232	65.7
Incorrect answer	121	34.3
17. Anticonvulsant drugs such as Carbamazepine produce optimal pain relief after a single dose		
Correct answer	112	31.7
Incorrect answer	241	68.3
18. Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment.		
Correct answer	156	44.2
Incorrect answer	197	55.8
19. Narcotic/opioid addiction is defined as a chronic neurobiological disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving		
Correct answer	239	67.7
Incorrect answer	114	32.3
20. The term 'equianalgesia' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief.		
Correct answer	250	71.0
Incorrect answer	102	29.0
21. Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.		
Correct answer	227	64.3
Incorrect answer	126	35.7

Table (4): Distribution of the items related to knowledge and attitudes of nurses towards pain management skills (MCQs questions)

Items	Frequency	Percent (%)
22_The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is: a. intravenous b. intramuscular c. subcutaneous d. oral e. rectal		
Correct answer	205	58.1
Incorrect answer	148	41.9
23. A 50-mg dose of IV pethidine is approximately equivalent to: a. Morphine 5 mg IV b. Morphine 10 mg IV c. Morphine 30 mg IV d. Morphine 60 mg IV		
Correct answer	115	32.6
Incorrect answer	238	67.4
24. Analgesics for postoperative pain should initially be given: a. around the clock on a fixed schedule b. only when the patient asks for the medication c. only when the nurse determines that the patient has moderate or greater discomfort		
Correct answer	173	49.1
Incorrect answer	179	50.9
25. The most likely reason a patient with pain would request increased doses of pain medication is: a. The patient is experiencing increased pain. b. The patient is experiencing increased anxiety or depression. c. The patient is requesting more staff attention. d. The patient's requests are related to addiction.		
Correct answer	167	47.3
Incorrect answer	186	52.7
26. The most accurate judge of the intensity of the patient's pain is: a. the treating physician b. the patient's primary nurse c. the patient d. the pharmacist e. the patient's spouse or family		
Correct answer	147	41.6
Incorrect answer	206	58.4

27. Which of the following describes the best approach for cultural considerations in caring for patients in pain? a. There are no cultural influences in Saudi Arabia due to similarity of the population. b. Cultural influences can be determined by an individual's ethnicity (e.g., Tigre are tolerant, Tigrigna are expressive, etc). c. Patients should be individually assessed to determine cultural influences. d. Cultural influences can be determined by an individual's socioeconomic status (e.g., rich individuals report more pain than poor individuals).		
Correct answer	101	28.7
Incorrect answer	251	71.3
28. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem? a. < 1% b. 5 – 15% c. 25 - 50% d. 75 - 100		
Correct answer	150	42.6
Incorrect answer	202	57.4
29. The time to peak effect for morphine given IV is: a. 15 min. b. 45 min. c. 1 hour d. 2 hours		
Correct answer	175	49.6
Incorrect answer	178	50.4
30. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following: a. sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued. b. Impaired control over drug use, compulsive use, and craving. c. The need for higher doses to achieve the same effect. d. a and b		
Correct answer	123	34.8
Incorrect answer	230	65.2
31. Which statement is true regarding opioid induced respiratory depression: a. More common several nights after surgery due to accumulation of opioid. b. Obstructive sleep apnea is an important risk factor. c. Occurs more frequently in those already on higher doses of opioids before surgery. d. Can be easily assessed using intermittent pulse oximetry.		
Correct answer	84	23.8
Incorrect answer	269	76.2

Table (5): Findings of linear regression model for predictors of knowledge and attitudes regarding pain management skills among nurses

Predictors	Categories	Reference group	P value	Risk difference	Lower limit (95% C.I)	Upper limit (95% C.I)
Gender	Male	Female	0.319	0.73	0.39	1.36
Marital status	Single	Widow	0.101	3.73	0.78	17.94
	Married	Widow	0.01*	7.48	1.61	34.79
	Separated	Widow	0.418	1.91	0.40	9.22
Nationality	Saudi	Non-Saudi	0.445	0.77	0.39	1.52
Gender of patients	Male	Both	0.834	0.90	0.35	2.31
	Female	Both	0.022*	0.31	0.11	0.85
Workplace	Hospital	Other work places	0.162	3.42	0.61	19.23
	Health center	Other work places	0.879	1.17	0.16	8.60
	Private clinic	Other work places	0.554	1.87	0.23	14.94
	NGOs	Other work places	0.821	1.31	0.13	13.17
Age	Younger age group	Older age group	0.889	1.00	0.96	1.04
Educational level	Lower level	Upper level	0.014*	1.24	0.93	1.65
Experience	Lower experience	Higher experience	0.055	0.67	0.45	1.01
Co-workers	Low number	High number	0.930	0.98	0.69	1.40
Weekly patients' number	Low number	High number	0.987	1.00	0.99	1.01


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